زانکۆی هەولێری پزیشکی

جامعة هَولير الطبية

HAWLER MEDICAL UNIVERSITY

كۆلێژی پزیشكی

The First Scientific Conference of the College of Medicine - Hawler Medical University

Thursday and Friday, 22nd – 23rd of December 2016

Divan Hotel, Erbil - Kurdistan, Iraq

Sponsored by:

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"To Promote Medical and Academic Standards in Kurdistan-Iraq"

The First Scientific Conference of the College of Medicine/Hawler Medical University

Under the patronage of the HMU president

"To Promote Medical and Academic Standards in Kurdistan-Iraq"

On Thursday and Friday, 22nd– 23rdDecember, 2016

At Divan Hotel, Erbil

Contents:

1. Scientific research
2. Scientific research of medical students
3. Mental health development in Kurdistan Region
4. Medical curriculum development
5. Other related subjects

Registration:

Will be in the coference room

College of Medicine

Hawler Medical University

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Registration fee: 25000 IQD

Under the patronage of the president of

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College of Medicine will hold a scientific conference entitled "To promote Medical and academic standards in Kurdistan-Iraq"

On Thursday and Friday 22 – 23/12/2016

In Erbil

Submission of the abstracts:

It is open from 1/11/2016 till 21/11/2016

Abstract should not be more than 250 words, and formatted as "Background and objectives, Methods, Results, Conclusions"

It should be submitted directly to the scientific committee of the conference at the college of medicine as hard copy and send to the following email as soft copy with the full information of the author (s); full name, academic degree, scientific degree, affiliation and emails.

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(Background and Objectives, Methods, Results, Conclusions)

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Opening speech of college's conference (Dean's speech)

Your Excellencies representative of the Minister of Higher Education, representative of the Minister of Health, deans, distinguished guests, ladies and gentlemen.
Good Morning
It is a great honor for me to welcome you all to Divan Hawler on behalf of the organizers of the first scientific conference of the college of medicine/HMU. Under the title of "To promote Medical and Academic standards in Kurdistan-Iraq"
To begin with, this conference is held under the kind patronage of the president of HMU, Ass. Prof DaraMiran, whose distinguished experience and generosity are incomparable. I thus take the opportunity to thank him for being the leading supporter of this conference.
I would like to express my most sincere gratitude for your presence in this opening ceremony as the gateway to the initiation to our scientific program that we wish to be confrontation of knowledge and the encounter of wisdom. After all, as the great American physician Charles H. Mayo said a long time ago "the safest thing for a patient is to be in the hands of a man engaged in teaching medicine. In order to be a teacher of medicine the doctor must always be a student". This should be the spirit of a good scientist: to be a permanent student of science; because in science the absolute truths of today are always relative truths of tomorrow.
40 years ago in 1976 the establishment of 3 new medical colleges was decided by the Iraqi authorities one of these was this college, which turned out to be very unique one; it has been part of 3 universities, first University of Sulaymaniah, then when the university was relocated to Erbil to University of Salahaddin and since 2005 it has become the jewel of Hawler medical university.
The next academic year 2017-2018 will be our 40th academic year, and yet this is our first scientific conference! And the reasons are not very difficult to comprehend, first it was because of the Baath regimen in the 80's, then the economic blockade and other difficult situations in the 90's, and from 2005 onward and as a support to the HMU,the college has participated in the scientific conferences held by the university in the last years.
It is gratifying to note that the agenda of the conference covers a wide range of very interesting items relating to different aspects of basic sciences, health, medicine and medical education.
The college's vision is to be a national leader in providing excellent medical education, health care and research and we have started over the last few years to change the way we provide education to our students because if we teach today's students the way we taught yesterday's, we rob them of tomorrow. We are not changing because the rest of the world are changing or it is the trend nowadays, not because ECFMG will not recognize any medical school that not accredited by 2023 but because we believe that is right thing to do. We changed our curriculum to an outcome based integrated spiral curriculum, with the introduction of core clinical problems in clinical phase so that our graduates can cope with health problems from day one. Skills labs with about 30 procedural mandatory skills were introduced throughout the study years, we changed our teaching methods and more and more small group sessions are delivered instead of the classical lectures.
These developments would never had happened if it wasn't for wonderful group of people that never stopped doing their job in teaching and planning regardless of ISIS and economic crises. I salute the teaching staff of the college of medicine and I'm very proud

that I represent them here. Thank you very much my colleagues and we should not forget helping hand that we get from the administrative staff and my special thanks goes to them as well. Our gratitude to, and our prayers for our brave Peshmergas who are sacrificing their lives to protect and defend our gracious Kurdistan from evil.
But we are not yet there and perhaps we will never be but one thing that I'm sure of is that we will never stop developing in spite of all the obstacles and hard times that lie ahead, and there always be light at the end of the tunnel.
This afternoon's workshop will be devoted to few compelling issues in our curriculum that needs some urgent answers and work. Medical professionalism forms the basis of the contract between doctors and society and thus it is imperative that professionalism is incorporated into the undergraduate curriculum. In an analogy of human body if learning the scientific foundation of medical sciences is like acquiring a "head", acquisition of psychomotor skills represents the "hand" and learning of professionalism and medical ethics is like acquiring a "heart". Therefore, medical ethics is at the "heart" of medical practice and this fact needs to be stressed repeatedly to medical students and we aim in today's workshop to find the best ways to approach professionalism and Medical ethics in our curriculum.

Both WFME BMES, and NCAMC stress on that medical schools should allow optional (elective) content and define the balance between the core and optional content as part of the educational program and the aims are to enhance the student experience and inform future career choices by offering the opportunity to study in greater depth, particular areas of interest. This will be discussed as well in today's workshop.
Hippocrates said "a wise man ought to realize that health is his most valuable possessions" The issue of mental health and illnesses have a significant societal dimension. Efforts towards ensuring that the population is in good mental health must be a result of dynamic and mutually complementary collaboration among all parties involved. Much attention must be paid to prevention of mental disorders in all age and risk groups. In the field of healthcare, it is absolutely essential that we focus on the quality of psychiatric care, that's why we devoted a good part of the conference's time to this important subject.
As you would appreciate, it takes a lot of effort to put these conferences together, and it cannot be done without the devoted work of committees and sponsors. I would like to thank members of the scientific and organizing committees specially Prof. Sirwan, Ass. Pro Hawre and Kamaran and as a sponsor I'd like to take a special mention of our sole sponsor- Al Hikma, we greatly appreciate their support for the conference and other scientific activities in Kurdistan and Iraq.
So once again welcome to our conference and may it be enjoyable and constructive for all of you.
Thank you very much

Conference Proceeding

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Safe line anatomy teaching in College of Medicine,

Hawler Medical University

Suhail M. Najjar[1], Samir M. Othman[2], Yassin Ahmad Asaad[2], Sabah J. Sharif[3]

[1-] Department of Anatomy, College of Medicine, Hawler Medical University, Erbil - Iraq
[2-] Department of Community Medicine, College of Medicine, Hawler Medical University - Iraq
3- Department of Surgery, College of Medicine, Hawler Medical University - Iraq

Abstract:

Background and objectives: Anatomy is the bedrock of medicine and now has also evolved as a specialized area of science that can stand on its own and not just an appendage of a medical school for the training of medical students. The overall aim of this study was to determine the students' and graduate doctors' views on the relevance of anatomy teaching and find out the minimal safe core curriculum for anatomy to be taught to undergraduate students.

Methods: A cross-sectional study was conducted at College of Medicine, Hawler Medical University from the period of 1st June 2016 to 15th September 2017. A convenient sample of 220 respondents participated in the study, which included 180 undergraduate medical students from second and third years and 40 doctors. A self-administered questionnaire was used for data collection and the collected data was analyzed using SPSS software.

Results: Almost all (95.6%) the students and about 60% of the doctors were significantly satisfied with studying anatomy in the medical curriculum. More than half (55.6%) of the students and 35% of the doctors preferred studying anatomy in an integrated system and more than half of the doctors preferred both integrated and regional systems, in addition to clinical anatomy courses. Nearly 70% of the doctors and 44.4% of the students preferred all system or regions of the body that should be concentrated on more in teaching the anatomy; also, 90% of the doctors and 75.6% of the students preferred small group teaching and 90% of the doctors and about 81% of the students preferred cadaveric dissection in practical sessions with more students involvement. While 96.7% of the students and 100% of the doctors stated that it is necessary for anatomy lecturer to have a clinical background.

Conclusion: Majority of the participants were satisfied with the current anatomy curriculum, preferred more system- based integration with more small group teaching and students involvment in cadaveric dissection.

Introduction:

Anatomy is the bedrock of medicine and now has also evolved as a specialized area of science that can stand on its own and not just an appendage of a medical school for the training of medical students. [1] Anatomy in undergraduate education has been in decline for many years. Some suggest that it has fallen below a safe level.[2] Balances between detail and safety and assimilation and application of anatomy have yet to be established as the methods of teaching undergo another metamorphosis.[2,3] For doctors, the human body is the core focus of investigation and intervention on a daily basis; for this reason, the study of anatomy in some form will continue to be essential to safe medical practice.[4] It is necessary for core knowledge of anatomy to be assimilated by all doctors in order to practice and communicate safely. [5, 6] It may be true that most doctors do not need to dissect a cadaver or study a pro section in order to practice, but if it can improve their understanding of what they do and why they do it, this surely has to be of benefit both to the safety of the patient and satisfaction of the doctor as a professional. [5, 6] It becomes imperative for medical schools to re-evaluate their own curriculum in terms of what the students need to learn.[1]

Integration of newer teaching modalities and modern technology will encourage interest and retention of anatomical knowledge and its clinical relevance, also; anatomy has a promising future in postgraduate specialist and surgical training.[6-8]

Simply covering anatomy sessions with didactic lectures followed by dissection may fail to produce long-lasting understanding of the subject and the students are also unable to appreciate the importance of clinical anatomy integrated within various medical disciplines, accordingly medical schools should look at restructuring medical curriculum with an anatomy resource center which can have a key influence on self-directed learning, so that a student must achieve sufficient knowledge, skill and attitude.[9] Non planned changes in the anatomy study also observed in the UK, the condition stated un urgent co-working to save what can be possible to a create strong and safe anatomy as the main entering door to medical faculty.[10]As Anatomy curriculum is undergoing international reformation but the current framework lacks uniformity among various institutions in different parts of the world and due to the importance of this topic in the curriculum of undergraduate students in our college and recent upgrading of curriculum modules, in addition to lack of valid data on this important subject at local or national level, gave an impetus to address this topic to provide more baseline data on this subject and to provide a safe guide to curriculum

development committee at the college level, to best address this topic in the future. The overall aim of this study is to determine the students' and the doctors' views on the relevance of anatomy teaching and find out the minimal safe core curriculum for anatomy to be taught to undergraduate students of the College of Medicine, Hawler Medical University.

Methods:

This cross-sectional study was conducted at College of Medicine, Hawler Medical University and affiliated teaching hospitals from the period of 1st June 2016 to 15th September 2017. A convenient sample of 220 respondents participated in the study, which included 180 undergraduate medical students from second and third years and 40 doctors from different specialities including faculty staff affiliated to teaching hospitals in Erbil city.

A self-administered structured questionnaire was used for data collection. The questionnaire was prepared based on the review of the books, journals, and similar published articles. It included different sections; as certain demographic characteristics, questions on respondent`s opinion and satisfaction about anatomy sessions, how to be delivered to the students through theoretical and practical sessions, at which stage and which leaning program should be included such as small group teaching with cadaveric dissection. To test the validity of the questionnaire, a pilot study was done on ten students and doctors revealed that it was clear and understandable and respondents had no difficulty in answering the questions.

A verbal consent was obtained from the doctors and the students before being included in the study. Participation was voluntary and the data was collected by self-administered questionnaire. Participants were provided with an explanation about the objective of the study and were assured of privacy of the study too. The study protocol was approved by the research ethics committee of College of Medicine-Hawler medical university.

The collected data was entered into excel sheet, then filtered and transferred into (SPSS version 20) for further analysis. The descriptive approach was used to determine frequencies and percentages. Chi-square test used to find out the association between categorical variables. P value ≤ 0.05 considered as statistically significant.

Results:

Regarding satisfaction on studying anatomy in the medical curriculum; 95.6% of students and 60% of doctors were significantly (P= 0.001) satisfied with it and all (100%) participants stated that studying anatomy was necessary for medical students. On the other hand, 18.9% of the students showed that the suitable time to study anatomy should be in 1st, 2nd &3rd years, followed by 2nd and 1st years (15.6% and 14.4%, respectively) and about 33% of doctors stated that anatomy should be studied in 1st and 2nd years, with significant statistical difference (P= 0.001), Table 1.

Table 1: Perception of participants regarding different aspects of anatomy teaching

Variables	Students (N=180)		Doctors (N=40)		P value
	No.	(%)	No.	(%)	
Are you satisfied with your anatomy study in medical curriculum?					
Yes	172	(95.6)	24	(60.0)	0.001
No	8	(4.4)	16	(40.0)	
Is studying anatomy is necessary for medical students?					
Yes	180	(100)	40	(100.0)	1.0*
No	0	(0.0)	0	(0.0)	
In which academic year (stage) anatomy should be studied?					
1st	26	(14.4)	6	(7.5)	
2nd	28	(15.6)	4	(5.0)	
3rd	12	(6.7)	0	(0.0)	
4th	4	(2.2)	0	(0.0)	0.001*
1st & 2nd	10	(5.6)	22	(32.5)	
1st, 2nd &3rd	34	(18.9)	4	(5.0)	
2nd &3rd	26	(14.4)	0.0	(0.0)	
4th &5th	14	(7.8)	2	(2.5)	
All the stages	26	(14.4)	2	(2.5)	

*: Fischer exact test

The current study revealed that more than half (55.6%) of the students and 35% of the doctors preferred studying anatomy in an integrated system. On the other hand more than half of the doctors stated that anatomy should be studied by both integrated and regional systems, Figure 1.

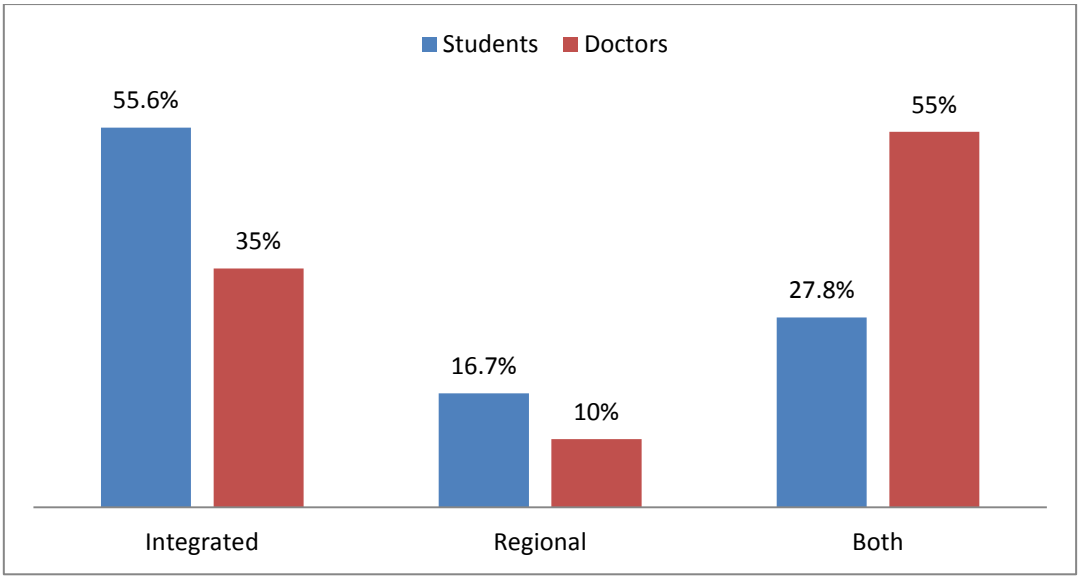

Figure 1: Preferred learning program implementation by the students and the doctors

This study also revealed that about 59% of the students preferred to study full anatomy course, while 60% the doctors preferred to study only clinical anatomy course, Figure 2.

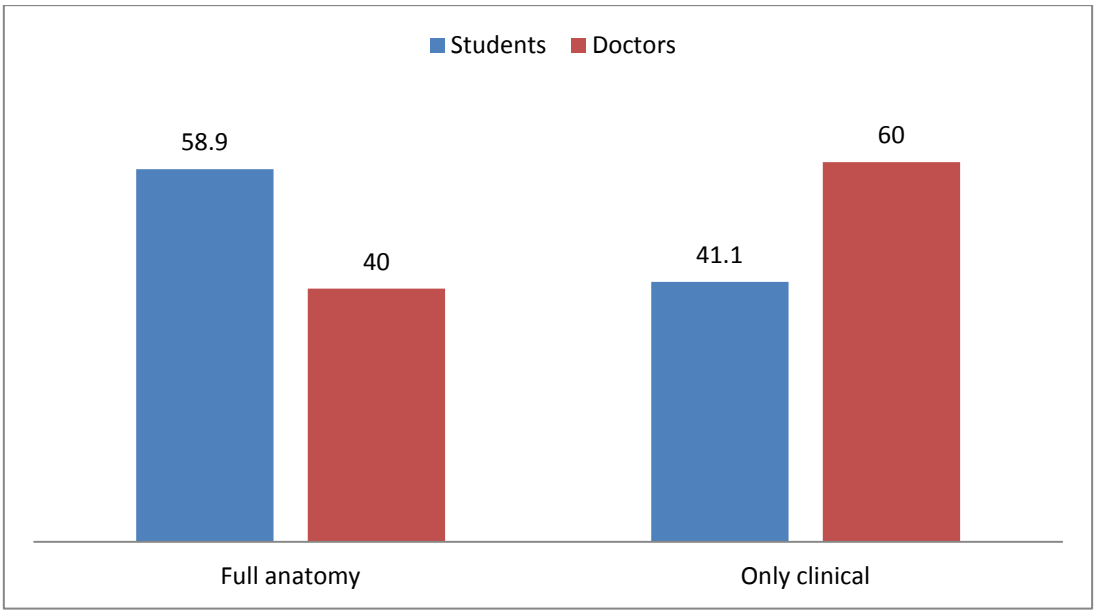

Figure 2: Preferred anatomy course by the students and the doctors

All (100%) the doctors and majority (91.1%) of students agreed to have both theoretical and practical session in anatomy teaching, Figure 3.

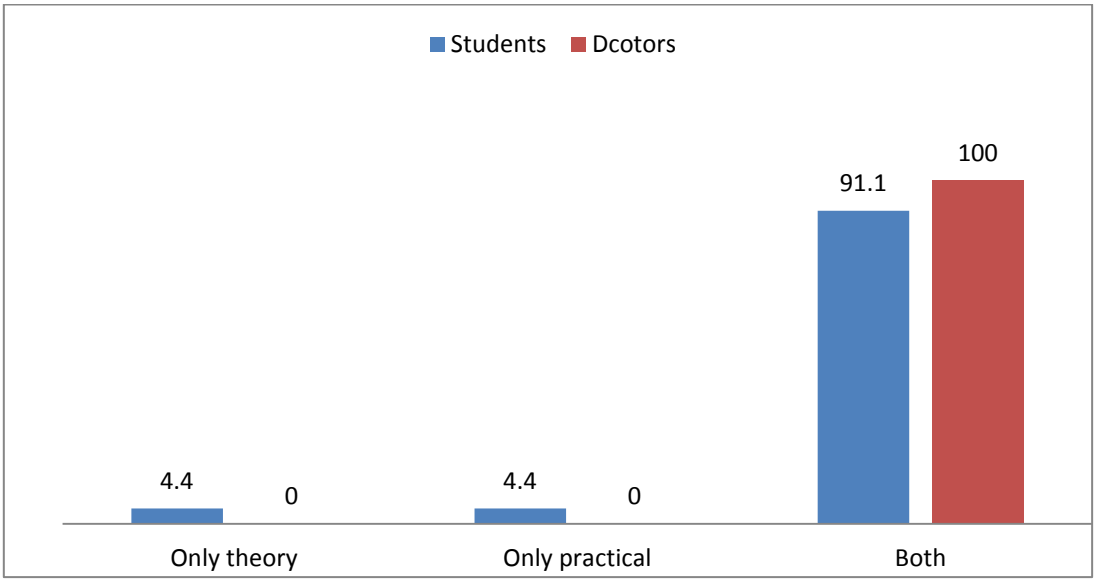

Figure 3: Preferred anatomy teaching sessions by the students and the doctors

In this study, 70% of the doctors and 44.4% of the students preferred all system or regions of the body that should be concentrated on more in teaching the anatomy sessions, Table 2.

Table 2: Preferred systems or regions of the body to be concentrated on during anatomy teaching

Variables		No.	(%)
Students	All	80	(44.4)
	Head and Neck	2	(1.1)
	Nervous system	22	(12.2)
	Chest	4	(1.1)
	Cardiovascular system	12	(6.7)
	Gastrointestinal system	12	(12.2)
	Musculoskeletal system	6	(3.3)
	None	6	(3.3)
	Nervous system and Gastro intestinal system	8	(4.4)
	Nervous system and Cardiovascular system	20	(11.1)
	Total	**180**	(**100.0**)
Doctors	All	28	(70.0)
	Nervous system	4	(10.0)
	Gastro- intestinal system	4	(10.0)
	Abdomen, chest and Muscul- skeletal system	4	(10.0)
	Total	**40**	(**100.0**)

Regarding preferred anatomy system or region to be studied by short notes, about 31% of the students and 25% of the doctors stated that none of the regions or systems should be studied by short notes, Table3.

Table 3: Preferred system or region of the body to be studied by short notes

Variables		**No.**	**(%)**
	None	56	(31.1)
	Head and neck	8	(4.4)
	Nervous system	14	(7.8)
	Chest	20	(11.1)
	Gastrointestinal system	6	(3.3)
	Urinary system	2	(1.1)
Students	Endocrine	20	(11.1)
	Musculoskeletal system	28	(15.6)
	Limbs	2	(1.1)
	All	14	(7.8)
	Organs	2	(1.1)
	Lymphatic	8	(4.4)
	Total	**180**	(**100.0**)
	None	10	(25.0)
	Nervous system	4	(10.0)
	Chest	2	(5.0)
Doctors	Gastrointestinal system	2	(5.0)
	Urinary system	6	(15.0)
	Muscluoskeletal system	6	(15.0)
	Limbs	2	(5.0)
	All	6	(15.0)
	Organs	2	(5.0)
	Total	**40**	(**100.0**)

This study revealed that 90% of the doctors and 75.6% of the students preferred small group teaching in anatomy, Figure 4.

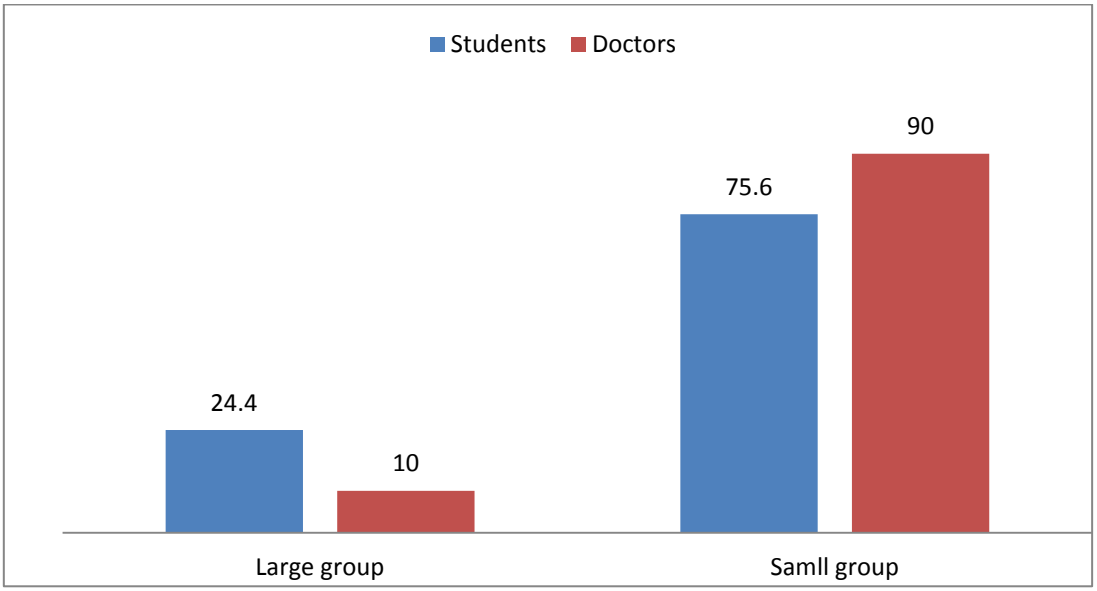

Figure 4: Preferred group theory teaching by the students and the doctors

Regarding implementation of practical sessions, 90% of the doctors and about 81% of the students preferred cadavers, Figure 5.

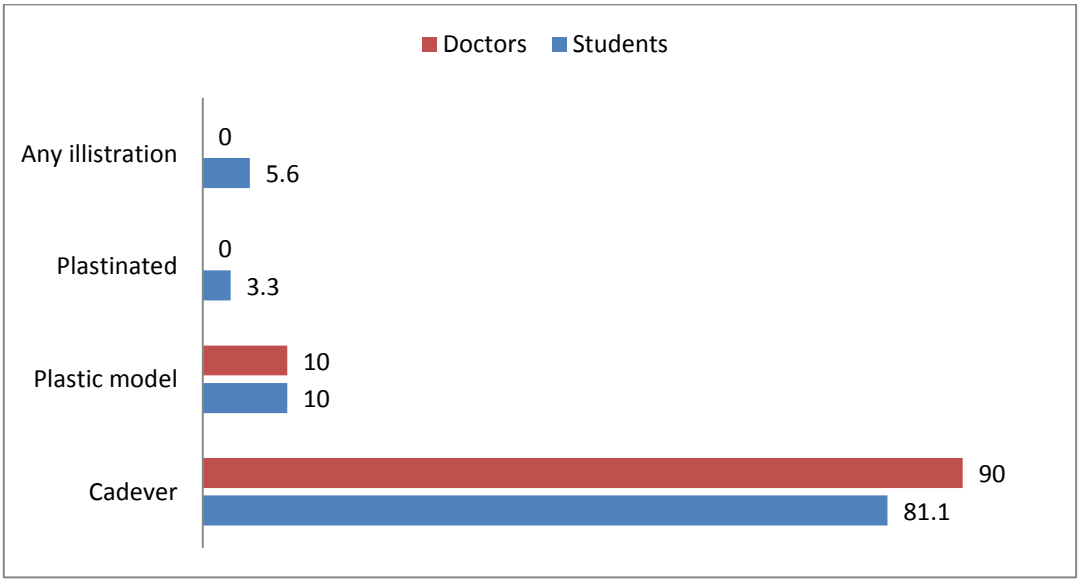

Figure 5: Preferred practical sessions to implementation by the students and the doctors

Also, the study showed that about 84% of the students and 75% the of doctors preferred students involvement in dissection. On another hand, 96.7% of the students and 100% of the doctors stated that it is necessary for anatomy lecturer to have a clinical background. Details of other statements are illustrated in Table 4.

Table 4: Response of participants to certain questions regarding anatomy

Statements	Students		Doctors		P value
	No.	(%)	No.	(%)	
Is it necessary for students to be involved in dissection?					
Yes	152	(84.4)	30	(75.0)	**0.152**
No	28	(15.6)	10	(25.0)	
Is it necessary for anatomy lecturer to have a clinical background?					
Yes	174	(96.7)	40	(100.0)	**0.594***
No	6	(3.3)	0	(0.0)	
Is it necessary; final stage students have review anatomy lectures?					
Yes	148	(82.2)	34	(85.0)	**0.674**
No	32	(17.8)	6	(15.0)	
Is it necessary to have anatomy review sessions for postgraduates according to their speciality?					
Yes, theory	118	(65.6)	34	(85.0)	
Yes, practice	38	(21.1)	6	(15.0)	**0.01***
None	24	(13.3)	0	(0.0)	
Is it time now to do a national academic cadaver donation encouraging programs?					
Yes	140	(77.8)	36	(90.0)	**0.123***
No	40	(22.2)	4	(10.0)	
Is it right linking or mixing both anatomy with surgery or/ and radiology					
Never	34	(18.9)	10	(25.0)	
Yes	120	(66.7)	22	(55.0)	**0.376**
Interlaced	26	(14.4)	8	(20.0)	
Total	**180**	(**100.0**)	**40**	(**100.0**)	

*: Fischer exact test

Discussion:

Anatomy teaching methods have developed as the medical undergraduate curriculum has been modernized. Traditional teaching methods of lectures, tutorials, dissection and prosection; are now supplemented by e-learning facilities and anatomical models. Even though, the preferences of medical students and anatomy faculty towards both traditional and contemporary teaching methods and tools are largely unknown.[11]

In our study, almost all the students and about two-thirds of the doctors were significantly satisfied with studying anatomy in the medical curriculum; and all the participants stated that studying anatomy was necessary for medical student`s future practice. A study in Taiwan revealed that more than half of the students were satisfied with the two-stage anatomy course.[12] Other studies in United Kingdom and USA showed that that clinically correlated anatomical teaching was relevant to clinical practice and nearly all of the topics taught in the anatomy course were deemed important by the clinicians.[2, 13] In contrast to another study in Nigeria, where about 73.4% of the respondents believed that the present anatomy curriculum is not career-friendly.[1] A higher satisfaction with anatomy course among the students and the teachers in our college could be due to the recent changes in the anatomy curriculum and implementation of small group teaching by the anatomy faculty. On the other hand, around one-fifth of the students showed that the suitable time to study anatomy should be in 1st, 2^{nd} &3^{rd} years, followed by 2^{nd} and 1^{st} years and about one-third of doctors stated that anatomy should be studied in 1^{st} and 2^{nd} years, with a significant statistical difference (P= 0.001). In a study in India, the majority of the students felt that the curriculum can be taught in one-year duration (65.11%) and 21.7% agreed for a scheme of one & half year, but they did not assign the preferred academic year.[14] Another study in the United Kingdom reported that to facilitate learning, anatomy should be taught throughout the curriculum and use human cadavers.[6]

Also, the study revealed that more than half of the students and more than one-third of the doctors preferred studying anatomy in the integrated system. On the other hand, more than half of the doctors stated that anatomy should be studied by both integrated and regional systems. Almost similar results were reported in a study in the USA, where the results support the growing call for vertical integration of anatomy across the preclinical and clinical years.[13] This may be due to a well- designed curriculum

taking into consideration modern teaching methods like skills laboratories and plastinated cadavers.

This study also revealed that about toe-thirds of the students preferred to study full anatomy course, while the doctors preferred to study only clinical anatomy course. All doctors and majority of students agreed to have both theoretical and practical sessions in anatomy teaching and three-fourths of the doctors and less than half of the students preferred all system or regions of the body that should be concentrated on more in teaching the anatomy sessions, with more concentration on small group teaching. A study in Netherland revealed that different educational principles have a stronger impact on students' perceived and actual anatomical knowledge.[15]

Regarding implementation of practical sessions, the majority of the doctors and the students preferred cadavers and they preferred direct involvement of the students in the cadaveric dissection. Similar results were reported among medical students from Pakistan, who revealed that dissecting cadaver is an effective way of learning anatomy.[16] Another study in the United Kingdom revealed that a cadaveric dissection is a favourable approach for achieving important learning objectives in the field of anatomy.[17] Similarly, another study in Australia revealed that Full body dissection would be best reserved for medical students, especially those with surgical career intentions, while teaching based on prosections and plastination is more suitable for dental, pharmacy and allied health science students.[18]

Conclusions: Majority of the participants were satisfied with the current anatomy curriculum, with more preference towards the system- based integration. However, it needs more improvement and the best way to teach modern anatomy is by combining multiple educational resources to complement one another through spending more time in practical sessions with more cadaveric dissections and application of small group teaching.

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Teacher's perspective on giving feedback in clinical teaching

Dr. Hamdia Mirkhan Ahmed

Assistant professor

PhD in Maternity Nursing

College of Nursing

Hawler Medical University

Email: hamdia.ahmed.@nur.hmu.edu.krd

Phone: 07504478625

Abstract

Background and objectives:

In medicine and nursing, the educational focus has shifted away from knowledge acquisition and duration of training towards the achievement of learning outcome. Feedback is the cornerstone of effective clinical teaching. It can help trainees reach their maximum potential. This study aimed to assess knowledge, practice and attitude of teachers regarding feedback in clinical teaching and find out related factors.

Methods:

A descriptive study was done on 28 teachers with different scientific title and years of experience from Hawler Medical University during October, 2015. They asked to fill a questionnaire format developed by researcher which included questions regarding knowledge, practice and attitude of them regarding feedback in clinical teaching. Data analyzed by SPSS.

Results:

Twenty five per cent of the teachers could not to define feedback on clinical teaching and 32.1% gave incorrect answer. Near half of them did no answer how they do feedback and 28.6% mentioned by questioning and re-demonstration by students. The majority did not know the benefits and barriers of providing feedback to students by teachers.

Conclusion:

Teachers in clinical teaching need to understand the importance of feedback for improving teaching and learning process by improve their knowledge, attitude and practice.

Key words: Teaching, Feedback, Attitude, Knowledge

Introduction:

Clinical education is an essential component of nursing and medicine curriculum. In both, the educational focus has shifted away from knowledge acquisition and duration of training towards the achievement of learning outcomes and preparation of physicians and nurses for meeting individual and population healthcare needs[1]. Feedback is the cornerstone of effective clinical teaching[2]. Without feedback, good practice is not reinforced, poor performance is not corrected, and the path to improvement not identified. Though teachers believe that they give regular and sufficient feedback, often this is not how it is perceived by learners[3-5].

Feedback is about providing information to students with the intention of narrowing the gap between actual and desired performance[6,7]. Hesketh and Laidlaw (2002) describe feedback as an essential element of the educational process that can help trainees reach their maximum potential[2]. It enables learners to achieve the course or program goals by reinforcing good performance and providing the basis for remediation when needed. Feedback links the teaching and assessment roles of teachers and demonstrates their commitment to the learners[8].

The impact of constructive feedback extends beyond the teaching and learning process. Feedback is essential for the student's growth, provides direction and helps to boost confidence, increase motivation and self-esteem[9]. Also promotes personal and professional growth and development for the teacher or supervisor. Supervisors believe that their communication and interpersonal skills are significantly enhanced through the provision of feedback as well as A sense of personal satisfaction is achieved by facilitating the development of another person, sharing practice and enhancing learning [10,11].

The purpose of giving feedback is to encourage learners to think about their performance and how they might improve[12,13]. Surveys of learners' preferences show that they want feedback that stimulates them to reflect on what they are doing[14,15].

This study aimed to assess knowledge, practice and attitude of teachers regarding feedback in clinical teaching and find out the related factors.

Methods:

A descriptive study was done on 28 teachers from total 50 (convince sampling), with different scientific title and years of experience from College of Nursing/Hawler Medical University during October, 2015 in Erbil City. All teachers in one session was asked to fill a questionnaire format developed by researcher which included questions regarding knowledge, practice and attitude of them regarding feedback in clinical teaching. Teacher's participation was voluntary and purpose of the study was explained for them before data collection. Data entered to and analyzed by SPSS (Version 18). Frequency, percentage and chi-square test was used for interpretation of the data.

Results:

The highest percentage of the study sample (35.7%) aged between 41 to 50 years old, half of them had master degree. Forty six point four percent were assistant lecturer and 60.7% had less than 10 years experience in clinical teaching (Table 1). The majority (85.7%) of the teachers know that feedback in clinical teaching is one of responsibly of teachers in clinical teaching, but more than half gave no answer or incorrect answer for definition of feedback in clinical teaching and the rest they defined it in term of evaluation of students (17.9%), students attitude regarding teacher performance (7.1%), knowing strong and negative points regarding her/his self (7.1%)(Table 2). Regarding practice of teachers, 67.9% of the them were providing feedback on clinical performance to students, but 42.9% of them did not give answer to how providing feedback, 28.6% of them did by questioning and repeating by students and 10.7% of them by daily evaluation and review (Table 3). Regarding attitude 89.3% of the study sample believed that providing feedback is important issue in clinical teaching, but half of them did not mention the benefits. Barriers of giving feedback in clinical teaching mentioned as following: inappropriate students/teachers ratio (17.9), time limitation 35.7%, inadequate equipment/hospital policy/system 35.7%, poor attitude/information of students 17.9%, poor relationship/communication (28.6%), incompetent teacher (10.7%) and 17.9% mentioned no barrier or did not answer (Table 4). There was no statistically significant relationship between knowledge, practice and attitude of teachers regarding feedback in clinical teaching with their scientific title and years of experience (Table 5 and 6).

Table 1: Background information of the study sample

Variables	No	%
Age group		
- Less than 30	6	21.4
- 31 – 40	7	25
- 41 – 50	10	35.7
- More than 50	5	17.9
Certification		
- BSc	3	10.7
- MSc	14	50
- PhD	11	39.3
Scientific title		
- Clinical instructor	4	14.3
- Assistant lecture	13	46.4
- Lecturer	10	35.7
- Assistant professor	1	3.6
Years of experience in clinical teaching		
- Less than 10	17	60.7
- 11- 20	8	28.6
- More than 20	3	10.7

Table 2: Knowledge of teachers regarding feedback in clinical teaching

Items	No	%
Feedback is one responsibility of the teacher in clinical teaching		
- Yes	24	85.7
- No	4	14.3
Definition of feedback		
- No answer	7	25.0
- Incorrect answer	9	32.1
- Evaluation of students	5	17.9
- Response to education	1	3.6
- Outcome of learning at end of course	1	3.6
- Students attitude regarding teacher performance	2	7.1
- Discussing positive and negative points with students	1	3.6
- Knowing strong and negative points regarding her/his self	2	7.1

Table 3: Practice of the study sample regarding feedback in clinical teaching

Items	N0	%
Providing feedback on clinical performance to students		
- Yes	19	67.9
- No	9	32.1
How providing feedback		
- No answer	12	42.9
- Questioning and repeating by students	8	28.6
- Wrong answer	2	7.1
- Discussion with students	1	3.6
- By checklist	1	3.6
- Re- demonstration by students	1	3.6
- Daily evaluation and review	3	10.7

Table 4: Attitude of teachers regarding feedback in clinical teaching

Items	No	%
Providing feedback is important issue in clinical teaching		
- Yes	25	89.3
- No	3	10.7
Benefits of feedback		
- For students	7	25
- For teachers	4	14.3
- Both	3	10.7
- No answer	14	50
Barriers of feedback		
- Inappropriate students/teachers ratio	5	17.9
- Time limitation	10	35.7
- Inadequate equipment/hospital policy/system	10	35.7
- Poor attitude/information of students	5	17.9
- Poor relationship/communication	8	28.6
- Incompetent teacher	3	10.7
- No barrier/no answer	5	17.9

Table 5: Association between scientific title of teachers and their knowledge, practice and attitude regarding feedback in clinical teaching

Items	Scientific title				P-value
	Clinical instructor No.(%)	Assistant lecturer No.(%)	Lecturer No.(%)	Assistant professor No.(%)	
Feedback is one responsibility of the teacher in clinical teaching					
- Yes	4(100)	11(84.6)	8(80)	1(100)	1.000*
- No	0(0)	2(15.4)	2(20)	0(0)	
Providing feedback on clinical performance to students					
- Yes	3(27)	8(61.5)	7(70)	1(100)	1.000*
- No	1(25)	5(38.5)	3(30)	0(0)	
Providing feedback is important issue in clinical teaching					
- Yes	4(100)	11(84.6)	9(90)	1(100)	1.000*
- No	0(0)	2(15.4)	1(10)	0(0)	

Table 6: Association of years of experience of teachers with their knowledge, practice and attitude regarding feedback in clinical teaching

Items	Years of experience				P-value
	< 10 No(%)	11 – 20 No(%)	21 – 30 No(%)	> 30 No(%)	
Feedback is one responsibility of the teacher in clinical teaching					
- Yes	15(93.8)	6(73)	2(66.7)	1(100)	0.305*
- No	1(6.3)	2(25)	1(33.3)	0(0)	
Providing feedback on clinical performance to students					
- Yes	11(68.8)	4(50)	3(100)	1(100)	0.523*
- No	5(31.3)	4(50)	0(0)	0(0)	
Providing feedback is important issue in clinical teaching					
- Yes	16(100)	5(62.5)	3(100)	1(100)	0.071*
- No	0(0)	3(37.5)	0(0)	0(0)	

Discussion:

More than half of the teachers involved in this study to assess the knowledge, attitude and practice of them regarding feedback in clinical teaching. The results showed that the teachers had no correct and appropriate knowledge regarding that as more than half of them did not define it or gave incorrect definition. The rest of teachers defined it as evaluation of students, response to education, outcome of learning at end of course, students attitude regarding teacher performance, discussing positive and negative points with students and knowing strong and negative points regarding her/his self. It is clear that teachers had misunderstanding about feedback in clinical teaching and they mixed up it with evaluation of students.

All definitions suggest that feedback is an interactive process which aims to provide learners with insight into their performance. When giving feedback inform action should include opinion and judgment about current performance and explore options for improved practice. Feedback should be based on observations made while working with a student in practice and may follow a period of reflection by the supervisor. This must be an unbiased, analytical reflection of what has occurred[15].

Although in the present study the most of teachers were giving the feedback to the students and they believed that it is important responsibility of the teachers, but because of misunderstanding and not well differentiate with evaluation of the student and student feedback, they did not know how to practice it. Consequently they did not know what the benefits of the feedback in clinical teaching are and they mentioned barriers of giving feedback related to process of teaching and environment.

Both formal and informal methods of delivering feedback to the student exist. Ideally a combination of these methods should be used to ensure ongoing and timely information is given. One informal method of feedback is on-the-spot comments which are made during practice. These are used to offer feedback on aspects of practice which are observed by the supervisor[11].

A review of the literature reveals significant inconsistency in the amount of feedback, praise and positive reinforcement received by students[15]. In fact, feedback on clinical performance is often not forthcoming and when offered, is too late, destructive, and personal in nature. In addition, it frequently fails to concentrate on skill development and enhanced clinical performance[15].

Instructor personal qualities such as approachability, positive attitudes, commitment, good teaching skills with knowledge and willingness to give guidance and feedback contributed to effective learning experiences and educational development in the context of the doctor’s care of patients. It has also

been shown that students value good feedback in clinical teaching and learning[16] and that good feedback directly influences students' performance. By giving feedback and encouraging students to reflect, supervisors can have a positive effect on learning. Others have previously reported that teachers are more effective when they show a positive attitude and enthusiasm for teaching, demonstrate good clinical skills, and practice ethically[17].

As it is revealed from the results of the present study the scientific title and years of experience of teachers had no association with their knowledge, practice and attitude regarding feedback in clinical teaching. So the integration of the concept of feedback in medical and nursing education, training of the trainers pertaining to techniques of adult learning and how to give feedback to trainees are foremost requirements.

Conclusions:

The majority of teachers had no correct perception regarding feedback in clinical teaching and they provided feedback to the students in term of evaluation of the students. Clinical teachers should regard the art of giving feedback as a critical skill to be acquired through repeated practice and augmented by reflection on their own performance. Further studies are necessary in other colleges of HMU as well as to know students' perspective on providing feedback by teachers in clinical teaching.

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Antihyperglycemic effects of Trigonella Foenum graecum seeds in diabetic Rats

Kawa Dizaye * **Naela N. Othman** **

Abstract

Background: Traditionally Trigonella foenum-graecum (Fenugreek) has been used for treatment of diabetes mellitus however few studies are available regarding its mechanism of action as an antihyperglycemic agent. This study was designed to evaluate and compare the effect of Trigonellafoenum-graecum seeds with Metformin and Acarbose on blood glucose, insulin, ghrelin, leptin and body weight in diabetic rats.

Method: Thirty-six rats were divided into two groups. The first group involved twelve normal rats (control). The second group involved 24 diabetic rats which were subdivided into four subgroups each group have six rats. The first subgroup served as a positive control. The second subgroup, received standard diet mixed with Fenugreek seed powder. The third and fourth subgroups received a single dose of Metformin and Acarbose respectively.

During the experimental period, body weight was individually recorded for each rat before and after treatment. Blood samples were collected from rats for determination of serum blood sugar, insulin, leptin level and ghrelin.

Results: Administration of Fenugreek seeds to non-diabetic rats did not exert any hypoglycemic or glucose lowering action and has no significant effect on the serum insulin. However, the same dose of Fenugreek seeds significantly reduced blood sugar and induced a significant rise in serum insulin of diabetic rats.

Trigonella foenum seeds powder slightly elevated serum level of leptin in normal rats. However, the same dose of the plant markedly reduced leptin in diabetic rats. Daily administration of the plant seeds powder notably decreased serum ghrelin of normal rats. Moreover, the same dose of the plant seeds could reduce the body weights of normal rats. These results support the hypothesis of the role of ghrelin in stimulating the appetite and an increase in body weight.

Conclusion: The result of this study revealed that Trigonellafoenum has greater antihyperglycemia activities than that of Metformin and Acarbose in diabetic rats.

Key: Fenugreek, Diabetic rats, Acarbose, Metformin

* College of Medicine, Hawler Medical University, Erbil, Iraq,
Email: kawa.dizaye@hmu.edu.

** Ministry of Health, Erbil, Iraq,

Introduction:

The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction and failure of various organs, especially the eyes, kidneys, nerves, heart and blood vessels, type 2 diabetes mellitus has quickly become a global health problem due to rapidly increasing population growth, aging, urbanization and increasing prevalence of obesity and physical inactivity[1] .

A multitude of plants have been used for the treatment of diabetes throughout the world. Etuk et al [2] reported that many medicinal plants have been validated scientifically as potent antidiabetics plants such as: Aloe vera (L.), Burm.f. (Family: Aloaceae, Garlic Allium sativum L. (Family: Alliaceae), and Trigonella Foenum. They were found to produce beneficial effects on carbohydrate and lipid metabolism when administered as an adjunct in patients with type 2 diabetes. These plants have been reported to improve glucose tolerance in healthy human subjects and diabetic patients. They caused significant reduction in blood glucose, glycosylated haemoglobin and glycosylated plasma proteins comparable to an oral hypoglycaemic drug[3,4].

Trigonella foenum graecum (Fenugreek) is one of the oldest medicinal plants, is extensively cultivated in most regions of the world for its medicinal value (Petropoulos, 2002). Trigonella foenum graecum (Linn.) belonging to the family Papilionaceae commonly known as Fenugreek is a aromatic, 30-60 cm tall, annual herb, cultivated in India. Active compounds of fenugreek included soluble fiber saponins, trigonelle, diosgenin[5-7].

Trigonella foenum-graecum is one such plant that has been extensively used as a source of antidiabetic compounds, from its seeds, leaves and extracts in different model systems[8]. Fenugreek leaves and seeds are consumed in different countries around the world for different purposes such as medicinal uses (anti-diabetic, lowering blood sugar and cholesterol level, anti-cancer, anti-microbial, etc.). Trigonella foenum graecum is commonly used as a condiment and seasoning in food preparations; is assumed to possess nutritive and restorative properties and has been used in folk medicine for centuries for a wide range of diseases including diabetes, fever and abdominal colic as a poultice for abscesses, boils, and carbuncles[9].

This study was designed to evaluate and compare the effect of Trigonella Foenum seeds with Metformin at 100mg/kg and Acarbose at 60mg/kg on serum glucose, insulin, leptin, ghrelin and body weight in streptozotocin induced diabetic rats after three weeks of administration.

Methods

Plant material:

Seeds of Trigonella Foenum –graecum were used and obtained from specific local herbal market. The whole seeds were delicately powdered. The plant powder was mixed at a concentration 0.75% (w/w) with a standard diet[10].

Animal:

Adult rats weighting between 140-500 g (75-90 days old) were used in the study. All animals kept in the animal house at the college of medicine under controlled condition of 12 hours light and 12 hours dark cycle in a room temperature of 27 c°.

Experimental design

Thirty six rats were divided into two groups. The first group involved twelve normal rats (control). The second group involved 24 diabetic rats. Hyperglycemia was induced by using single dose intraperitonial administration of streptozotocin in a dose of 40mg/kg[11] and dissolve 18 gm of sugar in 1000-liter water gives to rats for 48 hours in order to overcome sudden decrease in blood glucose level (hypoglycemia) induced by streptozotocin[11]. The hyperglycemic rats subdivided into four subgroups each group have six rats. The first subgroup served as a positive control (hyperglycemic rats). The second subgroup, received standard diet mixed with powder Trigonella foenum for about 3 weeks. The third and fourth subgroups received a single dose of Metformin in a dose of 100 mg/kg [12] and Acarbose in a dose of 60 mg/kg[13] orally respectively. The solution of two drugs Metformin (100mg/kg) and Acarbose (60mg/kg) were freshly prepared in tap water and given to animals by oral gavages every day.

At the end of treatment period (3 weeks), rats were fasted overnight and the following day blood samples were taken. The procedure started by anaesthetizing the rats by giving them combination of ketamine in a dose of 35mg/kg with xylazine in a dose 5mg/kg[14] which was followed by a cardiac puncture by a sterile disposable plastic syringe which was then put into a specified numerically labeled blood tubes.

During the experimental period, body weight was individually recorded for each rat before and after treatment.

Blood samples were collected from rats for determination serum blood sugar, insulin, leptin level and ghrelin.

Statistical analysis

All data are expressed as mean ± standard error of means (M±SEM) and statistical analysis was carried out using statistically available software (SPSS Version 21). Data analysis was made using one-way analysis of variables (ANOVA). Comparisons between groups were done using Duncan test and unpaired student t-test. $P \leq 0.05$ was considered as statistically significant.

Results

Effects of Trigonella foenum graecum seeds on serum glucose and insulin of normal rats

Oral administration of Trigonella Foenum Graecum seeds powder at a concentration of (0.75%w/w), non significantly (P=0.22) and slightly increased the level of blood sugar in normal rats as shown in Table (1). Daily ingestion of Trigonella foenum seeds powder at a concentration of (0.75%w/w) had no significant effect on insulin level in normal rats (P=0.116) Table (1).

Table (1). Effects of Trigonella foenum graecum seeds 0.75% (w/w) on blood glucose and insulin of normal rats (n=12).

Parameter	Control	Trigonella normal	P value
Blood glucose (mg/dl)	110.92±10.59	127.33±7.16	0.22
Insulin (uU/ml)	1.26±0.3439	0.898±0.21227	0.116

Effects of Trigonella foenum graecum seeds, Metformin and Acarbose on serum glucose

Intraperitonial injection 40mg/kg of streptozotocin induced a significant and a highly increase and rise in blood sugar of rats. Daily oral administration of Trigonella foenum significantly reduced blood sugar of diabetic rats. While oral administration of Metformin and Acarbose for 3 weeks non significantly reduced blood sugar of diabetic rats Table (2).

Table (2). Effects of Trigonella foenum graecum seeds on blood glucose and insulin of diabetics rats (n=18).

Parameter	Control	Positive control diabetics rat	Trigonella diabetics
Bloodglucose (mg/dl)	110.92±10.59 a	373.72±52.43 b	206.55±44.88 c
Insulin (uU/ml)	1.2683±0.0343 a	0.5605±0.2261 b	1.2567±0.0310 a

Effect of Trigonella foenum graecum seeds on serum insulin

Intraperitonial injection of streptozotocin on normal rats caused a significant reduction in the level of insulin and the basal value was 1.268±0.0343 and it decreased to 0.5605±0.226. Comparing to the diabetic rats, the insulin level of rats treated with Trigonella foenum, have significantly increased

Effects of Trigonella Foenum graecum seeds on body weights of normal rats

The body weight of noraml rats in pre-treatment (basal value) was 427.50 gram, after 3 weeks of treatment with Trigonella mean value of the body weight decreased to 403.33 gram figure. (1).

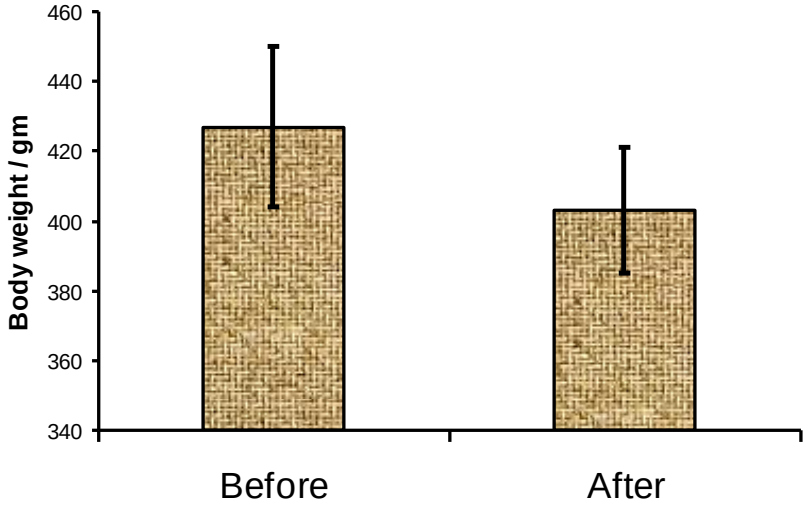

Fig. (1). Effects of Trigonella foenum graecum seeds (0.75% w/w) on the body weight of normal rats (n=6)

Effect of Trigonella foenum graecum seeds, Metformin and Acarbose on body weight of diabetic rats

Three weeks after intraperitonial injection of streptozotocin the body weight of diabetic rat significantly reduced from 214 gram to170gram. After daily ingestion of Trigonella foenum (0.75%w/w) for 3 weeks, the body weight of diabetic rats was significantly improved from 170-204gm. Both Metformin and Acarbose slightly increased the body weight of diabetic rats Figure (2).

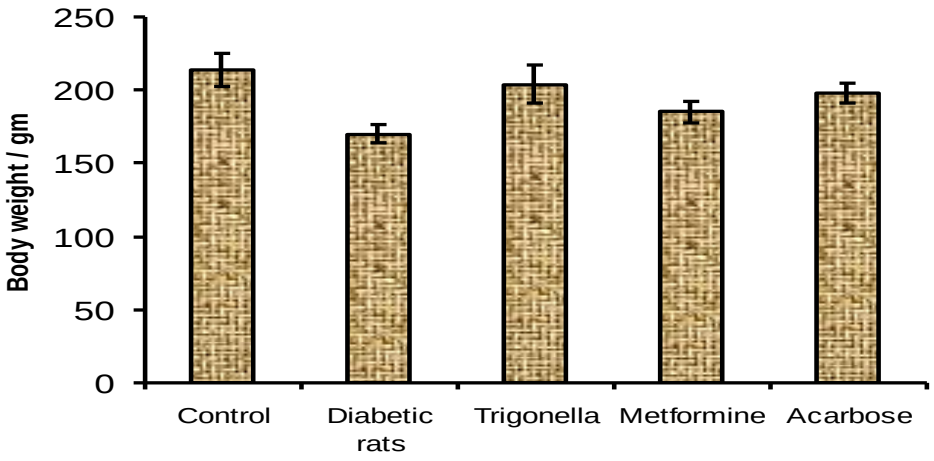

Fig. (2). Effect of Trigonella foenum graecum seeds (0.75%w/w), Metformin (100mg/kg), Acarbose (60mg/kg) on the body weight of diabetics rats (n=30).

Effects of Trigonella foenum graecum seeds on serum leptin and ghrelin in normal rats

Serum leptin in normal rats treated with Trigonella Foenum seeds was non significantly increased in comparison with the control Table (3). Oral administration of Trigonella Foenum for 3 weeks induced a marked decrease in the ghrelin level however statistical analysis turned out to be non significant (P=0.099) Table (3).

Table (3). Effect of Trigonella foenum graecum seeds 0.75% (w/w) on serum leptin and ghrelin of normal rats (n=12).

Parameter	Control	Trigonella	P value
Leptin(ng/ml)	0.3637±0.0869	0.432±0.15	0.16
Ghrelin(ng/ml)	1.5267±0.13120	0.57±1.6631	0.099

Effects of Trigonella foenum graecum seeds, Metformin and Acarbose on serum leptin and ghrelin of diabetics rats

Serum leptin was significantly increased in diabetic rats when it compared with control rats. Administration of Trigonella foenum in diabetic rats for 3 weeks induced a non significant but a marked reduction in the serum leptin. Whereas significant changes in the serum leptin were observed in diabetic rats treated by both metformin and acarbose Table (4).

Comparing to the normal rats the serum level of ghrelin non significantly decreased in diabetic rats. Trigonellafoenum has no detectable effects on the serum level of ghrelin when itwas given to diabetic rats for 3 weeks, whereas both Metformin and Acarbose caused a significant increase in serum level of ghrelin in diabetic rats Table (4).

Table (4). Effects of Trigonella foenum graecum seeds, Metformin and Acarbose on serum leptin and ghrelin of diabetics rats (n=30).

Parameter	Control	Positive control Diabetics rat	Trigonella	Metformin	Acarbose
Leptin ng/ml	0.3637±0.087 a	1.8873±0.999 b	0.6120±0.218 b	0.3233±0.0621 a	0.2143±0.06 a
Ghrelin ng/ml	1.52±0.1312 a	0.5375±0.2109 a	0.8515±0.1865 a	4.4300±1.4554 b	3.8563±1.6382 b

Discussion:

Trigonella foenum graecum seeds have been historically used for the treatment of various chronic human diseases and studies concerned with application of fenugreek seeds in diabetes and dyslipidemia support this hypothesis.

In this study, intraperitonial injection 40mg/kg of streptozotocin induced a significant and a highly increase and rise in blood sugar of rats as compared to the control group. This result is in agreement with other studies[15,16], which suggested that the elevated blood glucose levels in diabetes mellitus are caused by a defect in production and/or secretion of the hormone insulin. In this study the elevation of blood glucose indicates that this effect is caused by the direct influence of streptozotocin on pancreatic β cells.

The result of the current study, showed that administration of Trigonella foenum graecum seeds (0.75%) to non diabetic rats did not exert any hypoglycemic or glucose lowering action and has no significant effect on the serum insulin. However, the same dose of Trigonella foenum graecum seeds (0.75%) significantly reduced serum glucose of diabetic rats and induced a significant rise in serum insulin. This result was similar to the finding of Wehash *et al*, [17] who reported that giving daily doses of fenugreek ethanolic extract (50 mg/kg) to diabetic rats for four weeks produced a significant reduction in serum glucose. In another study Ali *et al*, [18] observed that oral administration of Fenugreek seeds extract (0.5gm/500 ml and 1.0gm/500 water) for 40 days to diabetic rats induced by streptozotocin showed a significant decrease in plasma glucose concentration by 10% on 25th day and 32% on 40th day of therapy with the plant extract.

The hypoglycemic effect of fenugreek could be attributed to dietary fibers present in the fenugreek seeds, which help in the management of metabolic abnormalities associated with diabetes as peripheral insulin resistance and lipid abnormalities[19].Whereas another study showed that the fenugreek seeds delayed gastric emptying and caused the inhibition of glucose transport as the seed contains around 50% pectin that forms a colloid suspension when hydrated can decrease the rate of gastric emptying and slow carbohydrate absorption[20].

In this study, Trigonella foenum seeds (0.75% w/w) increased serum insulin level in diabetic rats. This result was inagreement with the result of (El-Soud et al[21]who observed that treatment of diabetic rats with 60mg/kg alkaloidal extract for 21 days resulted in a significant reduction of blood glucose and increase in serum insulin. Gaddam *et al* [22] revealed that consuming of 5 g of fenugreek powder twice a day before meals for 3 months caused a significant elevation in insulin level of patient with diabetes mellitus type 2. They suggested that the powder has acted as insulin secretor as they observed the rise in insulin secretion in animal. The result of this study revealed that Trigonella foenum has greater antihyperglycemia activities than that of Metformin and Acarbose. These results indicate that the mechanism of antihyperglycemic effect of the plant is not due to the inhibition of endogenous glucose production or by the inhibition of intestinal glucose absorption through inhibiting of α-Glucosidase[23].

The most probable mechanism of the antihyperglycemic effect of the plant could be due to the presence of the bioactive compounds present in it, including 4-hydroxyisoleucine, a novel amino acid known to facilitate insulin secretion[24]. In addition, the soluble dietary fibers present in aqueous extraction of Trigonella foenum could decrease the absorption of glucose in the gastrointestinal tract.

In the present study, serum leptin is significantly increased in diabetic rats when it compared with the control. This effect is similar to the finding of Rafique and Latif, [25] who observed that serum leptin level was significantly higher in diabetic rats than the normal rats. This effect could be explained on the basis of insulin resistance, chronically elevated plasma insulin levels, and diabetic nephropathy, Type 2 diabetes is characterized by insulin resistance, which is positively associated with hyperleptinemia[26]. Insulin induces leptin synthesis in a dose-dependent fashion[27]. Hence, in the presence of insulin resistance and chronic hyperinsulinemia, type 2 diabetics are expected to exhibit hyperleptinemia. The other possibility of increased serum leptin levels could be diabetic renal damage. It was found that type 2 diabetic patients with impaired renal functions had higher serum leptin concentrations than control subjects matched for age, sex, and body fat[28]. It remains to be determined whether the increased serum leptin concentrations in patients with diabetic nephropathy is due to increased production, reduced clearance, or increased leptin resistance.

In anther study [29] reported that fasting serum leptin of the diabetic patients is significantly higher than healthy people with normal weight. An increase in leptin level has been witnessed in some other studies on obese or diabetic people[30]. The result of this study is also in accordance with the finding of Kanaley *et al*, (2001)[31] who found that the plasma leptin concentration is higher in diabetic patients even with the same fat mass than in healthy people. Apart from the body fat levels, high level of serum leptin can be a sign of an increase in leptin resistance in obese and people with related diseases. The plasma leptin level has a direct relation with the fat tissue and a negative relation with the body fitness or physical activity[32].

In this study administration of Trigonella foenum seeds powder slightly elevated serum level of leptin in normal rats. However, the same dose of the plant reduced leptin in diabetic rats. This result is similar to the study of Kumar et al[33] who observed that the administration of aqueous extract of Trigonella foenumgraecum to rats on high fat diet showed the reduction of leptin levels. Their finding was further supported by the aqueous extract of Trigonella foenum-graecum mediated reductions in white adipose tissue, weights and adiposity index. This. reduction in the serum leptin most probably is due to the improvement of diabetic rats induced by the plant

Comparing to the normal rats the serum level of ghrelin non significantly decreased in diabetic rats. This is in accordance with the study of Farajallah *et al*[34], who concluded that ghrelin concentrations of patients with type 2 diabetes was significantly lower than those of control group. The results of blood glucose, serum insulin and ghrelin of diabetic rats in this study can be confirmed by the report of [35]who proved that low ghrelin levels are independently associated

with insulinresistance in type 2 diabetes mellitus. Daily administration of Trigonella foenum seeds powder at a concentration (0.78%w/w) notably decreased serum ghrelin of normal rats. Moreover, the same dose of the plant seeds could reduce the body weights of rats from 427-403. These results support the hypothesis of the role of ghrelin in stimulating the appetite and an increase in body weight.

In the present study, fenugreek did not change the ghrelin level of diabetic rats. However, the plant seeds could significantly increase the body weight of the diabetic rats. This effect on the body weight most probably due to beneficial effect of Trigonella on blood sugar and insulin. The reduced growth rate and weight loss seen in the diabetic group are probably due to insulin depletion provoking loss of adipose tissue, and/or a decrease of food intake due to appetite loss resulted from a marked reduction in ghrelin level[36].

In the present study, significant change in leptin level was seen in rats received Metformin. This result is agreement with result of Kadhim et al.,[37] who observed that Metformin significantly decreased leptin level in female with diabetes mellitus.

The present study, showed that acarbose significantly reduced serum leptin level in diabetic rats which was similar to the result of Rosenbaum et al [38] who observed that acarbose has decreased leptin level in hypertensive diabetic patients.

In the present study, Metformin significantly increased the level of serum ghrelin of streptozotocin induced diabetic rats. This result is similar to result of Doogue et al[39] who found that treatment with metformin for 6 weeks resulted in a significant increase in plasma ghrelin in patients with type 2 diabetes. It is also in accordance with the report of Shaker *et al*, (2010) who noticed that treatment with metformin significantly increased ghrelin serum level in women with polycystic ovary syndrome (PCOS).

In the present study, metformin slightly increased the body weight of diabetic rats this is in contrast with the finding of Pavo et al[40] who recorded that Metformin decreased body weight in patient with diabetes. This slightly rise in body weight caused by the uses of metformin could be related to a minor improvement of the glucose level of diabetic rats.

Daily administration of acarbose for 3 weeks slightly increased serum ghrelin of diabetic rats. This effect is dissimilar with the finding of[41] who reported that four weeks of treatment with acarbose significantly enhanced postprandial total ghrelin suppression at 120 min in patients with type 2 diabetes mellitus.

Conclusions:

Fenugreek significantly reduced blood sugar and induced a significant rise in serum insulin of diabetic rats. It has greater antihyperglycemia activities than that of Metformin and Acarbose in streptozotocin induced diabetic rats. The body weight of diabetic rats was significantly improved by daily ingestion of fenugreek seeds powder to diabetic rats for three weeks.

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Knowledge, Attitude, and Perceptions of Modern Contraception Use among a Sample of Women in Erbil City.

Dayana Khalid Slewa[1], Khalat Jamal Jamel[1], Roshna Tofiq Omer[1], Noor Jabbar Abbas[1], Nyan Jihad Ajhad[1], Lina Kamal Rashed[1], Sherzad Abdulahad Shabu[2]

[1]Fourth year students, College of Medicine, Hawler Medical University.

[2] Lecturer of Community Medicine, M.B.Ch.B, MSc, PhD, Department of Community Medicine, College of Medicine, Hawler Medical University, Erbil, Iraq.

* Corresponding author

Tel: 00 964 750 445 1828

E.mail: sherzad.hakim@med.hmu.edu.iq

Abstract

Background and Objectives

Contraception or birth control generally refers to any method used to alter the body's natural state of fertility, thereby reducing the probability of pregnancy without abstaining from sexual intercourse. Contraception aims to prevent sexual intercourse from causing pregnancy. The aim of this study was to assess the knowledge, attitude, and perception of married women regarding the use of various contraceptive methods.

Methods

An observational cross sectional survey was carried out among 250 married women attending primary health care centers and private clinics in Erbil city during October 2016. Questionnaire designed for this purpose which included socio-demographic characteristics, knowledge, attitude and the use of contraception. The questionnaire was randomly distributed on all the attendants and at time of data collection we explained each question for the women.

Results

Among 250 studied women, 127 women from primary health care centers and 123 from private clinics, most of them were between 21-30 years old. Majority of women (96%) had knowledge about contraceptive methods, and (58%) of women used contraceptives. The most commonly used contraceptive method was Intrauterine device (IUD) which represent (46.90%). The degree of education had no significant effect on the use of contraceptives. Residence was significantly associated with the number of children women have, with rural women have more children.

Conclusion

Most of Erbil women have knowledge about contraception, and the majority of them preferred to use Intrauterine Device. Most of them were middle aged and urban residents. Educational level had no significant effect on the use of contraception.

Keywords: Contraception, Knowledge, Women, Erbil

Introduction

Contraception (birth control) is the use of any practices, methods, or devices to prevent pregnancy from occurring in sexually active women. [1]The use of contraceptives is also essential in preventing unsafe abortion, and abortion related complication that expose the adolescence to health related risks such as infertility and sometimes death.[2]There are different kinds of birth control that act at different points in the process; preventing sperm cells from reaching the eggs. Types include condoms, diaphragms, cervical caps, and contraceptive sponges, keeping the woman's ovaries from releasing eggs that could be fertilized. Types include birth control pills, patches, shots, vaginal rings, and emergency contraceptive pills, Intrauterine devices which are implanted into the uterus and can be kept in place for several years, and sterilization, which perpetually prevents a woman from getting pregnant or a man from being able to get a woman pregnant.[3]

The health of mothers and children remain a subject of global concern. Studies have shown that prenatal, neonatal and under five as well as maternal mortality rates remains high in most developing countries.[4] Too many or too closely spaced pregnancies, and pregnancies of a women at too young or too old in age give rise to health risks for mothers and the infant. Strategies have been employed by various governments in improving these indices amongst which is the use of family planning.[5] For a large and rapidly growing population an effective family planning program is needed.[6] Contraceptive methods play major role in achievement of family planning in which they are a key component of health services. The growing use of contraception around the world has given couples the ability to choose the number and spacing of their children.[7] The global diffusion of contraception has been a marked feature of the late 20th Century.[8] Worldwide the fertility rate have fallen largely due to the wide spread and increasing use of modern methods of contraception. Ability of a woman to control her own fertility is one of her fundamental and important rights.[5]

Contraceptive choice is in part dependent of effectiveness of contraceptive method preventing unplanned pregnancy, the effectiveness of birth control methods is critically important for reducing the risk of unintended pregnancy.[9] Knowing about contraceptives is suspected to be a first step in stimulating the desire for its use. Assessment of knowledge about contraceptives therefore does not only determine the extent of awareness and sensitization but also provides the background for which use of the service is further evaluated.[10-11]

As there are not more studies conducted on contraception, in Erbil city, we realized the importance of doing this piece of research to come up with some baseline data on the prevalence of contraceptives use among married women in Erbil city.

This study aimed at assessing the knowledge, attitude, and perception of married women regarding the use of various contraceptive methods. More specifically, it aimed at assess knowledge level about different contraceptive methods, assess the prevalence of using contraceptive methods among women in stable marital relation attending health facilities and private clinics, determining the types of different contraceptive methods used among these women, and examine the association between women's educational level and the use of contraceptives.

Methods

A cross sectional study was carried in Erbil city on five Primary Health Care Centers (Mala fandy, Kurdistan, Brayati, and NazdarBamerny, Tayrawa health centers), in addition to six private clinics (Santamaria private clinic, Sal private clinic, Zhyan private clinic, and the private clinics of Dr. Serwa, Dr. Zahida and Dr. Nasik).

The study period was from 27th Sep – 30thOct 2016. The study subjects were selected from six private clinics and four primary health care centers. 250 women, at reproductive age, were enrolled in this study. Out of these women, 123 were from private clinics and the remaining 127 were from primary health care centers. The women attending the above mentioned settings were randomly selected by the group during our visits. Married women from different nationalities and socioeconomic backgrounds were included in this study.

An anonymous questionnaire was used to collect data. The questionnaire was designed to have simple and clear questions and was provided in English with verbal translation by the researchers. The questionnaire included 40 questions that covered some socio-demographic data, in addition to those on knowledge, attitude and usage of contraception among women in Erbil. Questions were provided with multiple answer options and some with opportunity of alternative answers if the options provided were not suitable. The questionnaires were given to attendants on entry to the establishment, to fill in when convenient.

Microsoft Excel 2007 and SPSS were used for data summarization and data analysis purposes. Mainly Chi square test was used and a P-value of ≤ 0.05 was considered significant.

Permission was granted from each single clinic and from each case in the primary health care centers and private clinics. A thorough explanation of the nature and aim of the study to each participant was given. Attendants were reassured about confidentially and anonymity. Informed consent was obtained from all study participants.

Results

This study included 250 married women in Erbil city, 127 from primary health care centers and the other123 from private clinics. Their ages ranged from (15-49 years), in which most of them (41.6%) were between (21-30 years), about (90%) were urban, with an average (72.40%)

economic state, around (40%) of them had an educational degree of primary/secondary, followed by illiterate/read and write (35%), closely similar to the educational degree of their partners, as shown in table 1:

Table 1: Socio-demographic characteristic of studied population

Variable	Frequency	Percentage
Setting		
Private clinic	123	(49.20)
Primary care center	127	(50.80)
Age		
≤ 20	19	(6.60)
21-30	104	(41.6)
31-40	87	(34.8)
> 40	40	(16.0)
Residence		
Urban	220	(88.0)
Rural	30	(12.0)
Education		
Illiterate/read & write	88	(35.2)
Primary/secondary	99	(39.6)
Institute/college	50	(20.0)
Higher degree	13	(5.20)
Partner's education		
Illiterate/read & write	74	(29.6)
Primary/secondary	101	(40.4)
Institute/college	62	(24.8)
Higher degree	13	(5.20)
Economic state		
Poor	41	(16.4)
Average	181	(72.4)
Good	28	(11.2)

As it's shown in the table below, (31.20%) of women in the sample were married less than 5 years, and most of them (53.60%) has equal to or less than 3 pregnancies including number of children, we also observed that most of the couples (76%) are deciding the number of the children together. Although (27.20%) of women were married equal to or more than 16 years, the number of pregnancies of (53%) of women is equal to or less than 3, as shown in table 2:

Table 2: family size of studied population

Variable	Frequency	Percentage
Years of marriage		
≤ 5	78	(31.2)
6-16	67	(26.8)
11-15	37	(14.8)
≥ 16	68	(27.2)
No. of pregnancies		
≤ 3	134	(53.6)
4-6	87	(34.8)
≥ 7	29	(11.6)
No. of children		
≤ 3	169	(67.6)
4-6	64	(25.6)
≥ 7	17	(6.8)
Who decide on no. of children		
Women	30	(12.0)
Partner	28	(11.2)
Both	190	(76.0)
Other	2	(0.80)

The study revealed that 96% of the studied women had knowledge about contraception, and that 58% of them have used them. Intrauterine devices were the main types used by women (46.9%) followed by contraceptive pills (36.59%). Women thought that the main advantages of using contraceptives is preventing pregnancy (60.6%) followed by decrease bleeding (76%), while the main disadvantage was irregular menstruation (51.08%). More than half of women get contraceptives from the hospitals, while 36.55% get them from pharmacies, as shown in table 3:

Table (3): Knowledge about contraception and related factors:

Variable	Frequency	Percentage
Knowledge of contracep.		
Yes	240	(96.0)
No	10	(4.0)
Use of contraception		
Yes	145	(58.0)
No	105	(42.0)
Contracep. method used		
Pills	71	(36.59)
Intrauterine devices	97	(46.9)
Injections	7	(3.6)
Condom	25	(12.88)
Contracep. advantages		
Prevent pregnancy	60	(60.6)
Decrease abortion	31	(31.31)
Decrease bleeding	7	(76.0)
Decrease pelvic pain	1	(0.80)
Contracep. disadvantage		
Irregular menstruation	47	(51.08)
Weight gain	9	(9.78)
Infertility	6	(6.52)
Other	30	(32.6)
Sources of contraception		
Hospital	78	(53.79)
Pharmacy	53	(36.55)
Private clinic	11	(7.58)
Shops	3	(2.06)
Why not use contracep.		
Fear from side effects	38	(36.19)
Use traditional methods	26	(24.76)
Want more children	25	(23.80)
Partner's disagreement	5	(4.76)
Others	11	(10.47)
Cost of contraception		
Cheap	115	(79.31)
Average	28	(19.31)
Expensive	2	(1.37)

Although statistically insignificant, contraceptive methods use increases with increasing level of education, 53.8% among higher degrees holders compared to 23.9% among illiterate/read and write women, as its shown in Table 4.

Table 4: Association between the degree of education and current use of contraception

Variable	Current use of contraception			P value
	No (%)	Yes (%)	Total (%)	
Degree of education				
Illiterate/read & write	76 (76.1)	21 (23.9)	79(100)	0.088
Primary/secondary	65 (65.7)	34 (34.3)	99 (100)	
Institute/college	31 (62)	19 (38)	50 (100)	
Higher degree	6 (46.2)	7 (53.8)	13 (100)	

There was a significant association between number of children and residence. As shown in table 4 below 33.3% of rural women have 4-6 children compared to 24.5% for urban women, as shown in table 5.

Table 5: Residence and number of children

Variable	Number of children				P value
	≤3 No.(%)	4-6 No.(%)	≥7 No.(%)	Total (%)	
Residence					
Urban	154 (70)	54 (24.5)	12 (5.5)	220(100)	0.027
Rural	15 (50)	10 (33.3)	5 (16.7)	30 (100)	

Discussion

This research briefly provides information on contraceptive use by married women in Erbil city. The findings highlight several trends in this regard. It discusses the extent of use of contraceptive methods and factors that influence their use among women in stable marital relations attending health facilities in Erbil city. It helps to identify socio- demographic and socio- cultural and issues that are the causes to use and barriers in front of using contraceptive methods.

In our study, married women were asked about their knowledge regarding different types of contraceptive method, (96%) of omen heard about contraceptive methods, either from their

surroundings or they have asked for information about them, the remaining (4%) didn't know about contraception. Such knowledge does not necessarily mean that such persons have adequate exposure to the use of contraceptive because other decision making influences could determine its use or otherwise, comparing our study to a study conducted in Nigeria in 2014 most of the women (94.2%) were knowledgeable about contraception, which is approximately near to our findings.[12]

At any specific point in time, women of child bearing age are using or not using contraception depending on whether they are sexually active and their current plans, intention, and expectation for birth. The use of contraception provides a measure of cumulative experience of population with family planning. At any time, in our study, (58%) of all women reported ever using a method of contraception which is higher than women who do not use contraceptive (42%). This finding is almost similar compared to the percent distribution of women in the United States in 2006-2010, which showed that 63% were using contraception and 38% were not using contraception. [13]

In the current study it was observed that the use of contraceptive methods increased with the level of education, in which most women (53.8%) with high degree education use contraceptive methods compared to those with illiterate/read and write (23.9%). This also is supported in this study by using of contraceptives among women with institute/college education which is (38%) and it's more comparing with those women with primary/secondary education. These findings are consistent with other studies like the one in Uganda in 2011 which showed strong association between education level and contraceptive use.[14]

Regarding the current type of birth control used by the study sample, the study showed that most of the women preferred to use IUD (47%) followed by pills (36%) then condom (13%) and least was injection (3%). This finding of high prevalence of IUD use agree with that of Asian countries as Asia has the highest IUD use in comparison with other regions.[15]

One of the major causes of avoiding contraceptives was fear from its side effects (38%), they considered that using of contraception affects their health in a bad manner, a significant portion of them stressed that it has high effect on their health, and they thought there are better ways of controlling pregnancy including the traditional way (26%). Our finding is approximately near to

that of finding in 2014 of roughly (35%) of women in Latin America, (28%) of women in Africa, and (23%) of women in Asia are not using contraception because they are concerned about side effects and health risk of methods, or they find the methods inconvenient to use.[16]

Regarding the cost of contraceptives, the majority of women (79%) thought that the cost was cheap, compared to only 2% of them who thought that they are expensive. This might be justified by the fact that 54% of women get the contraceptives from hospitals, compared to 36% from the pharmacies and 4% from private clinics, and of course getting these contraceptives from private pharmacies and clinics will have its own financial implications.

Limitations of the study:

The major limitation in our study was the small sample size because of our limited time. Also male partners were not directly involved in the study.

Conclusions

Most of the women that participated in our research had knowledge and information about contraception, and more than half of them already used at least one contraceptive method. The majority of women preferred to use intra uterine device IUD rather than other methods. Women's educational level didn't have any significant effect on the use of contraception. The main contraceptives' disadvantage reported by women was irregular bleeding. The majority of women thought that the cost of contraceptives is cheap.

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EFFECTS OF HEMODIALYSIS ON THE ESTIMATED LEVEL OF UROTENSIN II IN CHRONIC RENAL FAILURE MALE PATIENTS IN ERBIL CITY

Sherwan Rahman Sulaiman *

Jassim Muhammed Ibrahim **

* M.B.Ch.B, M.Sc.PhD. (Medical Physiology), Department of Medical Physiology, College of Medicine, Hawler Medical University, Erbil, Iraq.

** M.B.Ch.B, M.Sc. (Medical Physiology), Department of Medical Physiology, College of Medicine, Hawler Medical University, Erbil, Iraq.

Abstract

Background and objectives: Human urotensin II (UII) is a potent mammalian vasoconstrictor thought to be produced and cleared by the kidneys. Conflicting data exist regarding the relationship between UII concentrations, kidney function and blood pressure (BP). We examined the effects of hemodialysis on the plasma level of urotensin II concentrations in chronic renal failure male patient.

Methods: In this study, 40 male patients on maintenance hemodialysis were enrolled. We estimated the urotensin II concentrations by the ELISA method. We compared the urotensin II concentrations before and after hemodialysis for each patient, using paired t-test.

Results: The effects of hemodialysis on the urotensin II concentrations were statistically non-significant as the p value was >0.05, (p=0.6983), but we found that the hemodialysis has a statistically significant effects on the Glomerular Filtration Rate (GFR), blood urea, serum creatinine, systolic blood pressure (SBP) and diastolic blood pressure (DBP), with p value of (0.0330, 0.0001, 0.0001, 0.0001, 0.0001), respectively. It has been found that the urotensin II is correlated positively with both blood urea and serum creatinine and correlated negatively with SBP and DBP, although these correlations were statistically not significant.

Conclusion: These results suggest that the hemodialysis has no significant effects on the urotensin II concentrations before and after HD, but we found that the HD has a statistically significant effect on SBP or DBP and on renal functions.

Keywords: Urotensin II; Chronic Renal failure.

Introduction

UII is one of the most potent vasoconstrictors in mammals.[1-3] Although both UII and its receptor, G protein coupled receptor-14 (GPR14), are detected in several tissues, kidney is a major source of UII in humans.[4-7] It's suggested that U-II may have a possible autocrine/paracrine functions in kidney and may be an important target molecule in studying renal pathophysiology.[2] It has several effects on tubular transport and probably has active role in renal hemodynamics.[7-9] It is an important peptide in renal physiology, certain diseases, such as hypertension and glomerulonephritis, Alter the expression of UII.[1] UII is a potent mammalian vasoconstrictor thought to be produced and cleared by the kidneys.[1] Conflicting data exist regarding the relationship between UII concentrations, kidney function and blood pressure (BP).[2] The urotensins are a family of vasoactive peptides first isolated from various fish species nearly 40 years ago and later from frogs, rodents, pigs, primates and humans.[3] The vasomotor effects of UII vary greatly, depending on the species studied, interactions with other vasoactive molecules and the vascular bed used. [9-12] The kidney plays a major role in UII production, which may contribute to its hemodynamic effects.[12-15] UII can also be synthesized in non-renal tissue, such as the heart.[4] Some researchers have shown that UII may play a cardioprotective role in patients with ischemic heart disease and CRF.[3] Several studies have shown increased UII levels in patients with chronic kidney disease (CKD).[2] Some investigators implicate UII in the pathophysiology of many diseases including CKD.[15,16] Previous studies have shown an increase in the UII levels in patients with CKD, including those undergoing HD.[5] Increased levels of UII were noticed in Plasma from patients with renal failure (2 ± 3 fold greater than control), with those on dialysis recording the highest concentrations.[5] The increased plasma UII in renal failure patients may reflect reduced clearance by the kidneys, but increased production of UII in disease cannot be discounted.[6] This study aimed to examine the effect of HD on the plasma level of UII in CKD patients.

Methods

The study was conducted in Erbil city during July and August 2015. A sample of 40 adult male patients with CRF on maintenance hemodialysis in Hawler dialysis center, Hawler teaching hospital was included in the study. The UII level was estimated for each patient before and after HD. We classified our patients into several groups which include: hypertensive and non-hypertensive, diabetic and non-diabetic, those taking calcium channel blocker and those not taking calcium channel blocker, and then we compared the level of UII before and after HD for each group. Also, we classified our patients according to their body mass index (BMI) into the following groups: underweight those with BMI of <18.5, normal weight those with BMI=18.5-24.9, overweight those with BMI=25-29.9, obese those with BMI=30-39.9, then we compared the UII level before and after HD for each group. Height and weight of the participants were measured before hemodialysis using a portable stadiometer from Seca- USA and digital weight scale from Seca-USA. BMI was calculated using the formula: Weight (Kg) /Height (square meter)(WHO, 2008). BP was recorded for every participant before and after HD using a mercury sphygmomanometer from morningside pharmaceuticals-UK. Inclusion criteria included all male patients on maintenance HD. Exclusion criteria included females, children and smoker patients.

This study was a part of MSc thesis and the study proposal was approved by both the scientific and the ethical committee of the College of Medicine, Hawler Medical University, Erbil, Kurdistan region, 2015-2016.

A sample of 5 ml of venous blood were taken from each patient before and after HD, the blood was withdrawn from any accessible vein, About 3 ml of each blood sample was rapidly placed in a vacuum blood collection tube containing (anticoagulant-EDTA), from unimedica-Jordan, centrifuged immediately for 20 minutes at room temperature at 3000rpm using (Tomy GRX-high speed centrifuge, Tokyo, Japan). The plasma was separated and stored in a flat- bottom blood collection tube with screw cap with no anticoagulant from citotest-China at -20 - 80 celsius and assayed a week later for the estimation of human UII hormone. The remaining 2 ml of the blood samples were placed in serum separator tubes (clot activator tube) from AFCO-Jordan, left aside for 20 minutes to clot and centrifuged for 15 minutes at 3000rpm

using Labofuge 200 centrifuge-Germany.The separated serum was used for biochemical analysis of (Creatinine, Urea and Electrolytes).

Measurement of plasma UII was done using human UII ELISA kit from Thermoscientific-USA. The whole procedure was carried out in Nanakaly hospital in Erbil city using Bio-Tek® microplate reader and Bio-Tek® automatic microtiter plate washer-USA. All the steps in the preparation of the samples and standards and the measurement procedures were according to the procedure provided by the manufacturer. The measurement of blood urea, serum electrolyes and serum creatinine were carried out in the laboratory of dialysis center at Komary hospital in Erbil city. The Cockroft–Gault equation was used for the estimation of the GFR. The data was analyzed using the GraphPad Prism 6.01 for windows. All the data are expressed as mean, standard deviation (SD) and/or standard error (SE). Statistical analysis was used according to the paired t- test for comparing the samples. Pearson's correlation coefficient was also used to correlate the measured parameters. A P-value of 0.05 or less was considered to be statistically significant.

Results:

Socio-demographic informations of the participants

The socio-demographic information of the participants are shown in (Table 1), the majority of our participants were old age, age group ranging between (60-69.9 yrs), most of them with normal BMI (BMI=18.9-24.9) and most of them were hypertensive (25 out of 40 patients).

Table 1: Socio-demographic information of the participants

Variable	No.	%
No of patients	40	100
Male	40	100
Female	0	0.0
Smoker	0	0.0
Non-smoker	40	100
Age group in years		
20-29.9	3	7.5
30-39.9	7	17.5
40-49.9	5	12.5
50-59.9	9	22.5
60-69.9	13	32.5
70-79.9	3	7.5
BMI		
Less than 18.5	4	10
18.5-24.9	18	45
25-29.9	10	25
30-39.9	7	17.5
More than 40	1	2.5
Diabetic	15	37.5
Hypertensive	25	62.5

Estimation of UII:

In this study the level of UII was estimated for each patient before and after HD using paired t-test of the same sample, the result was statistically non-significant as the p value was > 0.05 (Table 2 and figure 1), the GFR, blood urea and serum creatinine were also estimated for each patient before and after HD using paired t-test for the same sample and the results were statistically highly significant as the p value was < 0.05 (Table 2 and figure 2, 3, 4). In this study, we didn't find any statistically significant correlation between UII and other parameters of the study like (GFR, blood urea serum creatinine and serum electrolytes), as the p value was > 0.05.

Table 2: Comparison of the mean±SE of UII, GFR, blood urea and serum creatinine level before and after HD.

	Before	After
UII (Pg/ml)	103.8±7.42	100.7±9.29
GFR (ml/min)	20.34±4.46	40.27±8.23
Blood urea (mg/dl)	137.4±6.70	80.52±6.03
S. creatinine (mg/dl)	6.27±0.36	3.77±0.30

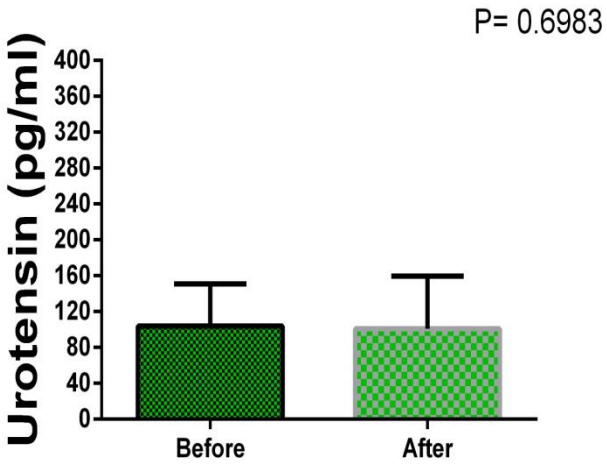

Figure 1: Plasma UII level before and after HD. The difference was not statistically significant as the P value is >0.05 (p =0.6983).

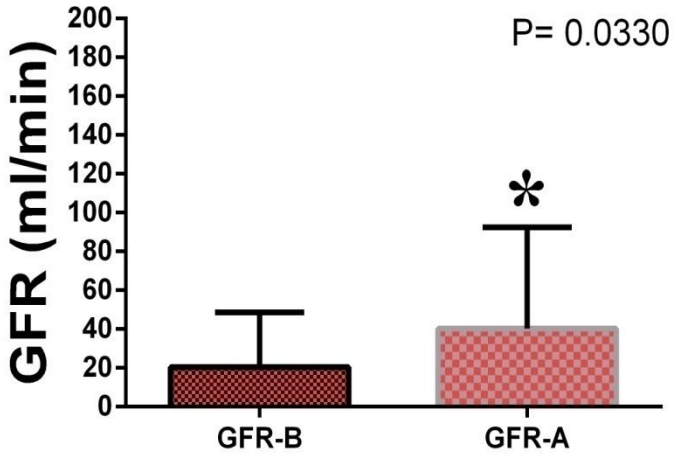

Figure 2: Level of GFR before and after HD. The difference was statistically significant as the p value is <0.05 (p value = 0.0330).

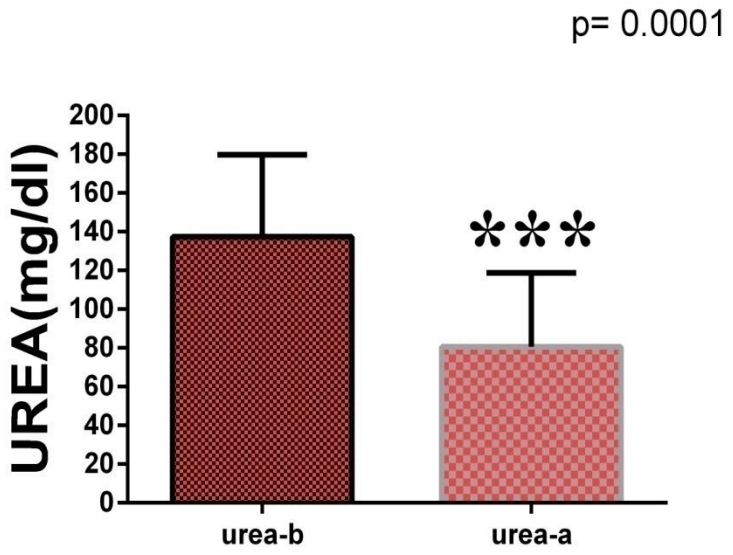

Figure 3: Showing the mean blood urea before and after HD.The difference was statistically highly significant as the P value is <0.05 (P value = <0.0001).

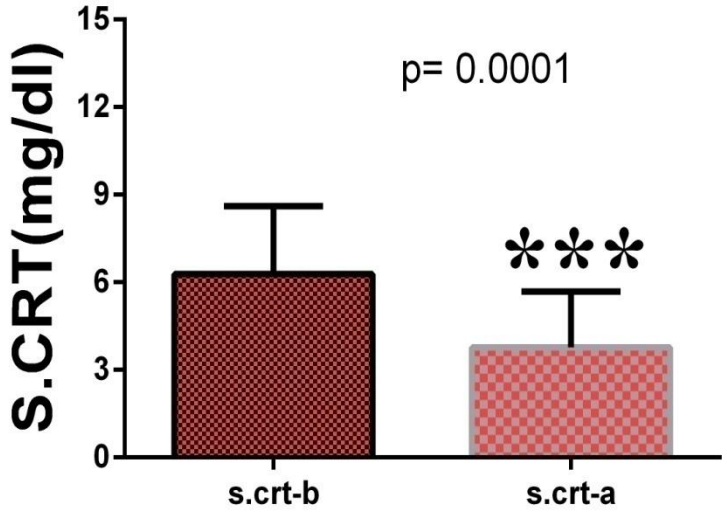

Figure 4: Showing the mean of creatinine level before and after HD. The difference was statistically highly significant as the p value is<0.05 (p value = <0.0001).

Discussion:

In this study we found that the HD has no significant effects on the level of UII. Although the mean of UII after HD has declined from (103.8-100.7pg/ml) but, it was statistically not significant as the p value is > 0.05 (p=0.6983), (Table 1 and Figure 1), in other related study like in Mosenki *et al.*[6] the mean UII has increased significantly after HD as the p value was <0.05 (p=0.008), The UII measurements in our study were made by enzyme-linked immunoassay, whereas the above study used radioimmunoassay. This difference in methodology may partly explain the difference in the results of these studies, another point could be due to the difference in patient populations between our study and the above one. Other studies like Totsune, *et al.*[7] and Mehmet Hursitoglu, *et al.*[8] they found different results in Totsune, *et al.*[7] the mean UII concentration was increased significantly after HD while in Mehmet Hursitoglu, *et al.*[8] the mean UII was increased, but the results were statistically not significant. We can only speculate that the insignificant effect of HD on the UII level in our study could be due to the following factors like, small sample size, the size of filter which is used in the dialysis machine, the duration of dialysis and the frequency of dialysis. For the future research it will be of great importance if the researcher could classify his subjects according to the above factors. In the present study the renal functions in the form of GFR, blood urea and serum creatinine were compared before and after HD, we found that the mean of GFR has increased significantly and this result is statistically significant as the p value is <0.05 (p=0.033), (Table 1 and Figure 2)**.** We also found that the mean of blood urea and serum creatinine has declined significantly (Table 1 and Figure 3, 4). These results were statistically highly significant as the p value is <0.05. These results are consistent with the results of other related studies like in Mosenki *et al.*[6] and Noor ul Amin, *et al.*[9] , so we reached into a conclusion that HD has a statistically significant effect on renal functions, blood urea, serum creatinine.

Conclusion

The study concluded that the HD has no statistically significant effect on the level of UII before and after HD. The current study concluded that the HD has statistically significant effect on the level of GFR, blood urea and serum creatinine before and after HD. We concluded that there is no statistically significant correlation between UII and other parameters of the study like (GFR, blood urea and serum creatinine).

Conflicts of interest

The authors report no conflicts of interest.

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Knowledge and Attitudes of Medical Students about Organ Donation in Erbil City/Iraq

Authors: Ayman H. Muhammed[1], Ahmad A. Ghareeb[1], Taba A. Ismail[1], Shokhy D. Ramadhan[1], Soma B. Mustafa[1], Nazho A. Muhammad Said[1], Samir M. Othman[2]

Corresponding author:
Samir M. Othman
Assist. Prof. of Community Medicine
College of Medicine
Hawler Medical University
Erbil_Iraq
E mail: Samir.othman.@med.hmu.edu.krd
Tel: +964 750 448 88 91

[1] Fourth year medical students, College of Medicine/HMU/Erbil/Iraq

[2] Assist. Prof. Community Medicine Department, College of Medicine/HMU/ Erbil/Iraq

Abstract:

Background and objectives:

Organ donation is one the major health related issues worldwide. During the past few decades, organ donation has been increasing globally as the modality of treatment for many end-stage organ diseases. The main aim of this study was to study the perception, awareness and beliefs about organ donation and to establishing a relationship between various socio-demographic data on awareness and perception of organ donation among Hawler Medical University students in Erbil.

Methods:

A cross-sectional descriptive study carried out from the period of September 22 to October 28 2016 at Hawler Medical University in Erbil city, involved a convenience sample of 391 medical students. Self-administered questionnaire and online questionnaire were used for data collection, which included socio-demographic characteristic of students, and other questions related to their awareness about organ donation. SPSS used for data entry and analysis.

Result:

This study showed that (45.8%) were males, and (54.2%) were females. Age of students ranged from 18 to 28 years with mean ±S.D of 21.5±1.9 years. The overall knowledge and attitude of students about organ donation was (91.3% and 65.5%), respectively. Significantly highest positive attitude (68.1%) among those had good knowledge, P <0.001.

This study revealed that 52.7% of the students were ready to donate and after death donation was the most preferred choice among participants (51.5%). About 45% mentioned that organ donation was not safe for their health (45.0%), and (20.0%) fear from surgery as reason for not donate organ.

Conclusion:

Most medical students were aware about organ donation and had good knowledge and positive attitude about organ donation and most of them showed readiness to donate organ. These data might play a major role in educating, spreading awareness and motivating the public regarding organ donation.

Key words: Knowledge, attitude, organ donation, medical student, Erbil city

Introduction:

During the past few decades, organ donation (OD) has been increasing globally as the modality of treatment for many end-stage organ diseases; it's a unique social activity that affects the delivery of healthcare to patients. However, this strategy of treatment in concerned with many critical issues including, ethical, medico-legal and religious aspects.[1,2] Through organ transplantation thousands of lives all over the world can saved. [3]

Around the world, several organ donation policies have been developed in order to increase the donor population, for instance, opt-in and opt-out systems. Opt-in system states that people have to actively sign up an official registration paper to donate their organs after death [4]. Factors that might affect donor availability are including healthcare spending and public educational level and attitude. [5]

Although it's illegal to sell human organs and tissues in almost all the countries (as for instance, the US National Organ Transplantation act (public law 98 -507) those who violate this law will be subjected to fines and imprisonment). But, in spite of the presence of black markets for organs, there's an alarming phenomenon called "Organ or Transplant Tourism". Every year, thousands of people travel from Europe, Middle East, US to countries that are known to have high rates of poverty like India, China, Pakistan and Philippines searching for people who are willing to donate organs in an attempt to pay off debts; this denotes how financial status can directly affect the process.[6]

There is a significant relation between public attitude towards OD and availability of such organs.[7,8] Thus the main concern of most transplant surgeons is to increase the donor pool and spread the willingness of donation among healthy individuals. Evaluation of public knowledge and attitude towards OD is of crucial importance to evaluate and develop educational programs to raise the public commitment to OD.[9,10] Knowledge and attitude of health care providers towards OD plays a major role in promoting the concept among population.[11] Furthermore, it is of great importance to understand the impact of the educational process among other cultural factors on medical students' attitude towards OD. [12]

According researchers knowledge there is no publish data about organ donation, so therefore the current study carried out in order to assess knowledge and attitude of medical students toward organ donation and to investigate factors might affect their attitude toward organ donation.

Methods:

A cross-sectional study was conducted among medical students of Hawler medical University in Erbil city, from periods between Sep.22 to Oct.28 2016.

Medical students from second year to final year of academic year 2016-2017 were included in the study. The sample size was determined by EPI INFO version 7, by using 95% C.I with expected frequency of 50% and population of 2174 students. The estimated sample size was 326; however, 391 students were participated in the study. Convenient sampling method was used to select students from colleges. A modified questionnaire from other previous studies [3,13] was used for data collection. The questionnaire was in English language and included information about certain demographic characteristics of the participants (age, gender, religion, ect…), and questions related to organ donation.

Eight questions evaluated the knowledge of participants about organ donation; less than four question answered correctly was regarded as poor knowledge and more than four questions answered correctly regarded as good knowledge. The 12 items had evaluated students' attitude toward organ donation. Score from 0-5 regarded as negative attitude and scores ranged from 6-12 regarded as positive attitude about organ donation.

The process of data collection was carried by using two ways; printed paper distributed among participants of some colleges, and online questionnaire posted in official Facebook groups of others. The collection of information lasted for six days. Also, an official letter has been prepared from the dean of the college in order to facilitate the process.

A questionnaire was piloted on 15 students from college of medicine, in order to assess the content. The pilot study revealed that questions were clear and understandable and students had no difficulty in answering questions.

Aims of the study have been clearly explained for all participants. Informed consent was obtained from each participants; both verbal (for those answered on papers) and written (for the online questionnaire).

Statistical package of social science (SPSS version 18) was used for data entry and analysis. Descriptive statistics as a first approach was used to determine frequencies and percentages. In analytic statistics a chi-square association test was used for categorical variables. P value ≤ 0.05 regarded as statistically significant.

Results:

This study showed that out of 391 participants, 179 (45.8%) were males, and 212 (54.2%) were females. Age of students ranged from 18 to 28 years with mean ±S.D of 21.5±1.9 years. About 38% of participants were from College of Medicine, 23.8% from College of Dentistry, 19.4% from college of Pharmacy and 9.0%, 10.2% from college of nursing and college of science in respectively.

Among total 391 participants, vast majority 378 (96.7%) were heard about organ donation, among them the most common source of knowledge was internet & mass media (43.7%). The frequency of major sources is shown in Fig.1.

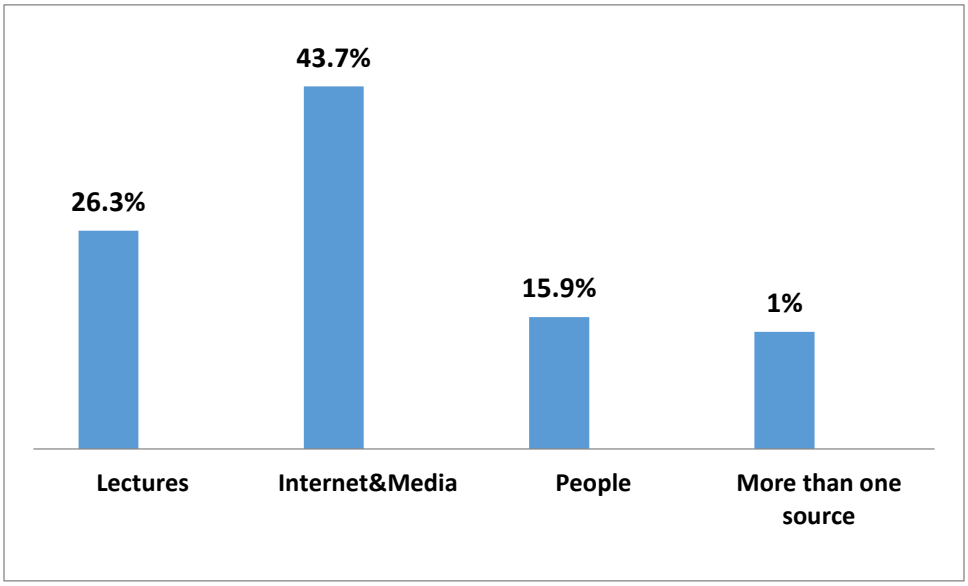

Fig. 1: Sources of knowledge about organ donation.

This study revealed that the overall knowledge score among the study sample was 91.3%; higher among females (93.9%) than males (88.3%), p 0.05, and a statistically non significant association was found between gender and attitude toward organ donation, Table 1. The current study also revealed that there was a statistically significant association between good knowledge and positive attitudes towards organ donation, those had good knowledge had higher positive attitude score (68.1%), than those had who poor knowledge (38.2%), P <0.001., Table 2.

Table 1: Association between knowledge, attitude about organ donation and gender.

Variable	Gender				Total		P value
	Male		Female				
Knowledge	No.	(%)	No.	(%)	No.	%	
Good	158	(88.3)	199	(93.9)	357	(91.3)	0.05
Poor	21	(11.7)	13	(6.1)	34	(8.7)	
Attitude							
Positive	109	(60.9)	147	(69.3)	256	(65.5)	0.08
Negative	70	(39.1)	65	(30.7)	135	(34.5)	
Total	179	(100.0)	212	(100.0)	391	(100.0)	

Table 2: association between knowledge and attitude about organ donation

Knowledge score	Attitude score				Total		P value
	Negative attitude		Positive attitude				
	No.	**(%)**	**No.**	**(%)**	**No.**	**(%)**	
Good Knowledge	114	(31.9)	243	(68.1)	357	(100.0)	<0.001
Poor Knowledge	21	(61.8)	13	(38.2)	34	(100.0)	
Total	135	(34.5)	256	(65.5)	391	(100.0)	

The current study revealed that 89% of students thought organ donation is beneficial/saves lives and 53% of them were ready to donate organ. However; most of them (63.1%) still had not informed their families about their willingness towards donation and 80.1% were willing to donate any organ "when possible", and 19.9% were not ready to donate any organ (for instance, they might donate only one kidney, or a lobe of liver).

Regarding relation between readiness for organ donation with religion and colleges; this study showed a statistically non significant association, while a statistically significant association was found between gender and readiness for organ association, in which female students were more ready to donate organ than males (59.2% versus 40.8%), p=0.036, Table 3.

Table 3**:** Relation between gender, religion and colleges with readiness for organ donation.

Variables	Readiness for donation				Total		P value
	Yes		No				
Religion	**No.**	**(%)**	**No.**	**(%)**	**No.**	**(%)**	
Muslim	183	(52.4)	166	(47.6)	349	(100.0)	
Christian	18	(54.5)	15	(45.5)	33	(100.0)	0.959**
Others*	5	(55.6)	4	(44.4)	9	(100.0)	
Gender							
Male	84	(46.9)	95	53.1	179	(100.0)	0.036
Female	122	(57.5)	90	42.5	212	(100.0)	
College							
Medicine	69	(46.9)	78	(53.1)	147	(100.0)	
Dentistry	53	(57.0)	40	(43.0)	93	(100.0)	
Pharmacy	46	(60.5)	30	(39.5)	76	(100.0)	0.289
Health science	19	(54.3)	16	(45.7)	35	(100.0)	
Nursing	19	(47.5)	21	(52.5)	40	(100.0)	
Total	206	(52.7)	185	(47.3)	391	(100.0)	

*Others: Kakayi, Zardashti, & Agnostic.
** Fisher Exacts' test

Regarding the preferred time for donation, more than half of participants preferred donation after death, while 34% and 14.6% of them preferred donation at any time and during life in respectively. Among those who responded "Yes" for donation, 166 (80.6%), were ready to donate organ to a recipient of another religion. Regarding donating organ to families, relatives, friends and any one in need, this study showed that more than half (51.5%) of them would donate organ after death, 14.6% donate during life, and 34% donate at any time, P<0.001. Details illustrated in Table 4.

Table 4: Relation between time of organ donation, and the preferred recipient.

Preferred recipient	Time of donation						Total		P value
	During life only		After death only		At anytime				
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
Family	20	(29.0)	17	(24.6)	32	(46.4)	69	(100.0)	
Relatives	3	(25.0)	3	(25.0)	6	(50.0)	12	(100.0)	<0.001
Friends	3	(21.4)	7	(50.0)	4	(28.6)	14	(100.0)	
Anyone in need	4	(3.6)	79	(71.2)	28	(25.2)	111	(100.0)	
Total	30	(14.6)	106	(51.5)	70	(34.0)	206	(100.0)	

Regarding the most important factors encouraging donation among those who responded as donate organ; most of the (74.8%) agreed on humanity, while financial problems seemed to be the least important factor for donation only (5.8%), Details shown in Fig.2.

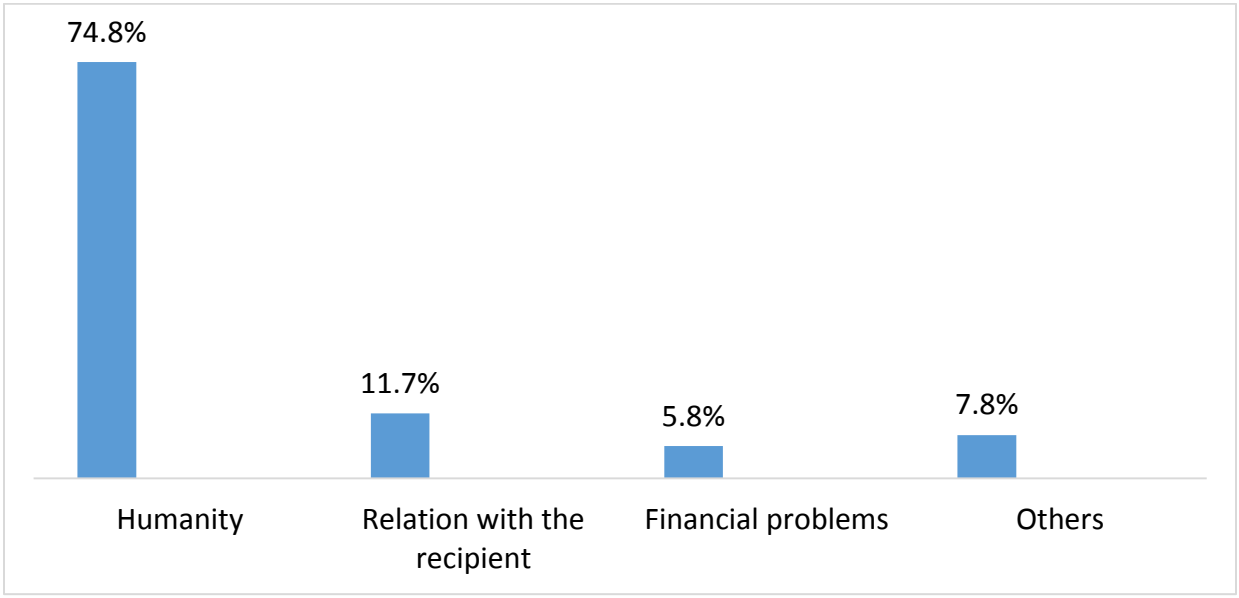

Fig.2: Percentage of responses about the most important factor for donation.

The most common reason behind donation refusal was the belief; that organ donation is not good for health (45%), followed by fear from surgery (20%). Only (5%) of the students refused due to the belief; that it's required to have an intact body after death (which is a religious belief), Fig.3.

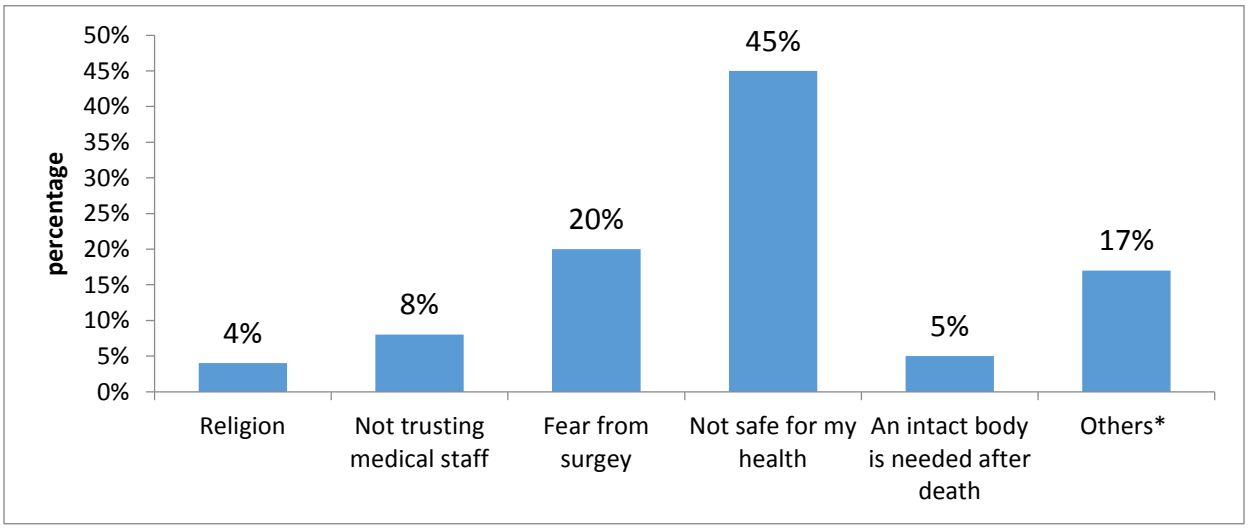

Fig.3: Frequency of the reasons behind refusing organ donation.

*Others: Not ethical, not having family consent.

Regarding the role of money, we asked whether financial support encourages donation or not. About (85%) of participants responded as "Yes", and (15%) of them replied as "No".

Students were asked whether they register, if an official donation center is opened, or not. More than half of them (57%) responded that they need more time to think about it and (34%) of them absolutely agreed for registration, while (9%) of the refused registration at all.

Discussion:

Organ and tissue transplantation has become an integral part of health care in every day nation, it's a community service which saves lives, and it's one of the most effective lifesaving procedures. The transplant technology and surgical methods continue to improve enhancing changes of survival and improved quality of life of recipients.

There is shortage of organ donor today all over the world. The success rate of donor program in any region is dependent on the knowledge and attitude of the people residing in that region towards organ donation.[3]

Our study revealed that, majority of students (96.7%) had heard about organ donation. This might be due to more availability of information sources regarding organ donation for medical students in our region. Major source of information came out to be internet and media (about 43.7%), followed by lectures (26.3%). Similar to our result, a research done in Pakistan revealed that the major source of knowledge for Pakistani medical students about organ donation was television (46.5%). This finding might be due to electronic media can be used as an effective channel for further conducting health related massages to increase knowledge, especially for their easy accessibility. [3]

In this study the overall good knowledge about organ donation was present in vast majority (93.1%) of medical student which is higher in comparison to other countries: Pakistan (65%)[14,15] and Nigeria (60%).[16] Regarding attitudes of students towards organ donation the overall positive attitude was present in (65.5%). Nearly similar finding was reported in studies done in Germany (55-70%)[17], Brazil (69%)[18], Pakistan (62%)[14], Turkey (59%)[19] , and China (50%)[20], while lower than that reported in Italy (91%)[21].

This indicates a suitable situation to explore various factors contributing to the positive attitude and good knowledge among medical students. This finding is supported by a statistically significant association between good knowledge and positive attitudes which was found in our

result, Table 2. In the current study, we found that female students significantly were more ready to donate organs than males (57.5 versus 46.9%). This finding agreed with many reports which concluded that female gender was significantly associated with positive attitude towards OD. [19,21] On the contrary, Boulware et al. reported that young males with higher education showed better attitude towards OD.[22] and in other studies statissignificant association between knowledge and attitude towards OD and student gender. [16,23]

In this study, the role of finance appeared to be strong, as 84.9% of the students agreed that providing fund will increase donor population. This finding is further supported by the result of another study done in Turkey, where 79.7% of students agreed on that issue.[19]

Although we expected that students of college of medicine will have more readiness to donate their organs due to several factors (including; studying anatomy lectures, being more familiar with surgery and surgeon's, etc.…), but the study findings denoted that students of college of Pharmacy were more ready for donation. However, the result was statistically non-significant.

According to the results, in our study most important factor encouraging organ donation among HMU students was "Humanity", with a proportion of 74.8%. This finding is relevant with another study carried out in Hong Kong. This may explain that most of the donor participants took empathy into consideration.[13]

In this study, donation to family members is 46.4%, while in another study done in Pakistan it was 62% for family members. Fortunately, in our study, we found that donating to friends and anyone in need was (28.6% and 25.2%) respectively, since the major factor for encouraging donation in our study was humanity.[3]

Regarding the appropriate preferred time for donation, we found that more than half (51.5%) of the students (among those who said "Yes" for donation readiness) preferred donation after death, while only 14.6% were ready for alive donation. Another study in Turkey revealed that 37.1% of their participants agreed donation alive. So, it's clear that most people prefer after death donation as they might believe that during life, donation might be risky for the reasons mentioned previously.[24] About donating any organ, we found that 42.2% (of the 206 students who agreed on donation), would donate any organ. While in Nigeria, willingness for kidney donation is the commonest (52.1%). This might be related to kidney transplantations being more common and successful than some other forms of transplantation.[25]

Limitations of the study: Convenient sample was used and the sample size was relatively small.

Another limitation was computation of a score for student knowledge and attitude based on the answers to a set of questions, but the nature of the questions provides this score a fairly feasible estimate in absence of standardized questionnaire to assess the knowledge and attitude of medical students towards organ donation.

Conclusion:

Most of medical students have good knowledge and positive attitudes toward organ donation. Most of them have willingness for donating their organs and females have more positive attitude toward donation than males. Financial status has a marked positive effect on student's attitude towards organ donation. The most common reason behind refusing the process was believe that organ donation is not good for health. Further studies need to be done among non-medical students to know their level of awareness about organ donation. An official center, for registration of organ donors, is needed to be present, and it should be accessible to everyone who wants donating.

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Attendance and Active participation of medical students in classrooms

Khalis Bilal Mohammed Ali

Gazang Noori Abdulla*

Van Sardar Omer Qadir*

Wafa Ezzaddin Muhiadeen*

Hawraz Mohammad Sdeq*

Hoshang Nuro Qader*

Rawezh Sabah Ahmed*

Correspondent: Khalis Bilal Mohammed Ali

Email:kalisbilal@yahoo.com

Mobile phone number: 07504478307

Address: college of medicine/HMU

*** Students of college of medicine/HMU**

Abstract:

Background and objectives: Attendance and participation has always been viewed as the elementary focus when it comes to student's progress and learning amongst classrooms. The main objective of this study is to assess the rate of attendance and participation of students and its association with their academic achievements.

Methods: A cross-sectional study was carried out among Hawler College of medicine students from 1st December 2015 through 12th January 2016. The data was collected using a self-administered questionnaire, which included questions on socio-demographic characteristics, attendance and participation, and achievements levels.

Results: A total of 385 students participated in this study, their age ranged from 18-25 years, with mean &SD 22.03 ± 1.56. The ratio of female to male was 1.1:1. The overall rate of attendance of students was 77.4% while the rate of active participation in classrooms was 53%. The results showed that the rate of attendance was highest amongst females (55.7%) and second stage students (87.2%), while the rate of participation was highest amongst females (56.9%) and fourth stage students (30.4%). There was a statistically significant association between attendance and active participation (P 0.000), and between those with regular attendance and participation with achieving greater rankings (P 0.028).

Conclusions: The rate of attendance was significantly associated with student's stage, gender, owning a car and ranking, while the rate of participation was significantly associated with student's stages. Increasing awareness of students about regular attendance and active participation is highly recommended.

Key words: Attendance, participation, medical students

Introduction:

Attendance and participation amongst students has been acknowledged as a fundamental basis for progress and learning. It is not only seen as a means to improve one's understanding and knowledge, but rather as a way to improve communication skills for the future.Student attendance and participation consists of four factors (skills, participation/interaction, emotional, and performance) which is becoming substantially important in higher education.[1]

The traditional 'lecture only' method is losing its prevalence in the classroom and is becoming replaced by mixed delivery methods which encourage and place great emphasis on group discussion, peer review and interactive learning. All of these methods aim to minimize lecturing and encourage a more student based learning scheme [2].

With the increasing importance placed on student achievement, there have been many studies conducted to try and target such an issue. Research done by a number of researchersall attempt to explore the relationship between student attendance and student achievement. With government programs such as 'No Child Left Behind' and many others, researchers are trying to identify factors which play the biggest role in student achievement [3].

Attendance by itself can be defined according to the Oxford dictionary as the action or state of going regularly to or being present at a place or event.[4]Attendance (or lack of attendance) can often be viewed as a key indicator for early warning signals of student performance and achievement. Literature indicates that regular attendance is an important factor in a student's success at school. Many have viewed attendance as an important variable in measuring academic performance.[5] Research has further suggests that there is a statistically significant relationship between student attendance and student achievement. Similar researches have attempted to highlight that student achievement is affected in a negative way by absenteeism or even lack of interaction within lectures [5,6,7].

On the other hand, participation is seen as the action of taking part in something.[8] Participation is an ambiguous issue that has long been focused on to try and combat 'disengagement, rather than on understanding and promoting engagement among students. Engagement is a complex cognitive process, including a student's psychological investment in their own learning and personal learning strategies. The internal nature of participation makes it difficult to define and measure. As such, it has been hard for researchers to determine which solutions can aid engagement and the impact student engagement can have on learning outcomes.[9] Participation alone varies slightly with individual instructors and researchers. It can be viewed as an active engagement process which can be sorted into five categories: preparation, contribution to discussion, group skills, communication skills,

attendance.[10]More emphasis is now being placed on approaches that involve problem solving, collaboration, discussion, authentic contexts, and action. There is less emphasis on teacher-centred instruction, information, passive and individual learning.[11]

Encouraging students to attend and participate in lectures, whether it is during theoretical or practically session has long been an issued faced in 'Hawler Medical College'. A number of approaches have been established amongst the lectures to try and encourage and create an interactive atmosphere. Many lecturers discourage 'one way teaching'. However many is still struggling to find means in order to better engaging the students. Further investigate into such topics must be done to address such an issue and to create awareness amongst staff members of the rising concerns of 'disengagement' amongst medical students during lessons. The study aims to find out the prevalence of attendance and active participation of the students in the classroom, and to assess the relation between student achievement and factors affecting and attendance and participation, and allocate reasons for absence or non participation.

Subjects and Method:

It is a descriptive cross-sectional study, conducted at Erbbil College of Medicine, from 12th of December 2015 through 12th of January 2016. A convenience sample of 385 out of 842 students was chosen from 2nd to 6th stages of the College. A synonymous questionnaire was prepared for this purpose, wfich divided into 3 parts: First part consisted of socio-demographic characteristics of study sample such as age, gender, stage, residency, etc.., second part focused on student's attendance to the classroom, and third part focused on the participation of the student within the classroom. The data was filled by each student (self-administered) after clarifying the aim of the study to them, and obtaining oral consent to participate in the research. A statistical package for social science (SPSS-version 20) was used for data entry and analysis.

Results:

Table 1 shows that out of 385 students who participated in this study, that the highest rate of study sample was: age 21 (27.3%), fourth stage (33.2%), female students (52.5%). This Table also shows that the lowest rate of study sample were age 18 (1.6%), sixth stage (14.3 %).

Table 1: Frequency distribution of different variables

	Frequency	Percentage (%)
Age:		
18	6	1.6
19	72	18.7
20	66	17.1
21	105	27.3
22	66	17.1
23	42	10.9
24	21	5.5
25	7	1.8
Stage:		
Second	78	20.3
Third	66	17.1
Fourth	128	33.2
Fifth	58	15.1
Sixth	55	14.3
Gender:		
Female	202	52.5
Male	183	47.5
Total	**385**	**100**

Table 2 demonstrates that from 385 participants, the highest rate of students that attended lessons regularly was amongst the second stage (87.2%) while the highest rate of students who didn't attend lessons was amongst the third stage (36.4%). There is statistical significant (P value = 0.003) association between different stages and attendance.

Table 2: Attendance according to stage

		Attendance		Total	P- value
		Yes No. (%)	No No. (%)		
Stage	Second	68 (87.2)	10 (12.8)	78 (100.0)	0.003
	Third	42 (63.6)	24 (36.4)	66 (100.0)	
	Fourth	103 (80.5)	25 (19.5)	128 (100.0)	
	Fifth	48 (82.8)	10 (17.2)	58 (100.0)	
	Sixth	37 (67.3)	18 (32.7)	55 (100.0)	
	Total	298 (77.4)	87 (22.6)	385 (100.0)	

Table 3 shows that from a total of 385 students, the rate of student's attendance amongst females was about 55.7 % and amongst males was about 44.3 %. There is a statistically significant (P value = 0.019) association between gender and attendance.

Table 3: Regular attendance according to gender.

		Gender		Total	P value
		Female No. (%)	Male No. (%)		
Attendance	Yes	166 (55.7)	132 (44.3)	298 (100.0)	0.019
	No	36 (41.4)	51 (58.6)	87 (100.0)	
	Total	202 (52.5)	183 (47.5)	385 (100.0)	

Table 4 shows that from 385 students, those that own a car are less likely to attend (71.2%) the classroom in comparison to those do notown a car (81.75%), and this finding was statistically significant (P = 0.016).

Table 4: Association between attendance and owning a car

		Own a car		Total	P value
		Yes No. (%)	No No. (%)		
Attendance	Yes	111 (71.2)	187 (81.7)	298 (77.4)	0.016
	No	45 (28.8)	42 (18.3)	87 (22.6)	
	Total	156 (100)	229 (100)	385 (100)	

Table 5 explains that from a total of 385 students, about 4.4% of those students who work as a medical representative attend lessons less than students don't work as a drug representative but do attend lessons regularly (8.0%) and there is no statistical significant (P value = 0.173) association between attendance and medical representative.

Table 5: Attendance versus working as a medical representative.

		Medical representative		Total	P value
		Yes No. (%)	No No. (%)		
Attendance	Yes	13 (4.4)	7 (8.0)	20 (5.2)	0.173
	No	285 (95.6)	80 (92.0)	365 (94.8)	
	Total	298 (100)	87 (100)	385 (100)	

Table 5 demonstrates that from a total of 385, about 87.6% of students who had regular attendance were ranked between 1-25 and about 43.4% of students who hadn't have regular attendance had 'second trials'. There is a statistical significant (P value = 0.000) association between attendance and students ranking.

Table 5: Attendance and its effect on ranking of the students

		Attendance		Total
		Yes No. (%)	No No. (%)	
Ranking	1-25	58 (87.6)	8 (12.1)	66 (100.0)
	26-50	46 (82.1)	10 (17.9)	56 (100.0)
	50-75	66 (82.5)	14 (17.5)	80 (100.0)
	76-100	51 (85.0)	9 (15.0)	60 (100.0)
	>100	34 (72.3)	13 (27.7)	47 (100.0)
	Second trial	43 (56.6)	33 (43.4)	76 (100.0)
	Total	298 (77.4)	87 (22.6)	385 (100.0)

Table 6 demonstrates that the highest rate of students who attended theory was: to avoid absenteeism (32.7%), and shows that from a total of 385 participants, the highest rate of students who choose to participate in lessons was to gain marks (28.1%).

Table 6: Reasons of attendance and participation

	Frequency	Percentage (%)
Why student's attend lessons:		
To avoid absenteeism	126	32.7
Learning	105	27.3
Enjoyment of topic	30	7.8
Improve understanding	26	6.8
Peer influence	13	3.4
Remain alone outside	10	2.6
Enjoyment with lecture presentation	9	2.3
Not all information are available in the power point	9	2.3
Quizzes	20	5.2
Missed (not attend theory)	**37**	**9.6**
Why student's participate:		
To get attention of the lecturer and student	65	16.9
To be distinguished	42	10.9
Gaining marks	108	28.1
For better understanding	103	26.8
Missed(not participate)	67	17.4
Total	**385**	**100**

Discussion:

Attendance and participation amongst medical students has been acknowledged as a fundamental basis for progress and learning. It is not only seen as a means to improve one's understanding and knowledge, but rather as a mean to improve communication skills for the future. The purpose of this study was to determine the rate of attendance and participation amongst students in 'Hawler Medical College'; this information is usually acquired by non-observable items mentioned below.

In the current study, 385 students were chosen randomly. From this number, the highest rates of participants were 21 years of age, from the fourth stage and female.

The result of the study showed that majority of medical students who attended lessons on a regular basis was amongst the second stage but quite low amongst sixth year students. In contrast, Gagliardi and Mazor, from the 'American Medical College',found that attendance within the first, three years of Medical College was quite frequent, where the curriculum was delivered by lectures, conferences, laboratories, small-group discussions and experiences in physicians' offices, ranging from 65-95%. But after these three years, students attendance began to decline, as about 95% of the lectures were recorded and the slides were provided online for viewing or downloading, making students less keen to attend. [9] These findings could be due to the implementation of the new curriculum that encourages small group teaching and as a result encouraging higher levels of attendance amongst students.

Our study illustrated that there is a greater number of attendance amongst female students in 'Hawler medical college' when compared with the number of attendance of male students. In accordance to the study conducted byGupta and Saks from 'Wood Johnson Medical School'[10] who found that there was a strong relation between attendance and gender of students, which was more common amongst female. In comparison, Desalegn,et al from 'Hawassa University'[11] demonstrated that the number of students who never missed class per semester was higher amongst male student (25.8%) when compared with females (19.7%).This could be due to the fact that there are more females attending the college in contrast to males.

The results from this research revealed that regular attendance amongst students is strongly associated with achievement of higher rankings within their academic years. Most students, who attended lessons frequently, achieved rankings ranging from 1-25, while students, who did not attend lessons on a regular basis, failed in some topics. These results were similar to Richard, et al [12] (Dublin, Ireland) research, who concluded that students who did not attend lectures regularly failed in an end of year examination (84%). The research also demonstrated that there was a positive correlation between attendance and academic performance. This is because higher achieving students pay more attention to the lectures and the information that is being administered to them.

The rate of participation was higher amongst females than males. However the association was not significant. This corresponds to a study conducted by She from Taiwan, who demonstrated that higher rates of participation were among females when compared with males [14]. In contrast to Caspi, et al from 'The Open University of Israel', discovered that males were more likely to become involved in face- to- face participation when compared to females who preferred 'written communication' instead[15].One explanation for the slightly higher level of participation among females could be due to the fact that females feel a greater need to attract the attention of the lecturer and to gain more marks as they are more concerned with their results when compared with males.

It was found that attendance was higher amongst student's whose father's education level was 'college'. In contrast, Desalegn,et al, from 'Hawassa University'[11] found that attendance of student's where higher amongst student's whose father's education level was 'primary school' and quite low amongst student's whose father's education level was 'diploma' and 'degree'. These findings could be due to the fact that father's education level may influence a student's dedication to their lessons at college. Students with a good social and economic status are less frequently expected to work and make money as a result concentrating more on their grades and achievement.

The result of the study showed that many students did not attend theory or practical lessons due to the fact that they viewed the topics as being 'boring', followed by a 'dislike toward the lecture'. However, the research conducted by Oakley, et al from 'The University of Western Australia'[16]illustrated that the lack of attendance amongst college student was mainly due to 'genuine illness' followed by 'uninteresting lectures'. Both reasons suggest that a lack of knowledge about the topics being discussed will create a lack of interest and enthusiasm towards attendance.

Although there is no significant association between participation of students in lectures and their achievement, it was found that students who participated in lectures on a regular basis achieved higher rankings and did not fail in any topics during their final exams. This was in agreement with the research conducted by Handelsman, et al from 'The University of Colorado', reported that 'student engagement is an important predictor towards student's achievement' [1]. This link may have been due to the fact that lecturers encouraged participation by rewarding students with higher grades in their final evaluation. Participation was also viewed by the students as a way of improving their understanding of the topic. Around 78.2% of participants believed that interactive lectures provided greater benefit for them rather than the traditional 'one way lecture'.

Conclusion:

The study concluded that overall rate of attendance and participation was more than half of the sample. The rate of attendance was highest amongst female and students in the second stage, while the rate of participation was also highest amongst females and students in the fourth stage. The main reason why students chose to attend lessons on a regular basis was to ‘avoid absenteeism’, while the main reason why students chose to participate in lessons was to gain marks. Students ranking and topic failure was greatly influenced by their regular attendance and participation in lesson.

The study recommend increasing the awareness about attendance and participation to students in order to increase students overall outcome in their academic years. Also, encouraging lecturers to use different approaches to try and encourage and increase in the rate of attendance and participation amongst medical students. It is necessary to do further studies about students’ attendance and participation in lessons in order to identify further variables that might have an effect on the rate of attendance and participation.

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In Hospital outcomes of acute coronary syndrome with atypical presentation in Hawler Teaching Hospital

Jutyar Aziz Hussein*, Abdulkareem Abdulwahab Al-Othman**

Abstract

Background and objectives:

Few studies have highlighted in hospital outcomes of acute coronary syndrome in patients presenting with atypical symptoms.

This study was conduced to evaluate the role of atypical presentation of acute coronary syndrome on early in-hospital mortality, arrhythmias, cardiogenic shock, Global Registry of Acute Coronary Events risk score, as well as early systolic dysfunction and ischemic mitral regurgitation.

Methods:

In a prospective study consisted of 100 consecutive patients (67 male, 33 female), their mean age (57.53±12.3) years with first acute coronary syndrome who had been admitted to the Coronary Care Unit at Hawler Teaching Hospital from April 2015 to December 2015 were enrolled in these study.

Patients with atypical presentation of acute coronary syndrome were labeled as group A (31 patients) and those with typical presentation were labeled as group B (69 patients).

Results:

In hospital complications including serious arrhythmias, cardiogenic shock, mortality high Global Registry of Acute Coronary Events risk score, early ischemic mitral regurgitation and early Left ventricular systolic dysfunction were significantly higher in group A versus group B.

Conclusion:

Atypical presentation of acute coronary syndrome considered as a high risk for early in hospital mortality, serious arrhythmias, cardiogenic shock, high Global Registry of Acute Coronary Events risk score, early left ventricular systolic dysfunction and ischemic mitral regurgitation.

Key words: Acute coronary syndrome

Introduction

Acute coronary syndrome (ACS) covers a wide spectrum of clinical presentation and the main cause of increased morbidity and mortality worldwide[1]. According to latest world health organization (WHO) data published in 2015, ischemic heart disease is the leading cause of death in Iraq, it kills 27.5 thousand people annually. Iraq is in rank 22 among other countries in which there is highest mortality related to coronary artery disease[2], even though still we lack accurate data registration in Iraq including Kurdistan region.

Chest pain has been regarded as the most frequent characteristic symptom of acute coronary syndrome, however in some patients the pain might be located in atypical areas, like upper abdomen, shoulder, neck, back or may present with fainting or only shortness of breath.

Patients who present with atypical symptoms are frequently misdiagnosed or lately diagnosed and less likely to receive optimal treatment for ACS. Consequently greater in-hospital morbidity and mortality are noted [3].

Few studies have highlighted the clinical significance and in hospital outcomes of ACS in patients presenting with atypical symptoms. In one cohort study in gulf region, 6704 patients presenting with ACS enrolled and categorized into three groups (typical, atypical, dyspnea) in hospital outcomes and mortality were worse in atypical and dyspnea group[4].

However up to our best knowledge, there were no published studies in Iraq, to study in hospital outcome of ACS with atypical presentations. This study sought to assess in hospital outcome of ACS in patients presenting with atypical symptoms including, mortality, arrhythmias, cardiogenic shock, GRACE risk score, as well as early systolic dysfunction and ischemic mitral regurgitation diagnosed by two dimensional transthoracic echocardiography.

Methods

This is a prospective study done on 100 patients with first time ACS who had been admitted to the coronary care unit (CCU) at Hawler Teaching Hospital from April 2015 to December 2015.

The inclusion criteria were any patients who diagnosed with ACS for first time, in whom duration of symptoms less than 24 hours.

Patients with left bundle branch block, previous history of ischemic heart disease, heart failure, valvular heart disease, rheumatic heart disease, congenital heart disease, chronic kidney disease

and patients who underwent percutaneous coronary intervention or coronary artery bypass graft were excluded from the study.

ST-segment elevation myocardial infarction (STEMI) was confirmed by 2mm ST elevation or more in chest leads or ≥ 1mm ST-segment elevation in two or more limbs leads with raised cardiac enzymes. Patients who had ST-T changes with raised cardiac enzymes were labeled as non-ST segment elevation myocardial infarction (NSTEMI) while negative cardiac biomarkers with ST-T changes had been regarded as unstable angina (UA) [5].

Risk factors for ischemic heart disease including, diabetes mellitus, hypertension, smoking, alcohol consumption, obesity and family history of ischemic heart disease were recorded, also physical and systemic examination had been done for all the patients. Laboratory studies had been done for all patients, including resting electrocardiography (ECG), cardiac enzyme, random blood sugar and renal function test.

Transthoracic two-dimensional color Doppler echocardiography had been performed for all patients within 4 days of admission to the CCU using Vivid S9 GE (2015). Ejection fraction (EF%) was determined by 2D guided M-mode approach[6]. Left ventricular systolic dysfunction (LVSD) in patients without ischemic mitral regurgitation (MR) defined, as left ventricular EF% of ≤50%, and ≤60 % in the presence of moderate to severe mitral regurgitation[7]. Vena contracta <3mm considered as mild mitral regurgitation, while vena contracta > 6mm considered as severe mitral regurgitation[8].

Patients classified according to their main presenting symptoms in to two groups, Group A patients with atypical symptoms, like epigastric pain, indigestion symptoms, diaphoresis, dyspnea, collapse, silent presentation. Group B patients with typical presentations of ACS like ischemic chest pain with or without radiation to arm, shoulder and jaw, with or without associated symptoms like nausea, vomiting and sweating.

The two groups were evaluated and compared according to the baseline characteristics of the study population, in-hospital outcomes (defined as arrhythmias, cardiogenic shock, mortality), GRACE risk score, LVSD and ischemic mitral regurgitation diagnosed by transthoracic two dimensional echocardiography.

Our patients were also classified according to GRACE risk score system to low score (≤108), intermediate score (109-140), and high score (≥140) risk groups, for early hospital prognosis[9].

Verbal and written consent obtained from all patients, and the ethical committee of Kurdistan Board for Medical specialties approved this study.

The data analyzed by Statistical Package for Social Sciences (SPSS) version 22 and the results compared between patients with different variables, with a statistical significance level of < 0.05. T-test and Chi square test were performed to compare between both groups.

Results

The total study group consisted of 100 patients with first time ACS, in which 67% male and 33% female; their age ranging from 25-78 year, mean age was (57.53±12.3) year. Atypical presentation of ACS was detected in 31 (31%) patients as shown in figure-1.

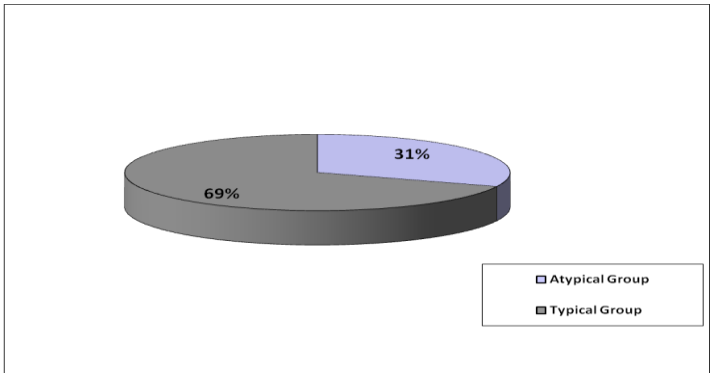

Figure 1. Frequency rate of acute coronary syndrome with atypical presentation

Patients with atypical presentation of ACS were older compared to those with typical chest pain, P=0.002, there were also significant statistical association between both groups in relation to hypertension, diabetes, and thrombolytic therapy. Patients with atypical presentation of STEMI, group A were less likely received thrombolytic therapy (16.7%) versus (100%) STEMI, group B, , P= 0.0001. There was no significant difference in the incidence of smoking, alcohol consumption, obesity, family history of IHD, gender and the types of ACS between two groups, as shown in table-1.

Table 1: Baseline characteristics of patients with typical and atypical presentation

Variables	Group A (No.31) No.(%)	Group B (No.69) No.(%)	P value
Mean age (±SD) year	61.81± 12.1	53.26±12.6	0.002*
Male, NO.67	18(58.1%)	49(71.0%)	0.20
Female, NO.33	13(41.9%)	20(29.0)	
Hypertension	20(64.5%)	24(34.8)	0.006 *
Diabetes mellitus	19(61.3%)	14(20.3%)	0.0001*
Smoking	16(51.6%)	35(50.7%)	0.93
Alcohol	2(6.5%)	12(17.4%)	0.14
Obesity	5(16.1%)	20(29%)	0.17
Family history	3(10%)	16(23.2%)	0.12
STEMI	12(38.7%	38(55.1%)	
NSTEMI	18(58.1)	25(36.2%)	0.10
UA	1(3.2%)	6(8.7%)	
Thrombolytic therapy	2(6.5%) 16.7% in STEMI	38(55.1%) 100% in STEMI	0.0001*

Group A patients had higher mean random blood sugar (196.68±92.350) and serum troponin (8.23748.275) compared with group B (149.30 ± 62.546) and (4.7160±5.010) respectively with significant statistical difference. Mean serum creatinine of atypical group (2.3090±1.5082) was higher than typical group (1.0654±05442) but without statistical significant, as shown in table-2

Table 2: Basic investigations of both atypical & typical presentation

Variables	Group A N:(31)	Group B N:(69)	P value
Mean RBS (mg/dl)±SD	196.68±92.35	149.30 ±62.54	0.003*
Mean S.Troponin I (ng/dl) ±SD	8.2374±8.27	4.7160±5.01	0.01*
Mean S. creatinine (mg/dl)±SD	2.30±1.50	1.06±054	0.31

In-hospital outcomes were higher among group A in the form of serious arrhythmias (42%), cardiogenic shock (45.2%) and death (10%), compared to group B (0.0%), (2.9%), (0.0%) respectively, (Table3).

Table-3: In-hospital outcomes in patients with typical and atypical presentation

Complications		Group A No.(%)	Group B No.(%)	P value
Arrhythmias	VF, VT	13(41.9%)	0(0%)	0.001*
	AF, SVT	7(22.6%)	2(2.2.9%	
Cardiogenic shock		14(45.2%)	2(2.9%)	0.001*
Mortality		3(9.7%)	0(0%)	0.01*

Seventy one percent of patients in group A had high GRACE risk score, compared with 10.1% of group B, While 63.8% of patients with typical symptoms (group B) had low GRACE score compared with 3.2% of group A, P=0.001, as shown in table -4.

Table 4: GRACE score in relation to both groups

GRACE score	Group A No.(%)	Group B No.(%)	P value
Low	1(3.2%)	44(63.8%)	0.001*
Intermediate	8(25.8%)	18(26.1%)	
High	22(71%)	7(10.1%)	

A high frequency rate of early LVSD diagnosed by transthoracic two-dimensional echocardiography recorded among group A (58%) as compared with group B (7.2%), p=0.0001. The mean ejection fraction of group B (65.07±8.4) was higher than that of group A (49.13±7.1), P=0.001,table-5.

The incidence of early severe ischemic MR was significantly higher among group A (6.5%) compared with group B (0.0%), P value of 0.001, as shown in table-5.

Table 5: Comparison of both groups in relation to ischemic mitral regurgitation and left ventricular systolic dysfunction

Variables		Group A No. 31	Group B No.69	P value
Mean EF% ± SD		49.13±7.1	65.07±8.4	0.001*
		No.(%)	**No.(%)**	
Ischemic MR	No	12(38.7%)	52(75.4%)	0.001*
	Mild	17(54.8%)	17(24.6%)	
	Severe	2(6.5%)	0(0%)	
LVSD	No	13(41.9%)	64(92.8%)	0.0001*
	yes	18(58.1%)	5(7.2%)	

DISSCUSION

In this study the prevalence of atypical presentations of ACS was 31%, which exceeds the results of gulf region in which 17% of them showed atypical presentation[4], also our results were in parallel to canto-et al, a study done in United States in which 33% of them were atypical[10].

Patients with atypical presentations of ACS were older compared to those with typical chest pain consistent with a study done in japan[11].this can explained by presence of multiple co morbidities in elderly, as well as reduced pain perception in elderly population.

The frequency of diabetes mellitus, as well as mean random blood sugar in group A were higher among (group-A) compared with (group-B), this is in agreement with a studies done by Kim Hyun kuk et al[12] and Ruano et al[13], this can be explained by autonomic neuropathy and prolongation of anginal perception threshold among diabetic patients with atypical presentation of ACS.

Hypertension was higher among group A compared with group B, similar to Hirakawa et al[14], a study done in Japan which shows higher prevalence of hypertension among patients with ACS who presents with atypical chest pain, this can be explained by the fact that most our patients with atypical presentation were older compared to patients with typical chest pain and most of them having diabetes mellitus as well.

The mean serum troponin I level was higher in (group-A) versus (group-B), in agreement with Hadi et al[15], which may be explained by late presentation and more myocardial damage among ACS patients with atypical presentation.

This study showed higher incidence of arrhythmias and cardiogenic shock among (group-A) compared to (group-B), in agreement with a study done in poland[16], which could be explained by late hospital admission of ACS patients with atypical presentation.

Mortality was higher among (group-A) versus (group-B), this is in agreement with Hirakawa et al[14], which could be explained by high frequency rate of diabetes mellitus, hypertension among patients with atypical presentation.

In the present study group A recorded high GRACE risk score versus group B . Similar finding had been observed in Hwang S.Y, et al[17].

Higher frequency rate of early LVSD reported among patients with atypical presentation of ACS as compared with typical presentation, no previous large scale studies done to evaluate the role of atypical presentation of ACS on early left systolic function. The incidence of ischemic mitral regurgitation among (group-A) patients was higher than (group-B), this is in agreement with Pant, *et al* [18], a study done in USA which showed that ischemic mitral regurgitation following ACS is more common in elderly, diabetics mellitus and hypertensive patients, also Spain study[19] concluded that ischemic mitral regurgitation even if it's mild is associated with poorer long-term prognosis.

Conclusion

Atypical presentation of ACS considered as a high risk for early in hospital mortality, serious arrhythmias, cardiogenic shock, high GRACE risk score, early LVSD and ischemic mitral regurgitation.

Conflicts of interest

The authors report no conflicts of interest.

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*MB,Ch,B.KBMS (Internal Medicine),Department of Medicine, Hawler Teaching hospital, Erbil, Iraq, e-mail: jutyaraziz@yahoo.com,Mobile:+0964 7504151837

** **Corresponding author.** MB,Ch,B. FICMS, Professor of Medicine, Department of Medicine, College of Medicine, Hawler Medical University, Erbil-Iraq, E-mail: kareem.abdulkarim@gmail.com Mobile:+0964 750 427 8097,

Sonographic Normal Thyroid Gland Volume in Healthy Adults in Erbil

Authors

1. Shawnam Nasih Dawood, Lecturer, Radiology Unit, Surgery Department, College of Medicine, Hawler Medical University.

2. Media Ghazi Sedeq, Lecturer, Radiology Unit, Surgery Department, College of Medicine, Hawler Medical University.

3. Samir Mahmoud Othman, assistant professor, Community Medicine Department, College of Medicine, Hawler Medical University.

Correspondence:

Shawnam Nasih Dawood, Lecturer, Radiology Unit, Surgery Department, College of Medicine, Hawler Medical University.

Email: drshawnmnasih@gmail.com

Mobile phone: 009647504701688

Institution Address:

College of Medicine/ Hawler Medical University /Erbil, Iraq

Post Box: 40/0112

E. mail (Dean Office): info@med.hmu.edu.iq

Abstract

Background and Objectives: To find a normal reference value of thyroid gland volume in healthy adults of Erbil population and to correlate the obtained values with age, sex, height, weight, body mass index (BMI) and body surface area (BSA) and to compare the local values with those described in the literature.

Methods: A total of 200 healthy subjects were studied, B- mode sonography was used to measure the total thyroid volume by combining the volume of both the lobes obtained by using the formula for the prolate ellipsoid.

Results: The overall mean thyroid volume in all the subjects was 7.3 ±3.46 mL. The mean thyroid volume in females and males was 6.66±3.68 mL and 8.25±2.87 mL, respectively ($p \leq 0.001$). The mean volume of the right and left lobes of the thyroid gland in all of the patients were 4.02±1.94 mL and 3.27±1.6 mL, respectively. Positive correlation was found among thyroid volume and body weight ($r=0.403$, $p \leq 0.001$), height ($r=0.243$, $p \leq 0.001$), BMI ($r=0.338$, $p \leq 0.001$), and BSA ($r=0.405$, $p \leq 0.001$).

Conclusion: The study has determined the sonographic normal thyroid volume of healthy adults in Erbil. The highest correlation was found with BSA.

Keywords: Sonography; Thyroid Gland Volume; Adults; Erbil

Introduction

The thyroid is a vital endocrine gland located within the anterior cervical region. It has two lobes connected by an isthmus. Its size, volume, and shape vary with age and sex, [1, 2] the limits of normal thyroid volume are 10-15 ml for females and 12-18 ml for males.[3-5]

Sonography with a linear probe is a simple technique to check thyroid anatomy in addition to the abnormalities in the gland structure, echogenicity, and volume.[4-6]

Thyroid gland volume (TGV) is important for the present practice: it identifies the enlargement of the gland (goitre) and its response to suppressive treatment, it aids in rigorous calculation of the radioiodine dose, [6] evaluating the efficacy of levothyroxine therapy[7] and for correct evaluation of the gland mass in cases of minimally invasive surgery.[8, 9]

Several factors are known to be involved in the regulations of TGV and different reports of TGV normal range are presented from different populations.[10-25] Studies from the neighbouring countries like Turkey and Iran reported mean TGV of 12.98±2.53 and 9.53 ± 3.68 ml respectively. [10, 11] Mean TGV was reported 8.55ml ±1.82 from Sudanese normal subjects and they confirmed that their values were less than other studies. [12] A report from France calculated mean TV of 13.3 and 8.9 ml in males and females, respectively.[13] It is an identical finding of nearly all the studies that total TGV in healthy adults is larger in males than in females, asymmetry of the gland is additionally very frequent and the right lobe is larger than the left lobe in both genders.[10-14] Many previous studied showed that TGV to be positively correlated with weight, height, body mass index (BMI) and body surface area (BSA). It was suggested the necessity for population-specific references for thyroid volumes and its determinants in each area, [10-25] in our population, the normal volume of the thyroid gland has not been established till date and we depend on WHO data as a reference for evaluating the gland volume. The aim of this study was to find a normal reference value of thyroid volume in healthy adults of Erbil population so that to apply the size criteria for goitre. The goals were to correlate the obtained values with age, sex, height, weight, BMI, and BSA and to compare the local values with those described in the literature.

Subjects and Methods

This was a descriptive cross-sectional study conducted in Hawler Medical University, College of Medicine during the period from September 2016 to July 2017.

The study included a convenience sample of two hundred healthy adult subjects of Erbil residents, a city in the Kurdistan region of Iraq, excluding smokers, pregnant women, those delivered during the last 12 months, lactating mothers, history of thyroid disease or surgery or family history of thyroid disease, those having chronic disease or on drugs causing goitre and those clinically having goitre. Being in euthyroid state was assured by testing their serum thyroid stimulating hormone(TSH) level and only those with normal TSH participated in the study.

The ethics committee of the college of medicine, Hawler medical university approved the study and verbal informed consent of the study participants was obtained.

A specially designed questionnaire was used for data collection including age, gender, weight, and height of the participants and the data about ultrasound examination of their thyroid gland.

Each thyroid sonography was performed by one of the two radiologists who have more than 15 years' experience and any intra or interobserver variability was solved by taking the opinion of a third radiologist, a grey scale real-time ultrasound machine general electric (GE) Healthcare Voluson S8 was used fitted with a wide band linear transducer 4-12 MHz, it needed no preparation, the subject in supine position; the neck was exposed with removal of clothes and any jewellery if there, the neck was hyper extended and the shoulders supported with a pillow. Ultrasound gel was applied over the thyroid area; those with neck swelling were not included in the study. The left and right thyroid lobes were assessed separately with the subject's head turned away from the side under examination. Longitudinal and transverse scans of each thyroid lobe were performed, any thyroid with a nodule or abnormal echogenicity were excluded from the study, normal vascularity was assessed by shifting to colour Doppler mode and any thyroid with abnormal vascularity was not included in the study.

Measurement of the thyroid lobe involves three measurements: the length, width, and depth. For measurement of thyroid length, the probe was placed longitudinally in the midline of the neck to get sagittal views of the larynx then the probe was moved obliquely to obtain the maximum thyroid length just medial to the carotid vessels. The transverse views were obtained by using the trachea and carotid vessels as landmarks. The width and depth were measured on transverse section of the lobe: the width is the distance between the most lateral point of the lobe and the acoustic shadowing of the trachea and the depth is the maximum anteroposterior distance in the middle third of the lobe.[3] The volume of each lobe was calculated automatically by the machine using the formula for a prolate ellipsoid [26,27] where volume(ml) = length(cm) x width(cm) x depth(cm) x c, c is constant and equals 0.523

which has been set in the machine.[28]Total thyroid volume was obtained by adding the volume of both the lobes.

Participants' weight in kilograms and height in meters were recorded then BMI and BSA were obtained by using known formulas: [29, 30]

BMI= weight in Kg/ (height in m) ²

BSA (m2) = "(height in cm x weight in kg)/3600

A pilot study was performed on ten subjects to determine the reliability of the questionnaire. The pilot study samples were selected from the same setting.

The Statistical Package for Social Sciences (SPSS, Chicago, IL, USA), version 18) and Microsoft excel program was used for data entry and analysis. Two approaches were used; descriptive and analytic. The descriptive approach included calculation of frequencies, percentages, means, S.Ds. while in the second approach; Independent sample t-test was used to compare the difference between the mean volumes of two lobes and in relation to gender. ANOVA test was used to compare TGV between more than two age-groups. Pearson's correlation test (r) was used to assess the strength of correlation between TGV and weight, height, BMI, and BSA. P value ≤ 0.05 regarded as statistically significant.

Results

Characteristics of the study population: Of the 200 studied subjects, 120 (60%) were females and 80 (40%) males, representative of healthy population according to thyroid clinical, laboratory and sonographic results. The mean age of the subjects was 37.65±12.35 years with a range of 20–70 years. The majority were in overweight (42.5%), followed by normal (40%), and then obese (15%) and low (2.5%) BMI groups.

Thyroid volume: The overall mean thyroid volume in all the subjects was 7.3 ±3.46 mL with the minimum of 2.4 and maximum of 24.79. The mean thyroid volume in females and males was 6.66±3.68 mL and 8.25±2.87 mL, respectively ($p \leq 0.001$). The mean volume of the right and left lobes of the thyroid gland in all of the patients were 4.02±1.94 mL and 3.27±1.6 mL, respectively. In females, the right and the left lobes of the thyroid gland volumes were 3.68 ± 2.05 mL and 2.97 ±1.69 mL. In males, the right and the left lobes of the thyroid gland volumes were 4.53 ± 1.65 mL and 3.71 ±1.35mL. The right thyroid lobe volume was greater than the left in all patients of both sexes ($p<0.05$). Table 1 shows each lobe and total gland volume in all, female and male participants.

Table 1: Comparison of Mean Thyroid Gland Volume in All, Males and Females

Variables	**Total Participants**	**Female**	**Male**	**P-Value**
	Mean ± SD.	**Mean ± SD.**	**Mean ± SD.**	
Right Lobe Volume(mL)	4.02±1.94	3.68 ± 2.05	4.53 ± 1.65	0.002
Left Lobe Volume (mL)	3.27±1.6	2.97 ±1.69	3.71 ±1.35	0.001
Total Gland Volume(mL)	7.3 ±3.46	6.66±3.68	8.25±2.87	0.001

P-value of <0.05 is significant

Age specific reference values and the percentile: Figure 1 shows the reference values of total thyroid volume for different age groups and the percentile of TGV in all normal participants. In this reference range, TGV of 97th percentile was 16.07mL.

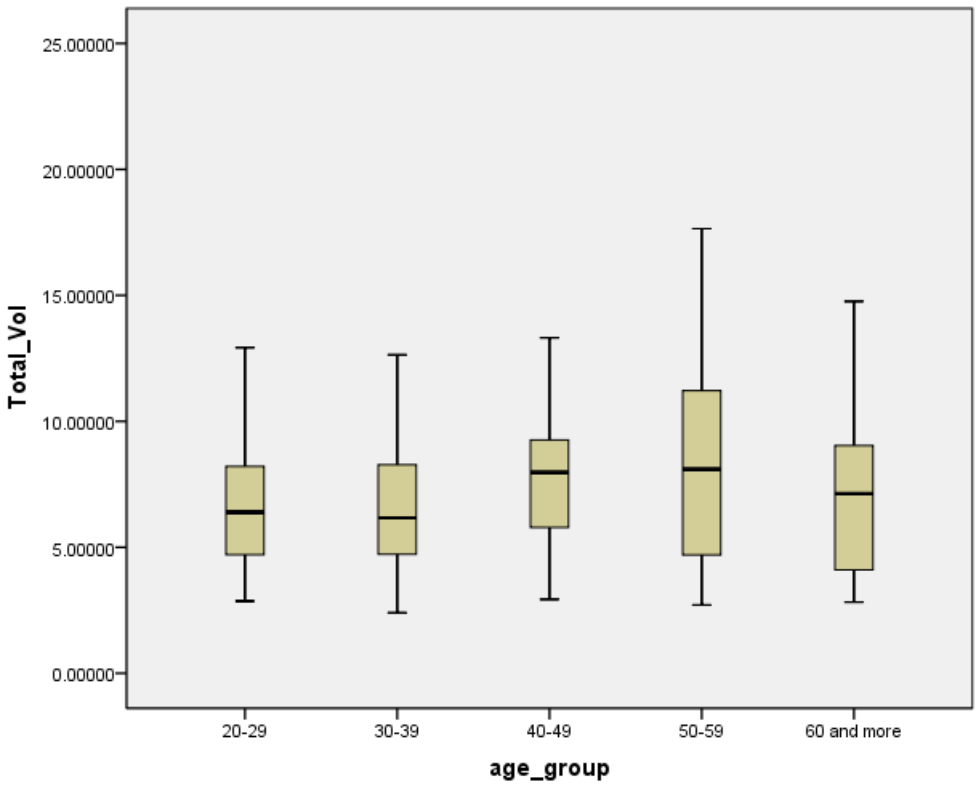
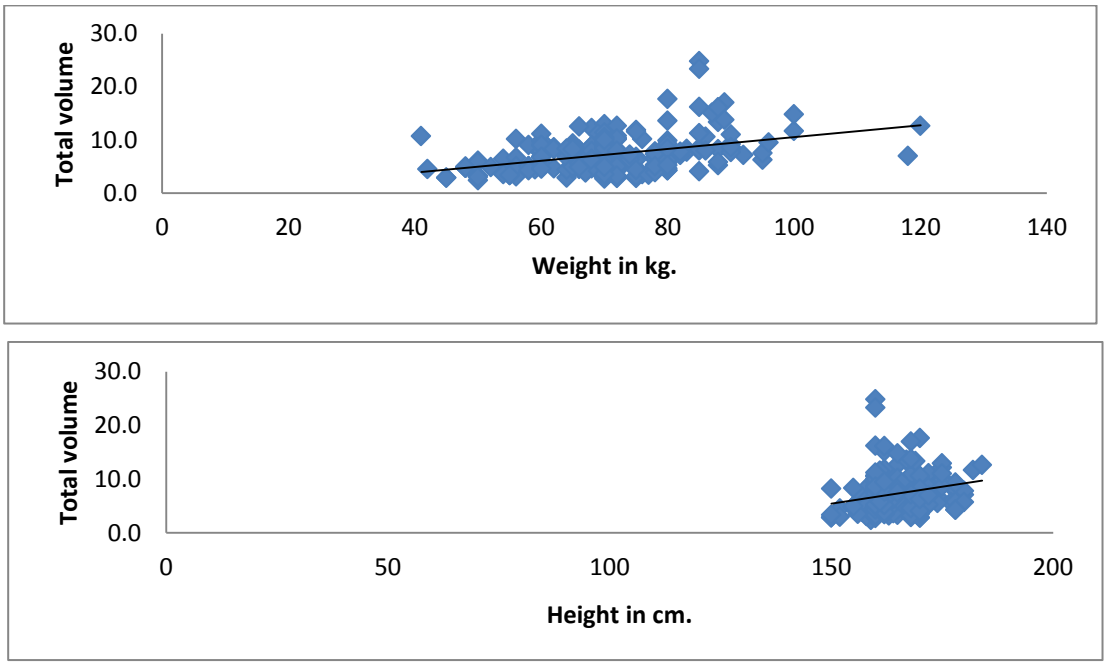
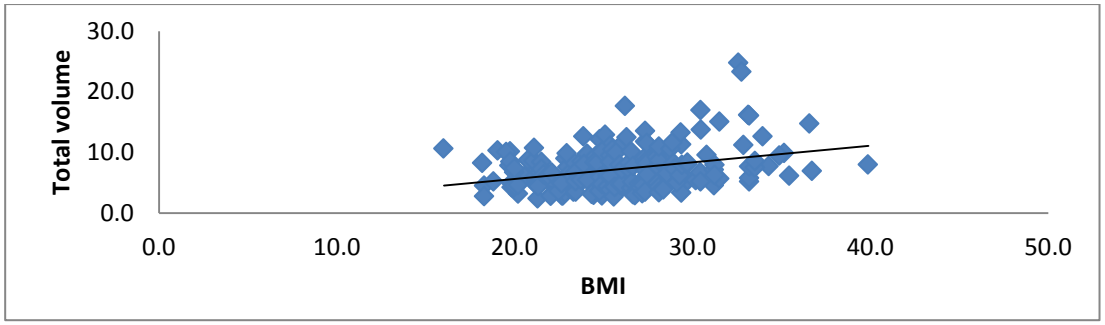


Figure 1: Thyroid volume in different decades in all normal participants.

Thyroid volume and subject's built: Pearson´s correlation coefficient (r) showed positive correlation among total thyroid volume and participants' weight, height, BMI and BSA as shown in figures 2. The highest correlation was found with BSA (r = 0.405, p≤0.001).





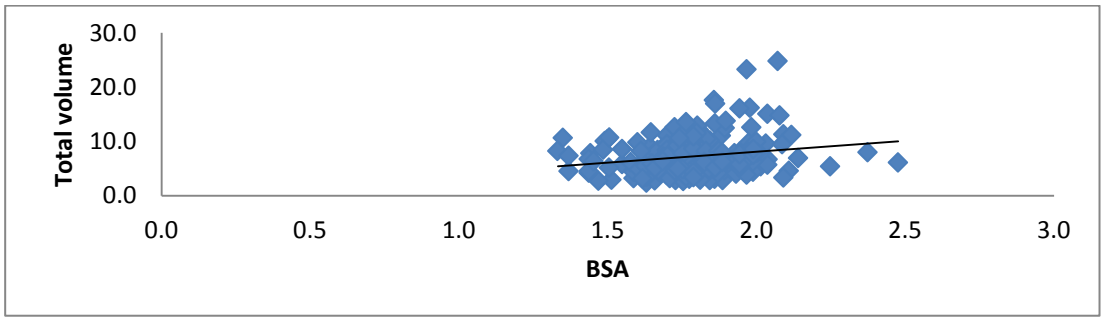


Figure 2: Scatter plots and the estimated lines of total thyroid volume (mL) against the participants' weight (r=0.403, p≤0.001), height (r=0.243, p≤0.001), BMI (r=0.338, p≤0.001), and BSA (r=0.405, p≤0.001)

Discussion

Accurate estimation of thyroid volume is important for the evaluation and management of thyroid disorders.[3] Thyroid volume values may vary in smokers and in conditions such as pregnancy, lactation, and some chronic illnesses. That is why these subjects were excluded from our study.[13, 31-35]

Most populations are now determining their own reference values for normal TGV.[11-14, 18-26]

Mean thyroid volume combined for both lobes and genders obtained from our population was 7.3 ±3.46 mL, there was no previous local study for comparison in our country. Mean TGV of healthy adults was noted to be as 12.98± 2.53ml in Gaziantep/Turkey,[10] 9.53 ± 3.68ml in Isfahan/Iran[11], 8.55 ± 1.82ml in Nigeria,[17] 10.68 ± 2.83ml in Croatia[22] and 8.2ml in Spain, [23] our obtained value was less than the previously mentioned values but it was higher than Sudanese, Pakistani, Nepalese and Cuban populations.[12, 20, 21, 24] This difference could be related to food intake habit and geographical region.

Thyroid volume among the Chinese studied by Hsiao and Chang[25] was 7.7±3.3mL, and this was near to the value of our population (7.3 ±3.4 mL).

Similarly to all previous studies, we found that the gland volume to be greater in males (8.25±2.87 mL) compared to females (6.66±3.68 mL). This difference between both genders was statistically significant ($p<0.05$) and is due to that the structural anatomy is larger in males than that in females.[10-18] In the study of Aydıner O et al. and Kayastha P et al there was no statistically significant TGV difference regarding gender.[19, 21]

The right thyroid lobe volume was greater than the left with significant statistical difference in both genders ($p<0.05$). These findings were similar to other studies[10-28] and it was related to the position of the oesophagus.[36]

TGV increased with increasing age till age of 59 years and it decreased thereafter in agreement with Kamran M et al[20] who studied Karachi population.

Our study showed positive correlation of TGV with the participants´ height, weight, BMI and BSA. This was observed by many other researchers.[10, 12-14,18,19-22,24,25,37,38] The highest correlation was found with BSA ($r = 0.405$, $p\leq0.001$) in agreement with studies of Şahin E et al[10] Adibi A et al,[11] Barrère X et al[13] Gomez JM et al[14] Şeker S et al[18] Kamran M et al[20] Kayastha, P et al[21]Ivanac et al [22] and Turcios S et al.[24]

Most of the recent reports suggest that thyroid volume is significantly correlated with body weight and body mass index and it was concluded that weight loss may affect thyroid volume and function.[37, 38]

Limitations of the study:

The size of our sample was small because of several exclusion criteria and using hormonal study that was not possible to perform for more subjects but it falls in the range of the sample size of other studies.[12, 13]

Other tests like urinary iodine excretion and TPO-antibody were not studies because these are not available in this region however studied by other researchers.

The study was limited to the use of 2 dimensional ultrasound due to the limited availability of the three dimensional ultrasonography in this region. A study found no statistically significant difference between the 2 methods. [39]

Conclusion

The mean ±SD thyroid gland volume obtained in our population (7.3 ±3.4 mL) was in the lower range of the values reported in previous studies. The volume of the right lobe of the gland was greater than the left in both sexes. The mean thyroid volume in the males was higher than in the females and the highest correlation was found with BSA.

Conflict of interests

The authors report no conflict of interests, and the work was not supported or funded by any drug company.

Authors' Contributions

S.N. Dawood performed study conception, conducted study design, data interpretation and collection, supervision of data analysis, revision and final approval of the paper with oral presentation at the 1st scientific conference of the college of medicine. M.G. Sedeq conducted data collection, interpretation and drafting and final approval of the paper. S.M. Othman performed data analysis, revision and final approval of the paper.

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Comparing Pregnancy Outcome after Intracytoplasmic Sperm Injection Using Different Sources of Sperm

Milat I.Haje, Hawler Medical University-College of Medicine-PhD in Assisted Reproductive Technology

Abstract:

Background and objectives: To compare the clinical outcome afterintracytoplasmicsperm injection **(**ICSI) with extracted testicular sperm or ejaculated oligoasthenoteratozoospermic (OAT) sperm. In addition, to compare between fresh and cryopreserved testicular spermatozoa in patients with azoospermia who received combined tamoxifen and L-carnitine therapy.

Methods: Exclusion criteria included cases with known etiology of leukocytospermia, altered testicular volume, varicocele, abnormal FSH level, and couples with combined male and female factors. Ninety two ICSI cycles using extracted testicular sperm from men with azoospermia were compared prospectively with 88 ICSI cycles using fresh ejaculated sperm from men with OAT. Sixty ICSI cycles using TESE sperm were evaluated. Thirty three ICSI cycles using fresh TESE sperm whereas the remaining 27 ICSI cycles using frozen-thawed TESE sperm**.**

Results: The overall pregnancy rate per ICSI cycle was lower when sperms were extracted from azoospermic men (31.5%) than when fresh sperm of OAT men were used (42%), this difference was not significant (P= 0.143)

The clinical pregnancy rate per cycle was 30.3% for fresh and 37% for frozen-thawed TESE sperm (P=0.582), statistically not significant.

Conclusion: No significant difference in pregnancy rate after ICSI with extracted testicular sperm or ejaculated oligoasthenoteratozoospermic (OAT) sperm, and no differences were found in ICSI outcomes between cryopreserved and fresh testicular sperm in OAT patients who received combined tamoxifen and L-carnitine therapy.

Keywords:ICSI, Pregnancy outcome, Sperm, IVF

Introduction:

Many studies have shown conflicting results when ICSI is performed with sperm from different sources.[1-3] It can be reasoned that because spermatozoa were of limited number and good quality sperm were chosen for ICSI, similar results might have been found after ICSI with different semen qualities. [4-6] Study of Tsai[7] compared 126 ICSI cycles using extracted testicular sperm from men with azoospermia and 65 ICSI cycles using fresh ejaculated sperm from men with extreme sever OAT, resulted that clinical pregnancy rate per transfer, chemical pregnancy rate per transfer, implantation rate, live birth rate per transfer, and abortion rate per transfer, were similar between the groups. Sixty live births resulted from 48 extracted testicular sperm cycles and 21 live births from 19 extreme severe OAT. The obstetric and perinatal outcomes were similar between the groups, and children conceived by using ICSI were healthy and without major psychomotor or intellectual development retardation. One case of tetralogy of Fallot occurred in each group.

Intracytoplasmic sperm injection (ICSI) using fresh sperm obtained by testicular sperm extraction (TESE) as a treatment option for obstructive azoospermia is well established, with high fertilization and pregnancy rates reported. [9] In addition, in patients presenting with azoospermia due to testicular failure, TESE with in vitro fertilization (IVF)–ICSI resulted in pregnancy rates comparable to those obtained from testes with normal spermatogenesis.[8, 9] It was demonstrated that cryopreserved TESE sperm from obstructive and non obstructiveazoospermic patients maintain adequate viability post thaw and achieve excellent fertilization and pregnancy rates with IVF-ICSI. [10]

Although the use of cryopreserved testicular sperm for ICSI has several advantages, the data concerning the outcomes of IVF-ICSI procedures using frozen-thawed testicular sperm are still controversial. [11-14]Some investigators claim that fertilization and/or pregnancy rates are lower with frozen-thawed sperm as compared with fresh,[11, 13]whereas others have demonstrated that in obstructive and nonobstructiveazoospermic men, cryopreserved sperm can function as well as fresh sperm. [11, 13, 14] Study of Helga [16]investigated Twenty-nine patients with obstructive and nonobstructiveazoospermia undergoing testicular sperm extraction for a total of 46 IVF-ICSI cycles (12 fresh, 34 frozen). No statistically significant differences were noted in any of the parameters

examined between IVF-ICSI cycles from fresh or frozen-thawed testicular spermatozoa. Fertilization rates were 56% with fresh vs. 61% with frozen-thawed testicular sperm, cleavage rates 92% vs. 95%, implantation rates 26% vs. 17%, clinical pregnancy rates per cycle 33% vs. 41%, and pregnancy rates per embryo transfer 33% vs. 45%, respectively. Delivery rates were 75% with fresh vs. 69.2% with frozen-thawed testicular sperm, and spontaneous abortion rates 25% and 30.8%, respectively.

The adverse effect of freezing and thawing on sperm quality is even more pronounced in the case of poor quality semen. This is the reason why pooling and cryostorage of semen samples from male factor patients before artificial insemination and IVF is not deemed to be useful; to the best of our knowledge there are only limited reports of pregnancy outcomes of ICSI cycles directly comparing fresh and cryopreserved TESE sperm.

This study objectiveswere to compare the clinical outcome after ICSI with extracted testicular sperm or ejaculated oligoasthenoteratozoospermic (OAT) sperm, and to compare the outcomes of intracytoplasmic sperm injection with fresh and cryopreserved testicular spermatozoa in patients with azoospermia.

Material and methods:

Exclusion criteria included cases with known etiology of leukocytospermia, altered testicular volume, varicocele, abnormal FSH level, and couples with combined male and female factors. Ninety two ICSI cycles using extracted testicular sperm from men with azoospermia were compared prospectively with 88 ICSI cycles using fresh ejaculated sperm from men with OAT. Sixty ICSI cycles using TESE sperm were evaluated. Thirty three ICSI cycles using fresh TESE sperm whereas the remaining 27 ICSI cycles using frozen-thawed TESE spermat Fertility and IVF Center of Maternity Teaching Hospital in Erbil, Iraq from Jan 2013- June 2014. Inclusion criteria consisted of repeated exhibition of OA without detectable cause (idiopathic OA). Exclusion criteria included cases with known etiology of leukocytospermia, altered testicular volume of a minimum of 20 ml as depicted by ultrasonography[17], varicocele as detected by clinical examination and ultrasonography, abnormal FSH levels, and/or couples with combined male and female factors. Patients underwent a clinical evaluation including history taking, general examination, genital examination for possible causes of infertility, and semen analyses according to WHO

(1999).Testicular biopsy was performed for diagnostic and therapeutic reasons; a diagnostic testicular biopsy was performed in men with azoospermia, normal testicular volume and normal reproductive hormones to differentiate between obstructive and nonobstructiveazoospermia and for diagnosis of carcinoma in situ. In whom testicular spermatozoa were used for ICSI, therefore, testicular cryopreservation of testicular tissue from testicular sperm extraction (TESE) for future ICSI was done, if spermatozoa were available.

This study was approved by the local committee of the College of Medicine- Hawler Medical University and funded by Hawler Medical University. All Patients signed informed consents, which explained the nature of this study.

Results:

In the present study, 180 ICSI cycles were analyzed prospectively Table 1 in 92 cycles using sperm extracted from men with azoospermia and 88 cycles using fresh sperm from OAT patients. The overall pregnancy rate per ICSI cycle was lower when sperm were extracted from azoospermic men (31.5%) than when fresh sperm of OAT men were used (42%), this difference was not significant (P= 0.143)

Out of 60 ICSI cycles were performed for azoospermic men, 33 using fresh extracted sperm and 27 using frozen-thawed spermatozoa. The outcome of ICSI with fresh and frozen-thawed TESE sperm is listed in Table 2 The clinical pregnancy rate per cycle was 30.3% for fresh and 37% for frozen-thawed TESE sperm (P=0.582), statistically not significant.

Table (1) The comparison of ICSI using TESE sperm from men with azoospermia vs. fresh ejaculate sperm from men with OAT.

	Pregnancy		Total according to groups
	Negative	positive	
Azospermia	63	29	92
	68.50%	31.50%	100%
OAT	51	37	88
	58.00%	42.00%	100.00%
Total	114	66	180
	63.30%	36.70%	100%

P =0.143

Table (2) Thecomparison of ICSI using TESE sperm from men with azoospermia frozen sperm vs. Fresh sperm.

		Pregnancy		Total according to groups
		Negative	positive	
TESE	Fresh	23	10	33
		69.70%	30.30%	100%
	Frozen	17	10	27
		63.00%	37.00%	100%
Total		40	20	60
		66.70%	33.30%	100%

P =0.582

Discussion:

This study showed no significant difference in pregnancy outcome after ICSI with extracted testicular sperm or ejaculated OAT sperm, and this is not unexpected because ICSI uses a

limited number of spermatozoa, and choosing good quality sperm is always of the highest priority. This study suggests that outcomes of ICSI are not affected by sperm from different origins. So the importance of selecting good quality sperm for oocyte injection especially in cases involving sever OAT must be emphasized. Result of this study agreed with study of Tsay[7]resulted that number of top-quility embryos transferred, clinical pregnancy rate, zygote grade 1 score distribution, chemical pregnancy rate, implantation rat, live birth rate and abortion rate were similar between cycles using extracted testicular sperm from men with azoospermia and ICSI cycles using fresh ejaculated sperm from men with extreme sever OAT.

A prerequisite for the routine cryopreservation of TESE sperm is the demonstration of clinical outcomes comparable to fresh TESE sperm. In a study of Prins[10]evaluated TESE sperm quality before and after cryopreservation and determined that post thaw recovery of viable sperm was adequate for subsequent use with IVF-ICSI. Additionally, the IVF-ICSI outcomes with frozen TESE sperm from men with either obstructive or non obstructiveazoospermia were excellent, suggesting that cryopreservation does not adversely affect this procedure.

In the present study compared ICSI outcomes of frozen-thawed TESE sperm with those of fresh TESE sperm by analyzing 60 ICSI cycles in which either fresh or frozen-thawed TESE sperm were used for ICSI, no difference was found in pregnancy outcomes between the two groups. The present findings are in agreement with the studies of [13, 14, 16] reported no difference in fertilization and pregnancy rates for fresh and frozen-thawed testicular sperm from men with obstructive and nonobstructiveazoospermia. However, Friedler[13]reported a trend in the superiority of fresh over frozen-thawed testicular sperm when considering delivery or ongoing pregnancy rates, although the reported groups were too small to reach statistical significance. These results contrast with other reports that indicate that superior results are obtained with fresh TESE sperm and recommend against the use of TESE sperm cryopreservation[18, 19]. One possibility to account for these discrepancies is that the cryopreservation methods are variable between these centers and that freeze-thaw techniques for TESE sperm can significantly affect ICSI outcomes. Although, Maier *et al* reported no differences in embryo transfer rates for fresh and frozen-thawed microsurgical epididymal sperm aspiration (MESA) and TESE/ICSI cycles, the delivery rates were significantly higher when fresh sperm were used.

This result, in correlation with Friedler and coworkers [13], Palermo*et al*[14], and Helga Habermann*et al*[16]. Indicated that the cryopreservation of sperm for future IVF-ICSI procedures at the time of diagnostic testicular biopsy or reconstructive surgery should be routinely considered. Freezing of testicular spermatozoa provides several advantages. First, in 36%–64% of patients with nonobstructiveazoospermia, no sperm can be obtained from testicular specimens[14]. Second, repeated testicular biopsies may cause damage to the testicles and a significant loss of testicular tissue in patients with small testes. Since cryopreservation of TESE specimens allows for storage of multiple vials, multiple attempts at IVF-ICSI can be achieved from a single biopsy procedure. Third, no coordination of two surgical procedures, testicular sperm and oocyte retrieval, for concomitant IVF-ICSI procedures is necessary when frozen-thawed TESE sperm are used. Finally, men scheduled for secondary radical orchiectomy of a solitary testis because of cancer often present with azoospermia or with severely impaired semen quality.

Conclusions:

No significant difference in pregnancy rate after ICSI with extracted testicular sperm or ejaculated oligoasthenoteratozoospermic (OAT) sperm, and no differences were found in IVF-ICSI outcomes between cryopreserved and fresh testicular sperm.

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Pattern of over the counter drugs use in a sample of private pharmacies in Erbil city 2016-2017

Prepared by:

AbeerAmmar Abdul-Jabar†, AthmarThamerKhalaf†, Aya Salem Hamed†, Sara basil Yahya†, SuraSaadTaqi†, Tara Ayad Abdul-Jabar†, Namir Al-Tawil.

†Forth year students, College of Medicine, Hawler Medical University
*Corresponding author:
Namir Al-Tawil. M.B.Ch.B.FICMS/CM, FFPH.
Professor/Consultant physician (PH) / Department of community medicine / College of Medicine / Hawler Medical University

Email: namir.altawil@med.hmu.edu.krd

Mobile: 07504298129

Abstract

Background:

The sale of over-the-counter (OTC)medicines from pharmacies can help individual self-manage symptoms. However, some OTC medicines may be abused, with addiction and harms being increasingly recognized.

Objectives of the study:

To find out: The prevalence of over the counter drug use in the studied sample, the types of drugs dispensed as an OTC, and the proportion of medications that should not be sold without doctor's prescription.

Methods:

A cross sectional study was carried out in private pharmacies in Erbil city/Iraq during the period from 20th of September to 25th of October 2016. A convenience sample of 320 individuals was carried out from 17private pharmacies of Erbil city.

Results:

A total of 320 respondents with practice of self-medication were included in this study. They were relatively young adult with an average of 20-29 yearsand almost half of the participants were men.

The group of antibiotics represented the commonest type of drugs requested by 104(32.5%) respondents, and most of them were taking antibiotics to treat mild conditions like cough, cold and flu.

Conclusion:

This study showed that many persons can easily practice self-medication for the management of wide range of simple ailments and even relatively serious diseases without medical advice. The prevalence of antibiotics use as an OTC medications was very high and exceeds that of other classes

Introduction

Background

There has been an increasing trend in self-medication practice in both developed and developing countrikes.[1]Self-medication represents an area of healthcare in which the patient assumes a greater degree of responsibility for the management of a minor ailment, using a pharmaceutical product that is available without a prescription.[2]

The patient will use his own initiative or the advice of a pharmacist or a layperson to get the 'over the counter drugs' (OTC) instead of consulting a medical practitioner and this behavior varies among countries, age groups,level of education,income and between genders.[3]

An increasing number of former prescription-only products are now available for self-medication in many countries, either through pharmacies or retail outlets, thereby extending the range and accessibility of these products to the population. However, self-medication is not without risks despite the advantages associated with patient empowerment and the more effective use of pharmacist and physician skills. [2]

Although self-medication practice is common in both developing and developed countries,[4] the higher degree of prevalence in the developing countries could be attributed to many causes such as the ability to obtain wide range of drugs over the counter, poor regulatory practices, limited access to health care facilities and the availability of illegal sellers of medications (market sellers and nonprofessional administrators of injectable drugs).[5]

Necessary criteria for making medicines available as OTC:

Criteria which must be met before a medicine, that was previously available on prescription only, can be deregulated:

Safety

If a medicine can cause a serious adverse effect it should not be made available as OTC. For example antihistamines terfenadineandastemizole were withdrawn from OTC sales when it was realized that they could cause ventricular arrhythmiasespecially when taken

with grapefruit juice and kava was withdrawn in many countries because of concerns over liver damage in both cases the balance of benefit to harm was considered to be unfavorable.[6]

The risks of unwanted effects can be reduced by limiting the dosage strengths of OTC formulations. For example, OTC ranitidine comes in tablets of 75 mg as opposed to the usual strengths of 150 or 300 mg available on prescription.[7]

Efficacy

It is possible for a medicine to be granted OTC status, because it is considered to be sufficiently safe, without consideration of its efficacy. No matter how safe a drug is, lack of efficacy should militate against its use.[8]

Labeling

Provision of information leading to safe use and, which includes warnings and advice on duration of use.[9]

Broad Therapeutic Classes of OTC Medications:

There are more than 80 therapeutic categories of OTC products which can be grouped in 12 broad therapeutic classes (analgesics and antipyretics, cold/cough and allergy products, nighttime sleep-aids, gastrointestinal products, dermatological products, other topical products (including dermal and vaginal antifungals, anorectal medications, head lice products and hair loss products), ophthalmic products, oral health care products, menstrual products, nicotine replacement products, weight loss aids and vaginal contraceptives and emergency contraceptives.[10]

Advantages of OTC:

OTC medicines provide a convenient, cost-effective means to treat self-identified symptoms and help to lessen the burden on the health care system by reducing the number of doctor visits and associated prescription costs. They are used by consumers for a number of reasons, including familiarity with self-treatment, perception that symptoms can be managed without health care provider intervention, and time and money savings.[11]

Disadvantages of OTC:

1. Nonprescription products are generally considered for short-term use in the management of a self-limiting condition; but some products, can also be used for the long-term treatment of certain chronic conditions but not advisable with many nonprescription products which may not be potent enough or appropriate for long-term use.[12]
2. Drug misuse or abuse. The term misuse is applied to the use of a drug for medical purposes, but in an incorrect manner, for example, use over an extended period of time or at an increased dosage. Abuse, on the other hand, is used to describe the use of drugs for nonmedical purposes, for example, to experience their mind-altering effects or to achieve bodyweight loss.All drugs have the potential to be misused while abuse is largely associated with those products containing opioids, antihistamines and laxatives.[13]
3. Other concerns regarding risks associated with self-medication include a potential delay in treating a serious medical conditionmasking of symptoms of a serious condition.[10]
4. Using OTC drugs without medical supervision could lead to drug-drug interactions or drug-food interactions.
5. Older people are at increased risk from self-medication due to concomitant medications and medical conditions. Children differ from adults in their response to drugs, this is particularly the case with neonates, in whom toxicity is manifested through enzyme deficiencies and differing target organ sensitivities.[14]

OTC in pregnancy:

Pregnant women commonly use OTC medications. More than 80% of women use medications are sold as OTC.[15]

Because it could be dangerous and lead to misuse of self-administered OTC medications in inappropriate way.[16]Many health care professionals stopped from prescribing OTC medications for pregnant women. Some have unproven safety or are known to adversely affect the fetus and cause birth defects (teratogenic effects) as a result of maternal drug exposure.[17]

The objectives of the study were to find out:The prevalence of over the counter drug use in the studied sample, the types of drugs dispensed as an OTC, and the proportion of medications that should not be sold without doctor's prescription.

Subjects and methods

Study design:

Adescriptive cross-sectional study.

Setting and duration of the study:

Private pharmacies in Erbil city.The duration of data collection was five days, from 25th of September until 29thof September 2016. While the whole period of the study was from 20th of September to 25th of October 2016.

Study sample:

A convenience sample was taken including320 individuals from 17 private pharmacies. The inclusion criteria were: people attending the mentioned pharmacies for the purpose of buying medications (without a prescription). The questionnaire was prepared by the researchers in English,and data collected by interviews with the purchasers (patients, or relatives of the patients) at the pharmacy.Each interview took about 5-10minutes, every subject was given the complete choice to participate (or not) without any reward or penalty, and was assured that confidentiality of data throughout the study will be secured and that the data will not be used for other than research purposes.

The first part of the questionnaire consisted of the socio-demographic information which include four questions relating to age,gender, marital status and educational level.The second part was about the classification and dosage form of the drug.The third part included three questions about who prescribed the drug and reasons for self-medication and source of information and what is the disease condition to be managed by OTC drugs.The fourth part of the questionnaire also included miscellaneous questions about reading the Label/leaflet,whether theytake this medication before, and their opinion about self-medication if it is safe or not. OTC was defined as all the drugs sold in the mentioned pharmacies without a prescription.

The questionnaire was pilot tested in one pharmacy to confirm the appropriateness of the questions.

Statistical analysis

Data were analyzed using the statistical package for social sciences (SPSS, version 19). Chi square test of association was used to compare proportions. A 'p' value of ≤ 0.05 was considered as statistically significant.

Results

The total number of participants was 320. The mean age$\pm$ SD of the sample was 30±17.7 years, ranging from 0.25 to 87 years.

Table 1 shows that the greatest proportions (36.3%) of the individuals aged 20-29 years. More than half (52.5%)of the participants were males, and more than half (52.5%) were single. The male: female ratio was 1.1: 1. More than one third (34.7%) were college graduates.

Table (2) shows that the lowest percentage of use of unauthorized medications (30.8%) was found in the age group <10 years. The highest percentage (65.5%) was in the age ≥ 50 years(P=0.034).

Table (3) shows that the proportion of males that purchased unauthorized medications was 60.7%, compared with 48% of females (P = 0.023).

Table (4) shows that the least percentage of unauthorized use (29.5%) was among the illiterate group, and the highest was found among the primary schools graduates (65.2%) (P=0.008).

The highest proportion of medications used by the subjects were antibiotics (32.5%), followed by analgesic/NSAID/antipyretics (17.2%), then other medications (12.2%), anti-allergies (7.5%), antacids (7.5%), cough syrups (6.3%), supplements (5%), anti-hypertensive (4.7%), steroids (2.8%), and anti-spasmodic (2.8%), while the hypoglycemic drugs were the least to be used, as only 6 (1.9%) of them used it (Table 5). The table shows that the majority (78.4%) were administered orally.

Table5 shows that 62 (19.4%) persons used those drugs for cough/cold/flu relief, 57 (17.8%) used them to cure inflammatory symptoms, 52 (16.3%) used them for infections, 45 (14.1%) to relieve GIT problems, 41 (12.8%) used them for other conditions, 27 (8.4%) to relief fever and milder illnesses, 15 (4.7%) for hypertension, and a similar number used them as supplements (like vitamins), and the least were used for diabetes mellitus 6 (1.9%).

Table (6) shows no significant association between the specialty of the prescriber and the proportion of unauthorized medication dispensing (P=0.847).

(Table 7) shows the reasons that led the participants to buy the drugs without the physician's consultation; 75 (46.9%) persons revealed that they have an idea about their condition and the medication they bought, 56 (35%) had a similar or previous prescription, 24 (15%) reported that they don't have time to visit doctors, while 5 (3.1%) of the participants could not visit a doctor because they were poor.

The source of information of those who have previous knowledge was mainly from relatives and friends (65.3%), internet (16%), and the textbooks (9.3%), in addition to the other sources.

(Table 8) shows that 241 (75.3%) persons had previously used the medications they are purchasing during the study time.Nearly half (48.1%) of them used to use them on need only (rarely), while 40 (12.5%) persons used these medications continuously. The table shows also that 40% of the study sample do not read the drug leaflet, and 57.5% believe that the OTC drugs are safe.

Concerning the place of the pharmacies; 8 (47%) of them were near doctors' clinics, and 9 (53%) were located in areas far of the clinics.

Figure1 shows the classifications of the OTC medications in percentage, the antibiotics and analgesics formed the highest proportions, whereas steroids and the oral hypoglycemic agents were the least.

Figure 2 shows the most commonly dispensed antibiotics as OTC medications, out of 104 antibiotics, the Amoxillin, Amoxiclav, Azithromycin, and Metronidazole percentagesform more than half of the used antibiotics.

Table 1.Distribution of sample by socio-demographic variables.

Variables	Categories	No.	%
Age (years)	< 10	39	12.2
	10-19	30	9.4
	20-29	116	36.3
	30-39	43	13.4
	40-49	34	10.6
	≥ 50	58	18.1
Sex	Male	168	52.5
	Female	152	47.5
Marital status	Single	168	52.5
	Married	150	46.9
	Widowed	2	.6
Educational level	Illiterate	44	13.8
	Primary	23	7.2
	Intermediate	15	4.7
	Secondary	105	32.8
	College	111	34.7
	Higher	22	6.9
Total		320	100.0

Table 2. Prevalence of use of unauthorized medications by age.

Age group	Authorized medications		Unauthorizedmedications		Total		P value
	No.	%	No.	%	No.	%	
<10	27	69.2	12	30.8	39	100	
10-19	14	46.7	16	53.3	30	100	

20-29	51	44.0	65	56.0	116	100	
30-39	18	41.9	25	58.1	43	100	0.034
40-49	15	44.1	19	55.9	34	100	
≥ 50	20	34.5	38	65.5	58	100	
Total	145	45.3	175	54.7	320	100	

Table 3. Prevalence of use of unauthorized medications by gender.

Gender	**Authorized medications**		**Unauthorized medications**		**Total**		**P value**
	No.	**%**	**No.**	**%**	**No.**	**%**	
Male	66	39.3	102	60.7	168	100	
Female	79	52.0	73	48.0	152	100	0.023
Total	145	45.3	175	54.7	320	100	

Table 4. Prevalence of use of unauthorized medications by educational level

Educational level	**Authorized medications**		**Unauthorized medications**		**Total**		**P value**
	No.	**%**	**No.**	**%**	**No.**	**%**	
Illiterate	31	70.5	13	29.5	44	100	
Primary	8	34.8	15	65.2	23	100	
Intermediate	6	40.0	9	60.0	15	100	
Secondary	48	45.7	57	54.3	105	100	0.008
College	41	36.9	70	63.1	111	100	
Higher	11	50.0	11	50.0	22	100	
Total	145	45.3	175	54.7	320	100	

Table 5.Classification of OTC medications by medication categories, dosage form and indication

Variables	Categories	No.	%
Classification of the medication	Antibiotics	104	32.5
	Analgesic/NSAID/antipyretics	55	17.2
	Others	39	12.2
	Anti-allergies	24	7.5
	Antacids	24	7.5
	Cough syrup	20	6.3
	Supplements	16	5
	Anti-hypertensive	15	4.7
	Steroids	9	2.8
	Hypoglycemic agents	6	1.9
Dosage form	Orally	251	78.4
	Parentally	3	0.9
	Topically	40	12.5
	Suppositories	9	2.8
	Inhalation	5	1.6
	Ophthalmic	12	3.8
Indication	Cough/cold/flu	62	19.4
	Inflammation	57	17.8
	Infection	52	16.3
	GIT problems	45	14.1
	Others	41	12.8
	Fever/milder illness	27	8.4
	Hypertension	15	4.7

	Minerals/vitamins	15	4.7
	Diabetes mellitus	6	1.9
Total		320	100

Table 6. Prevalence of use of unauthorized medications by prescriber of the medication

Prescribed by	**Authorized medications**		**Unauthorized medications**		**Total**		**P value**
	No.	**%**	**No.**	**%**	**No.**	**%**	
Pharmacist	64	46	75	54	139	100	
Physician assistant	11	50	11	50	22	100	0.847
Self-medication	70	44	89	56	159	100	
Total	145	45.3	175	54.7	320	100	

Table 7. Distribution of sample by cause of self-medication, and source of information.

Variable	**Categories**	**No.**	**%**
Cause of self-medication	Previous knowledge	75	46.9
	Previous use by himself or others	56	35.0
	Inadequate time for visiting doctors	24	15.0
	High cost of doctor's consultation	5	3.1
Total		**160**	**100**
Source of the information about the medication	Relatives/friends	49	65.3
	Internet	12	16.0
	Textbooks	7	9.3
	Media	5	6.7
	Others	2	2.7
Total		**75**	**100**

Table 8. Use and knowledge about OTC drugs.

Variables	Categories	No.	%
Previous use of current medication	Yes	241	75.3
	No	79	24.7
For how long it has been taken	Rarely	154	48.1
	Less than 1 month	27	8.4
	1-12 months	20	6.3
	Continuously	40	12.5
Leaflet reading	Yes	109	34.1
	No	128	40.0
	Sometimes	83	25.9
Are OTC drugs safe?	Yes	184	57.5
	No	136	42.5
Are you going to avoidself-medication in the future	Yes	113	35.3
	No	207	64.7
Total		320	100

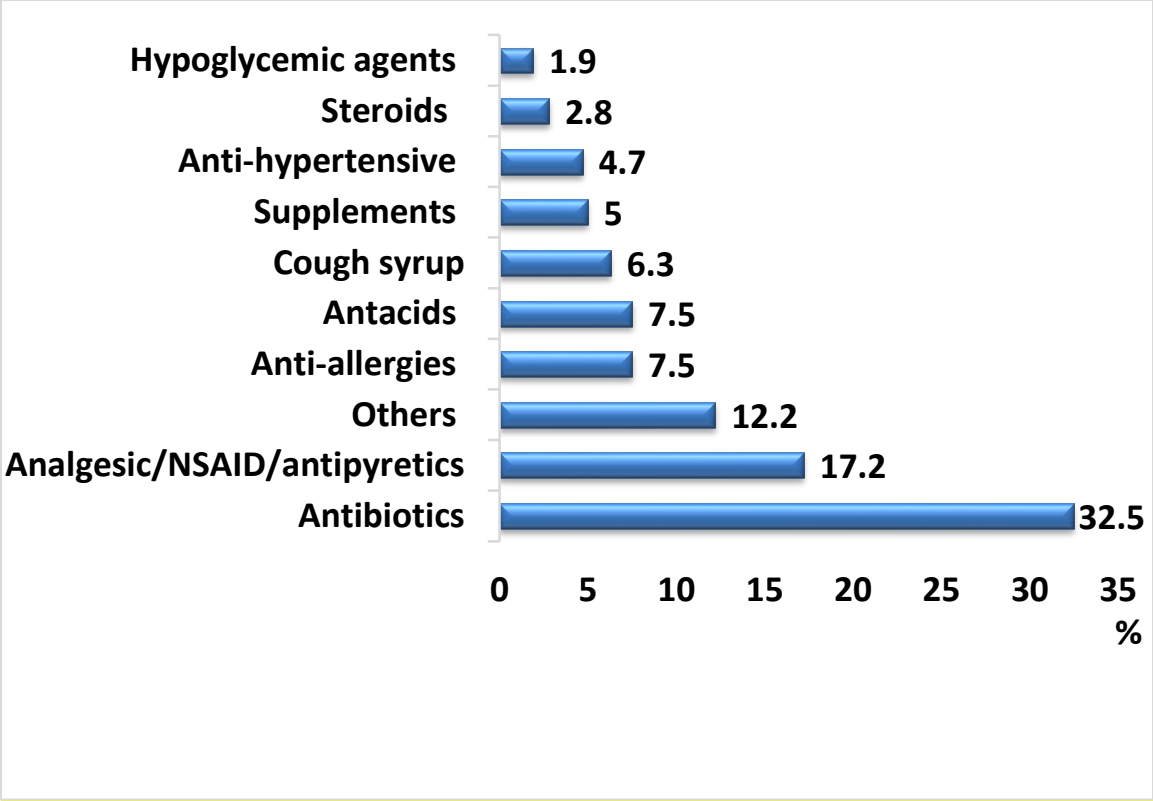

Figure 1. Types of the OTC medications.

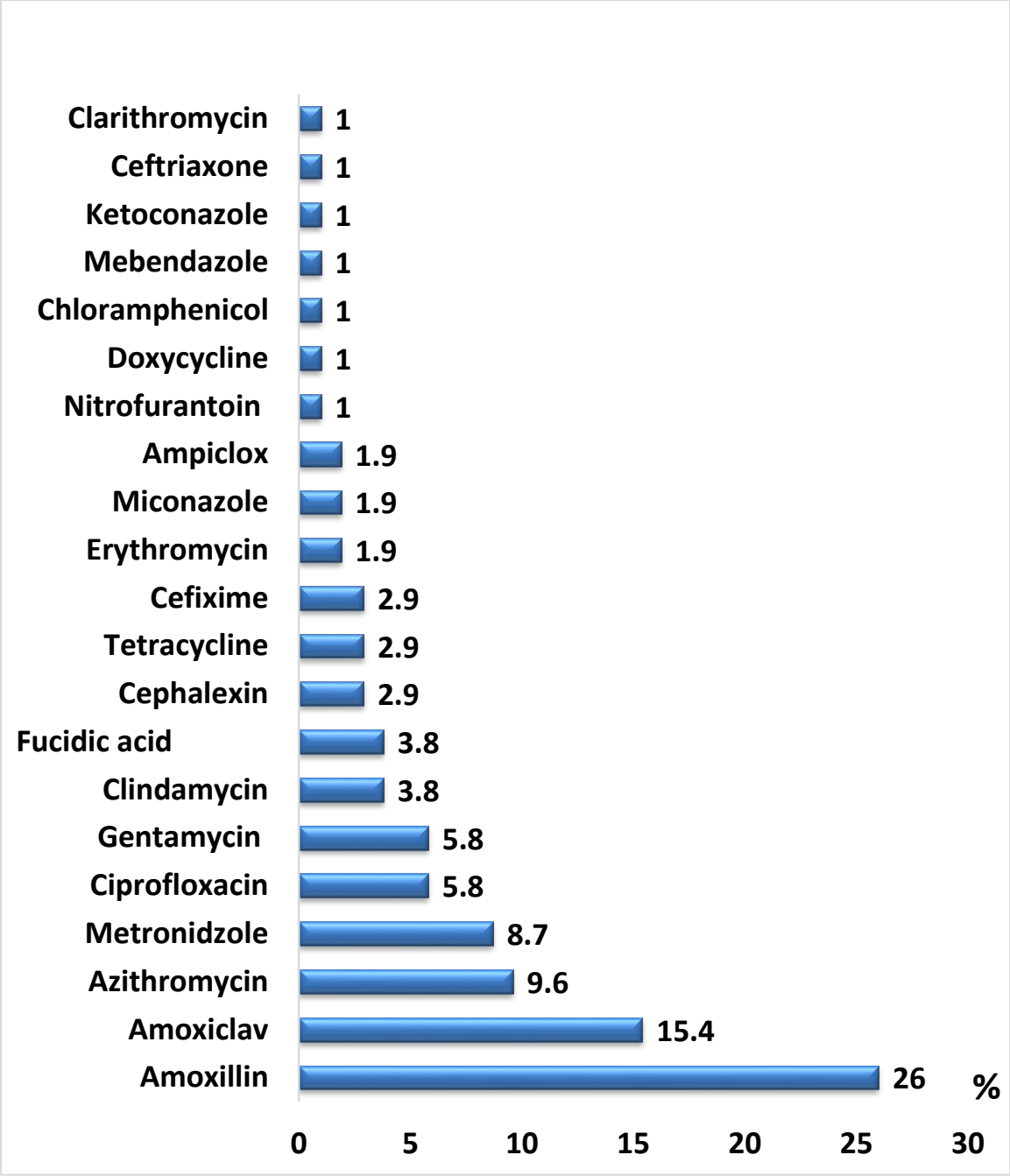

Figure 2. Types of antibiotic dispensed as OTC medication.

Discussion

Self-medication believed to be more harm than good and lead to wastage of resources, microbial resistance development, adverse drug reactions, prolonged illness and drug dependence.[18]

Comparing results of this study with those of other studies conducted in other countries seems somewhat difficult due to differences in cultures, health care systems and the roles of community pharmacies. This study found that male respondents practiced self-medication to larger extent than females, this could be due to males being less self-conscious about their health and wellbeing than females.

This study demonstrated that about 4.7%of respondents had finished intermediate school and 34.7% of these individuals had an academic certificate. This could be explained by increasing percentage of educated individuals in the general population, knowing that the sample of the study was a convenience sample, and the study was done inside Erbil.

The main reason of practicing self-medication for half of the study population was experience and knowledge of treatment from similar previous ailments; this could be explained by the ability of people to remember medications whether prescribed or over the counter (OTC) used for similar previous conditions especially if these medications were successful in improving such conditions or symptoms. [19]

Other reasons for practicing self-medication included high cost of consulting a doctor in a private clinic for 9.1% of respondents, this is in the same line with the results of other studies from Baghdad[20].

The other important source of information represented by 43.4% of the patients was the community pharmacists; this result agrees with that of previous works (51.7% in Baghdad study [20]) and gives an evidence of the importance of community pharmacies in the wide pervasion of self-medication practice in the community.

This study like others revealed the important roles of other family members and close friends to be a good source of advice about self-medicated drugs because some of them experienced similar conditions previously, while others may be physicians, or pharmacists. [21]

The study showed that some conditions treated by self-medicated drugs were simple and the patients did not require seeing a doctor for these conditions, but other conditions were different and would otherwise require medical supervision for further evaluation or treatment. [20]

It is obvious that flu or common cold were the most common indications of self-medication reported by19.4% the patients; the probable explanation of this finding is that the study was done in autumn where the prevalence of these conditions was high, and because more individuals become well educated about the fact that common cold is a self-limiting condition, thus they have the ability to treat it utilizing self-medication without the need to see a physician.

Other common indications included inflammation (17.8%), infection (16.3%),and GIT problems (14.1%). Comparing it with the Baghdad study, GIT problems (17.2%) and headache (33.3%) were the most common after cough/cold/flu. [20]

The respondents used many types of drug classes for self-medications; some drugs were OTC and could be dispensed according to patients' requests, while other self-medicated drugs were prescription only medications and should be dispensed only according to a physician prescription.

Our study revealed that the most used unauthorized medications among the included sample were antibiotics (32.5%), analgesic/NSAID/antipyretics(17.2%), antiallergic (7.5%), antacids (7.5%),cough syrup (6.3%), supplements (5%), antihypertensive (4.7%), steroids (2.8%), hypoglycemic(1.9%), and others (12.2%). While in other countries like in India,anti-infective agents were the most commonly dispensed (20.6%), followed by medicines acting on the gastrointestinal system (18.2%), vitamins and nutritional supplements (10.9%), analgesics and antipyretics (10.5%). [22]

Regarding the antibiotics, amoxillin (26.0%) was the most frequently used antibiotic followed by amoxiclav (15.4%) then azithromycin(9.6%) while in a study that was carried out in Abu Dhabi showed that 68.4% of the antibiotics were sold without prescriptions, this includes combination of penicillins including beta lactamase inhibitors (34.0%), penicillin with extended spectrum (22.3%) and second generation cephalosporin (11.2%) were most commonly sold.[23]Another study in Vietnam showed that purchasers

visit a pharmacy when they felt they needed antibiotics for minor symptoms,the most often purchased antibiotics were ampicillin (31.1%), amoxyllin (16.7%), cotrimoxazol (11.6%). However in Pakistan a study showed that the most frequently used agents were amoxycillin (16.7%), co-trimoxazole (15.7%), and erythromycin (10.9%).

It has recently been reported that non-prescription antibiotics use (including non-legal use) varies between European regions, e.g. the lowest levels of non-prescription antibiotics use were observed in northern Europe (weighted non-prescription use was 3%) while the highest levels were observed in eastern Europe (weighted non-prescription use was 30%).[8]

Non-prescribed antibiotics are associated with very short courses and inappropriate drug and dose choice and this could lead to many complications. Poor regulation of antibiotics results from absent policies or, more commonly, from absent enforcement of policies.[2]Also lack of professionalism of community pharmacy practice, and the absent of public awareness of the danger of some medication. [3]

Limitation of the study were the shortage of time, the sample didn't include equal number of subjects of different ages at different places, and the sample was not representative of all the pharmacies in Erbil city.

In conclusion, self-medication is a common health care practice in Erbil city. The prevalence of using unauthorized medications was high among malesand those aged ≥50.This study illustrated that many patients can easily practice self-medication for the management of wide range of conditions whether simple or not.

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Antidepressants use among depressive patients of Hawler psychiatric hospital / Erbil – out patient clinic

Authors

1- Professor Dr.Sirwan Kamil Ali
Head of Psychiatric Department
College of Medicine/Hawler Medical University
Head of Psychiatric training Center
Erbil/Iraq
Tel: Mobil +9647504855790
Email: Sirwanali2010@yahoo.com

2- Ava Ghazi Rasheed
Third year trainee in Kurdistan Board of Medical Speciality KBMS – Psychiatry
Erbil training center
Tel: Mobile +9647504130669
Email: Ava.ghazy@gmail.com

Abstract

Background and objective: Depression is widely recognized as a major public health problem around the world. The mainstay of treatment is the prescription of antidepressants although, psychological treatments have found a place as an alternative to antidepressants in milder forms of depression, this study had been done to identify whether antidepressant use among depressive patients in adult psychiatric consultation of hawler psychiatric hospital is consistent to the last NICE guidelines of antidepressant prescription.

Methods: Fifty Samples collected between 19.June.2016 to 18.August.2016 from adult psychiatric consultation clinc of Hawler psyciatric hospital/ Erbil. We interviewed the patients with Major Depressive Disorder about how they used antidepressant for their illnesses, in addition to that we look for registered notes in patient's follow up files, and in some conditions we asked responsible psychiatrist for further clarifications. All days of week were included from Saturday to Thursday, to cover all psychiatrists in charge with the service.

Results: We found there were differences in some points of the way of using antidepressants for depressed patients in psychiatric consultation comparing to the NICE guidelines like drug category selection, and discussion with patients, while in another point there were similarities like period of drug use.

Conclusion: Not every pointsthat mentioned by the NICE guidelines is applied on our patients may be for many reasons, we may need to put local guidelines by present care givers on thebase evidences from our society, culture, and patients types.

Keywords: Hawler, Antidepressants, Guidelines

Introduction

Mood can be defined as a pervasive and sustained emotion or feeling tone that influences a person's behavior and colors his or her perception of being in the world.[1]

Depression is part of normal experience to feel unhappy during times of adversity. The symptom of depressed mood is a component of many psychiatric syndromes, and is also commonly found in certain physical diseases (e.g. in infections such as hepatitis, and some neurological disorders), but with the syndromes known as depressive disorders. The central features of these syndromes are:

- depressed mood
- lack of enjoyment
- Slowness.
- negative thinking
- reduced energy

Among all of these, depressed mood is usually, the most prominent symptom.[2]

Patientsare classified as having major depressive disorder, recurrent, who are experiencing at least a second episode of depression.[1]

Depression is, of course, widely recognized as a major public health problem around the world. The mainstay of treatment is the prescription of antidepressants although,nowadays psychological treatments have found their role as an alternative to antidepressants in milder forms of depression. Other methods of treating depressionremain somewhat experimental and are not widely available like (vagal nerve stimulation [VNS], transcranial magnetic stimulation [TMS], etc.[3]

Comparing withthe tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs), Selective serotonin reuptake inhibitors (SSRIs) are well tolerated and are generally recommended as first-line pharmacological treatment. And all types of antidepressants are associated with a range of side effects, with ability to causediscontinuation symptoms.[3]

In Hawler Psychiatric Hospital, there is adult psychiatric consultation, where patients above 18 years age-old are seen by psychiatrist, there are many patients with depression prescribed for them antidepressants, here in this study, we will compare prescribing antidepressants for depressive patients in adult psychiatric consultation to last NICE guidelines.

Aim

To identify whether antidepressant use among depressive patients in adult psychiatric consultation of Hawler psychiatric Hospital is consistent with last NICE Guidelines of prescribing antidepressants among depressive patients.

Data Collection Methodology

- Fifty Samples collected between 19.June.2016 to 18.August.2016
- We interviewed with patients about how they used antidepressant for their depression, with looking for registered notes in patient's follow up files, and if necessary we asked responsible psychiatrist for any clarifications.
- Each interview lasts about 10 minutes.

- Other psychiatric illnesses those comorbid with depression had been excluded for example patient with Obsessive compulsive disorder (OCD) comorbid with depression. and psychotic depression were excluded.
- Age above 18 years included.
- All days of week were included from saturday to thursday, to cover all psychiatrists in charge with the service.
- We did interview with all included patients those visited adult psychiatric consultation except:
  1-Those who refused to participate after we clarified for them the aim of the study, they excused by many reasons mainly they were on hurry, and they don't have time, some of them didn't have interest to participate.
  2- Sometimes our consultation was too crowded we didn't have time to interview with patient and provide privacy for those who included in this study.

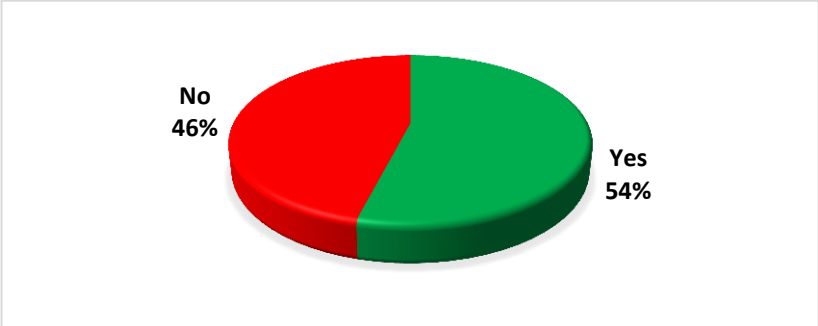
- Consent taken verbally from the patients, after clarification of the aim of the study, and we insure the patients that we are not about to change or interfere with their treatment.
- We used the following paper during the interview, in full private and confident environment.

Results

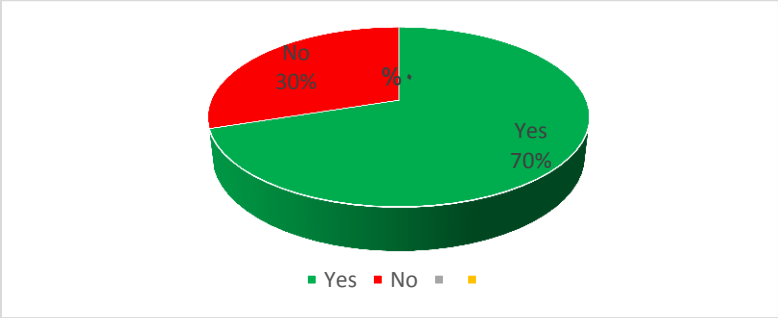
1- Discuss with the patient choice of drug and utility/availability of other, non-pharmacological Treatments.

2- Discuss with the patient likely outcomes, such as gradual relief from depressive symptoms over several weeks.

3- Prescribe a dose of antidepressant (after titration, if necessary) that is likely to be effective.



4- For a single episode, continue treatment for at least 6–9 months after resolution of symptoms (multiple episodes may require longer).



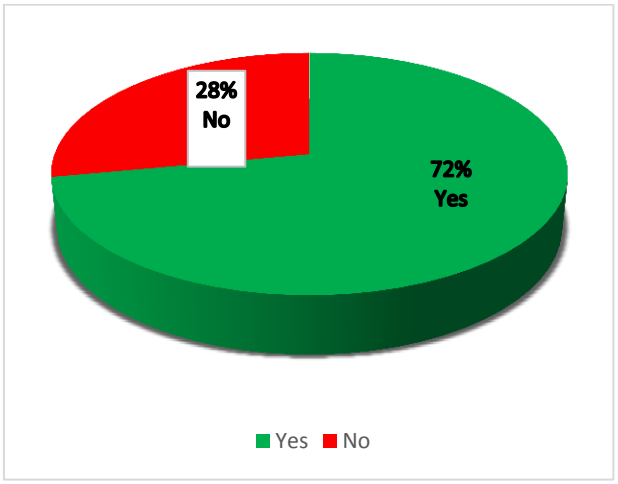
5- Withdraw antidepressants gradually; always inform patients of the risk and nature of discontinuation symptoms.

- There were no any patients found that needed his medication to be withdrawn by the psychiatrist.
- There were no any patients found that had been informed about the risk and nature of discontinuation symptoms.

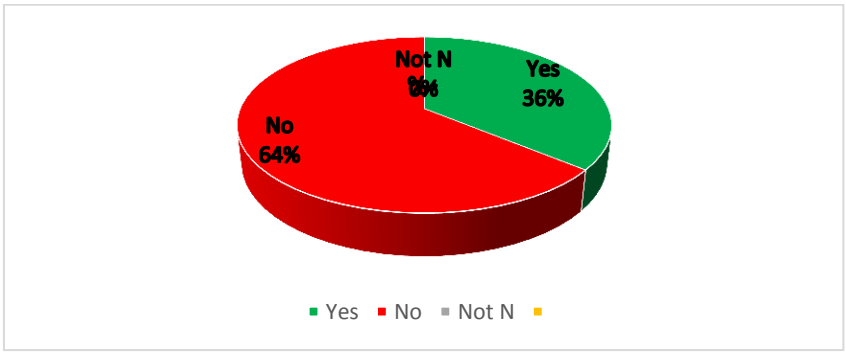
6- Antidepressants are not recommended as a first-line treatment in recent-onset, mild depression – active monitoring, individual guided self-help, cognitive behavioral therapy (CBT) or exercise is preferred.

Antidepressants are recommended for the treatment of moderate to severe depression and for dysthymia. Because the severity of depression is not specified for any one, and we didn't find any patient without treatment with medication even from their first visiting to the consultation, all of them only treated by medications

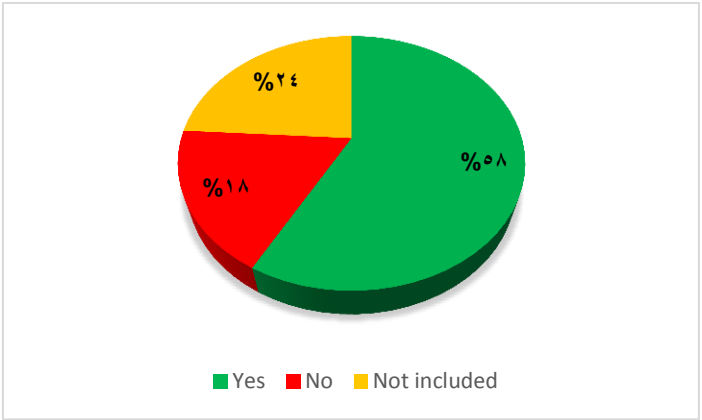
7- When an antidepressant is prescribed, a generic selective serotonin reuptake inhibitor (SSRI) is recommended.



8- For treatment-resistant depression, recommended strategies include augmentation with lithium or an antipsychotic or the addition of a second antidepressant.



9 - Patients with two prior episodes and functional impairment should be treated for at least 2 years.



10 - The use of electroconvulsive therapy (ECT) is supported in severe and treatment resistant depression.

Among our 50 Cases only 3 cases receive ECT, only One of them he had resistant depression; the second one has suicidal ideation, while the last one the indication of ECT was not clear.

Discussion

Our studyshows that only one case (2%) who participated in our study,the responsible psychiatrist discussed with him the choice of drug and utility/availability of other, non-pharmacological treatments, while 48 cases(96%) this discussion never occurred, one case (2%)was not clear if this discussion occurred or not, because this patient didn't remember exactly whether this discussion done with him or not, there was no any record in his follow up file. Maybe these results due to insufficient time at the consultation, and/or related to our patient population type those visited the consultation, 40% of them they never entered the primary school, 40% didn't finish from primary school, 16% didn't finish their secondary school, so in such low educational level may be discussions of such issues is difficult.

Eighteen cases(36%) informed by the psychiatrist about the likely outcomes of antidepressants use, such as gradual relief from depressive symptoms over several weeks, while 31 cases(62%) not informed, one case(2%) was not clear, because this patient didn't remember whether he informed about this information or not.

Also in 27 cases(54%) psychiatrist prescribed a dose of antidepressant that is likely to be effective with titration, in 23 cases (46%) titration not done for them and their medications changed while they were on minimal effective doses or less than minimal effective doses.

Thirty five cases (70%) for their first episode continue treatment for at least 6–9 months after resolution of symptoms, but all of them before starting to discontinue their antidepressants they developed another depressive episode. 15 cases(30%) discontinue their treatment before this time in their first depressive episode, they discontinue by themselves when they felt better, and some of them follow the traditional healers advices to stop receiving medications. Apart from patient and family attitudes toward psychiatric disorder and its treatment, expense of the drug with low income, and reduced productivity among psychiatrically ill patients, in addition to fear from drug dependence.

There were no any patients found that needed his medication to be withdrawn by the psychiatrist, apart those patients who were in their first episode, no any patient reach to the point of need to withdraw his medications, either they discontinue by themselves or they developed new depressive episode.

There were no any patients found that had been informed about the risk and nature of discontinuation symptoms.

Antidepressant discontinuation symptoms are important as they can cause morbidity, affect adherence to antidepressant treatment, prevent antidepressants being stopped and can be misdiagnosed, leading to inappropriate treatment. In most patients, discontinuation symptoms are self-limiting; of short duration and mild, but in a minority of cases they can be severe, last several weeks and cause significant morbidity.[14]

For example there was report of two patients who developed a severe discontinuation (withdrawal) reaction following stoppage of paroxetine and venlafaxine, respectively. Neurological symptoms were prominent and neither patient could walk unaided. Both patients feared they had suffered a 'stroke' and arranged an emergency medical consultation. One patient was correctly diagnosed, the antidepressant was recommenced and symptoms resolved within 24 h. Failure to recognize the reaction resulted in the other patient being referred to a neurologist, undergoing a computed tomography brain scan and an electroencephalogram and remaining symptomatic for over 8 weeks.[7]

And developing withdrawal symptoms is differ among different antidepressants, for example in a randomized clinical trial done in 1999 about Selective serotonin reuptake inhibitor discontinuation syndrome, they found abrupt interruption of antidepressant therapy for 5-8 days was associated with the emergence of new somatic and psychological symptoms in patients treated with paroxetine and to a lesser degree sertraline, with few symptoms seen with fluoxetine.[8]

Severity of depression is not specified for any one, and we didn't find any patient without treatment with medication even from their first visiting to the consultation, all of them only treated by medications.Small sample size may affect the results, apart from that short period of the consultation with crowded patients, and unavailable other modalities of treatment, made a situation that specification of the severity may be useless and carry no benefits to the patients in the management process in our consultation, except when indicated to be admitted to the hospital or need electroconvulsive therapy ECT, and both of themare available in our hospital, we have bed for admission and ECT unit.

Thirty six cases (72%) a generic selective serotonin reuptake inhibitor (SSRI) is prescribed for them, while 14 cases (28%) they started their treatment with Tricyclic Antidepressants (TCA).

In this study we used NICE guidelines as a standard to be compared and they choose Selective serotonin reuptake inhibitors (SSRIs) as fist line.

SSRIs are well tolerated compared with the older tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs), and are generally recommended as first-line pharmacological treatment for depression.[3]and in this study Psychotic depression not included. TCAs are probably the drugs of first choice in psychotic depression.[3]

In one meta-analysisof efficacy and acceptability of SSRIs versus TCA in young patient aged 7 to 25 years done in 2014, they found SSRIs were significantly more effective than TCAs in primary efficacy. Patients taking SSRIs had a significantly greater response to depressive symptoms than patients taking TCAs. [10]

In another systemic review and meta-analysis done in 2013, SSRI versus TCA (six RCTs): There was no statistically significant difference between SSRI and TCA for response or remission. SSRI showed significantly lower drop-out and adverse event outcomes compared to TCA.[11]

In a systematic review of Chinese randomized clinical trials of SSRI treatment of depression done in 2014, In terms of efficacy, SSRIs were statistically significant superior to TCA (response rate, remission rate), which is inconsistent with most western meta-analyses which have indicated comparable efficacy between SSRIs and TCAs, or showed that TCAs were more effective than SSRIs. And no significant differences were observed regarding dropout rates due to side effects, this is not in line with evidence from Western trials suggesting superiority of SSRI over TCA in terms of tolerability and dropout rates. TCA was associated with a higher prevalence of adverse effects in Drowsiness, Anxiety, and Dry mouth etc.[12]

So higher prevalence of adverse effects that cause dropout in TCA comparing to the SSRIs make superiority of the SSRIs as first line of pharmacotherapy, a part from that serious cardiac side effects of TCA, make SSRIs more preferable as first line.

For treatment-resistant depression, 32 cases (64%) treated as resistant depression from the beginning, here we mean they received antidepressants with low dose of antipsychotics from the first psychiatric consultation without giving any chances to antidepressants alone in its therapeutic doses, may be they started their treatment in other areas like private clinics or psychiatric hospitals from another areas, then they came to our

consultation with their treatment just for opening follow up files and receiving medications from the hospital, so they stayed on their old treatment with possibility of their insistance.

18 cases (36%) either treated as resistant depression after diagnosed as a resistant depression or they are in correct process of treatment till now you cannot diagnose them as a resistant depression and neither receiving two antidepressant nor antipsychotic with antidepressant.
29 Cases (58%) had history of prior two episodes continue their treatment for two years and more, 9 Cases (18%) had history prior of two episodes not received treatment as described above , 12 Cases (24%) not included.
Among our 50 Cases only 3 cases receive ECT, One of them he had resistant depression, the second one has suicidal ideation, while the last one the indication of ECT was not clear.

Other factors may explain the results

In a survey of 1878 Canadian physicians, 22% to 26% had concerns about loss of autonomy, the rigidity of guidelines and decreased satisfaction with medical practice.[5]

So when we look to these percentages we realized that guidelines something not constant, therefore frequently these guidelines changed with time because of new and more researches about disorders and their treatments.With taking on consideration the 5 specific areas in developing guidelines, these 5 specific areas are clinical guidelines, social care guidelines, medicines practice guidelines, safe staffing guidelines, guideline development process.[13]

A. Insufficient time

1- Hawler psychiatric hospital consultation, received a large number of patient every day within limited time every day, for example daily there are about 30 – 50 cases of different psychiatric presentation coming to the consultation within 3.5 hours, which mean about 4-7 minutes for each patient, so this very short time restrict the psychiatrist to follow these guidelines.
2- Absence of professional referral system in Hawler government, make psychiatric consultation received many medical and neurological cases which consume time and sometimes mislead the psychiatrist.

Two studies done in other field than psychiatry about following guidelines in managing the patients, in one study(sample consisted of a random sample of 488 physical therapist in the United States who were members of the American Physical Therapy Association (APTA) in July 2002). 46% percent of the respondents indicated insufficient time was the most important barrier to the use of evidence in practice.[6]this is done in United Stated although their referral system better than in our country, still they complaining from insufficient time, so what about our consultation with such huge numbers of patients within limited time.

While in another study which is Cabana and associatesreviewed 76 articles that investigated barriers to physician use of clinical practice guidelines, they mentioned lack of time is one of the barrier.[9]
So time is important factor to follow guidelines in daily practising and managing the patients, and may be the most important challenge to be solved.

B. Lack of facility

1- Availability of antidepressant in our pharmacy is another point that restrict psychiatrist for choosing the antidepressants say nothing of discussion with the patient about the choice of drug and utility/availability of other.

2- Non-pharmacological treatment like psychotherapy not available because there are no Clinical Psychotherapist work in hospital to receive patients and make psychotherapy sessions for them, a part from some non-professional social worker present.

3- Financial problems of the patients restrict psychiatrist to prescribe what is available in hospital pharmacy. As mentioned in one of descriptive study about 'Why do GPs not implement evidence-based guidelines? They mentioned financial considerations making the subject a low priority.[4]

C. Patient's characteristics those visiting our consultation

1-Level of Education

Twenty cases (40%) illiterate, 21 cases (42%) not finished the primary school, 8 cases (16%) not finished the secondary school, and just 2 cases (4%) graduated from the university.

This is another big challenge to follow the guidelines, for example they don't have any scientific information, so how you can discuss with them about the choice of the treatment way.

2- Patient population

Almost all of our patients want rapid recovery from the depression and during the follow up they frequently blaming their psychiatrist and their prescribed medication not help them, sometimes they discontinue their medications because of they didn't get benefit from it, and tried to consult traditional healers whose they are present everywhere with easily accessible to their places. So psychiatrist may be obligated to enhance the speed of prescription of medications and shifting from the guidelines to not lose the patient for long time if not for ever.

In one study that done in other medical specialty, approximately 30% of the respondents rated lack of generalizability of research findings to their specific patient population and the inability to apply findings to individual patients with unique characteristics as important barriers.[6]

In descriptive study about 'Why do GPs not implement evidence-based guidelines?'several barriers to the implementation of evidence-based guidelines in the management of hypertension in the elderly were identified. They found doubts about the applicability of trial data to particular patients is another barrier to follow the guidelines.[4]

D- Factors related to the psychiatrists (Knowledge, attitudes toward the guidelines)

In this study we didn't ask psychiatrist about his or her knowledge, attitude or any factor that may prevent psychiatrist avoid to use a guidelines.

Cabana and associates[9] reviewed 76 articles that investigated barriers to physician use of CPGs. They found 293 barriers that they divided into 3 broad groups, based on physician knowledge (lack of awareness and familiarity with the guidelines), attitudes (resistance to changing prior patterns of practices, lack of agreement with specific guidelines, lack of agreement with guidelines in general, concerns about whether the guidelines would work, and concerns about whether the clinician would be able to implement the guidelines), and external factors (difficulty or complexity of the guidelines, inconvenience of guideline implementation,

patient resistance, and lack of time, reminders, and resources). The authors noted that few studies examined the full variety of barriers that may affect the use of practice guidelines.[8,9]
And Lack of interest was chosen as an important barrier by 11% of the respondents,[3]in another study.

Conclusion:
Not every pointsthat mentioned by the NICE guidelines is applied on our patients may be for many reasons, we may need to put local guidelines by present care givers on thebase evidences from our society, culture, and patients types.

Recommendations
1- Referral system need to be improved, because many cases those visiting psychiatric consultation, either pure neurological, or medical cases that should referred to neurological or medical consultation, and there are many simple cases that can be treated in primary health care and no need to be seen by psychiatrist at consultation. By this way we may safe more time to deal with indicated psychiatric cases.

2- Working on developing our guidelines those are more appropriate to our society, population, available facilities, with getting benefits from other international guidelines and recent related studies.

3- Looking for the causes why our psychiatrist not follow these guidelines and working on any treatable causes.

4- Provide support and different psychotropic medications in our pharmacy to solve the problem of availability of these medications continuously.

5- Working on providing Clinical psychotherapist and psychotherapy session.

6- Psychoeducation among people about different psychiatric issues by using different available ways including media and social networks.

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Early in hospital outcome of thrombolytic therapy for myocardial infarction

By:

Dr. Mohamad Omer Lak (MBChB, KBMS)

Dr. Dashty A. Al-Bustany

Assistant professor in Medicine, department of medicine/College of Medicine/HMU (MBChB, DM, FICMS, FRCP-UK-London)

Background

In Erbil city we till now using fibrinolytics as first reperfusion strategy more than primary percutaneous coronary intervention especially when facilities are not available or the transfer times are too long.

Aim of study

To evaluate and assess benefit versus drawback of thrombolytic therapy and its early outcome for patients with STEMI acute myocardial infarction.

Methodology

A cross sectional study carried out in Coronary Care Unit (CCU) of three Teaching Hospitals in Hawler city (Rozhalat, Hawler, and Rzgari Teaching Hospitals) for period from 1st of June, 2015 to 30th of February, 2016 on convenient sample of one hundred acute myocardial infarction patients. The data was collected by the researcher by direct interview and filling a prepared questionnaire. The patients were subsequently divided into three groups depending upon the resolution of ST-segment.

Results

Mean age of studied patients was 53.6±12.6 years and males were more than females. Thrombolysis response was complete among 15% of patients, partial response present among 56% of them, and response was poor among 29% of them,. There was a significant association between poor response to thrombolysis and long symptoms duration ($p<0.001$), hypertensive AMI ($p=0.009$), diabetic AMI patients ($p=0.002$) and obese AMI patients ($p=0.01$). Patients with poor response to thrombolysis developed significant complications like atrial fibrillation, bleeding, mitral regurgitation (MR) and regional wall motion abnormality (RWA) more than other patients.

Conclusions

Thrombolysis response among AMI patients in Erbil hospitals is within acceptable range in comparison to nearby countries.

Key words: Thrombolytic therapy, MI, early in hospital outcome

Introduction

Cardiovascular disease is the single most common cause of death worldwide and is commonly associated with myocardial infarction, Around 30% of global mortality and 10% of global morbidity is due to cardiovascular diseases.[1] In 2008 according to WHO around 17.3 million of worldwide mortality were attributable to cardiovascular diseases with 42% of all cardiovascular deaths being due to myocardial infarction.[1] Coronary heart disease and resulting death rates are decreasing in many developed countries, especially North America and western European countries. This decrease is the result of improved prevention, diagnosis and treatment, particularly reductions in cigarette smoking, control of blood cholesterol and blood pressures.[1,2] In developing and transitional countries, coronary heart disease is increasing, partly as a result of increasing longevity of life, urbanization, and lifestyle changes. More than 60% of the global burden of coronary heart disease occurs in developing countries. [1,3]Nationally, despite limitations in the mortality statistics available in Iraq,

CVDs rank first as a cause of death in Iraq. Coronary heart disease (CHD) and stroke are the predominant types of CVD encountered in clinical practice. Hospital morbidity data provided by the MOH indicates a 65% increase in hospital admissions due to CHD between 1989 and 1999. The average age of persons hospitalized with acute myocardial infarction seems to have shifted towards younger age groups.[4] Prompt restoration of blood flow in coronary arteries before the heart muscle is irreversibly damaged is the primary treatment goal in acute myocardial infarction.[5] coronary arteries Reperfusion is accomplished either: mechanically, by primary percutaneous coronary intervention (PPCI); or pharmacologically, by administration of a thrombolytic agent as soon as possible after diagnosis of MI.[6] The recognition of the time-dependent progression of necrosis in the heart muscle, constitutes the basis for the international guidelines stating that MI patients' treatment time should not extend beyond 45 minutes and that reperfusion therapy, with fibrinolysis or PCI, should be performed as soon as possible, i.e. < 90 minutes after the onset of symptoms.[7] Regardless of mode of reperfusion, early treatment, especially within the first 'golden hour', has a significant mortality benefit.[8] For patients with the clinical presentation of MI within 12 hours after symptom onset with persistent ST-elevation or new LBBB, reperfusion therapy should be given.[9] There is also a general agreement to consider primary PCI even if more than 12 hours have passed since symptom onset, if there is clinical evidence of on-going ischemia.[9] Fibrinolytic therapy is still an important reperfusion strategy where PCI facilities are not available or the transfer times are too long. The benefit of fibrinolysis is well established with approximately 30 early deaths prevented per 1000 patients treated.[10] Pre-hospital administration is proven to be superior of hospital administration with 17% relative risk reduction.[11]

Aim of study

The aim of this study is to evaluate and assess benefit versus drawback of thrombolytic therapy and its early hospital outcome for patients with ST segment elevation acute myocardial infarction in Erbil city.

Patients & Methods

Study design and setting: A cross sectional study carried out from a convenient sample of 100 patients with AMI admitted to CCU of three Teaching Hospitals in Hawler city was selected. for period from 1st of June/ 2015 to 30th of February/ 2016.

Inclusion criteria:

1. First attack acute myocardial infarction (AMI).
2. Duration 0-12 hours.

Exclusion criteria:

1. Previous MI.
2. Any cases with absolute contraindications for thrombolysis.
3. Previous coronary intervention (PCI, CABG).
4. Previous bundle branch block.
5. Active malignancy, ESRD, or severe disabling comorbidities.
6. Patients put on warfarin for any reason.
7. Patients with bleeding tendency.

The diagnosis of acute STEMI relied on the revised criteria established by the WHO. The ST-segment elevation resolution was calculated as the initial sum of ST-segment elevation on admission before thrombolytic therapy minus the sum of remaining ST segment elevation at 90 minutes after thrombolytic therapy divided by the initial sum of ST-segment elevation expressed as percentage. The patients were subsequently divided into three groups depending upon the resolution of ST-segment which is stratified by Schroder et al:

Group A: complete resolution (≥70% reduction of ST-segment).

Group B: partial resolution (<70% to 30% reduction of ST-segment).

Group C: no resolution (<30% reduction of ST-segment).

Results

A total of 100 acute myocardial infarction (AMI) patients were included in present study with mean age 53.6±12.6 years, 32% of them were elderly (≥ 60 years). Males with MI were more than females with male to female ratio as 2.7:1. All these findings were shown in figures 1, 2.

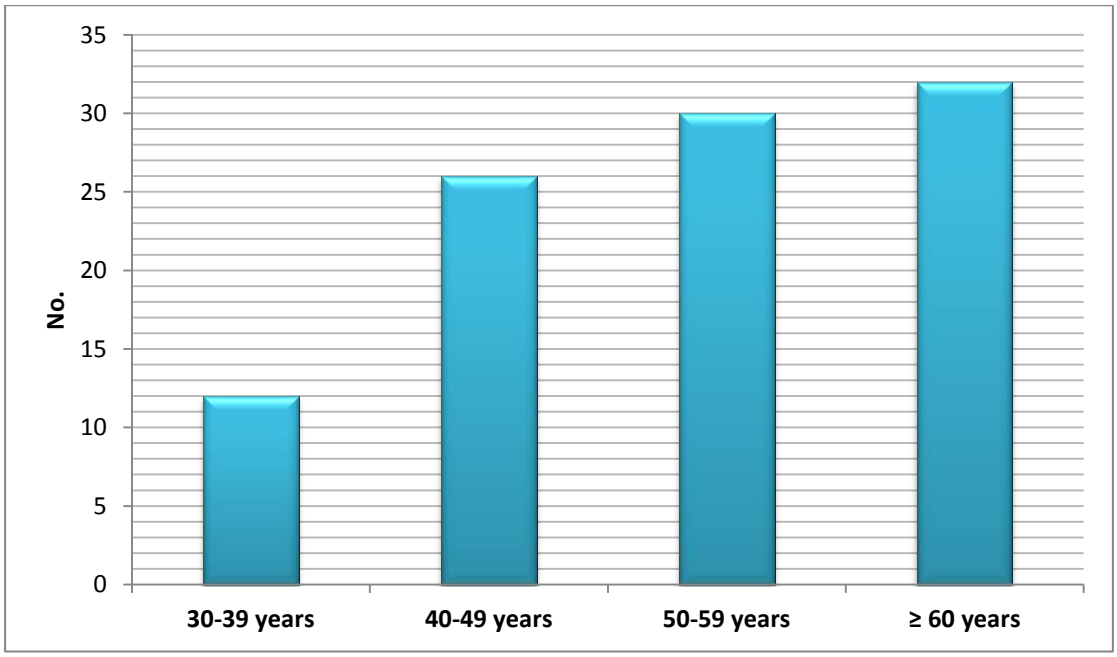

Figure 1: Age distribution of MI patients.

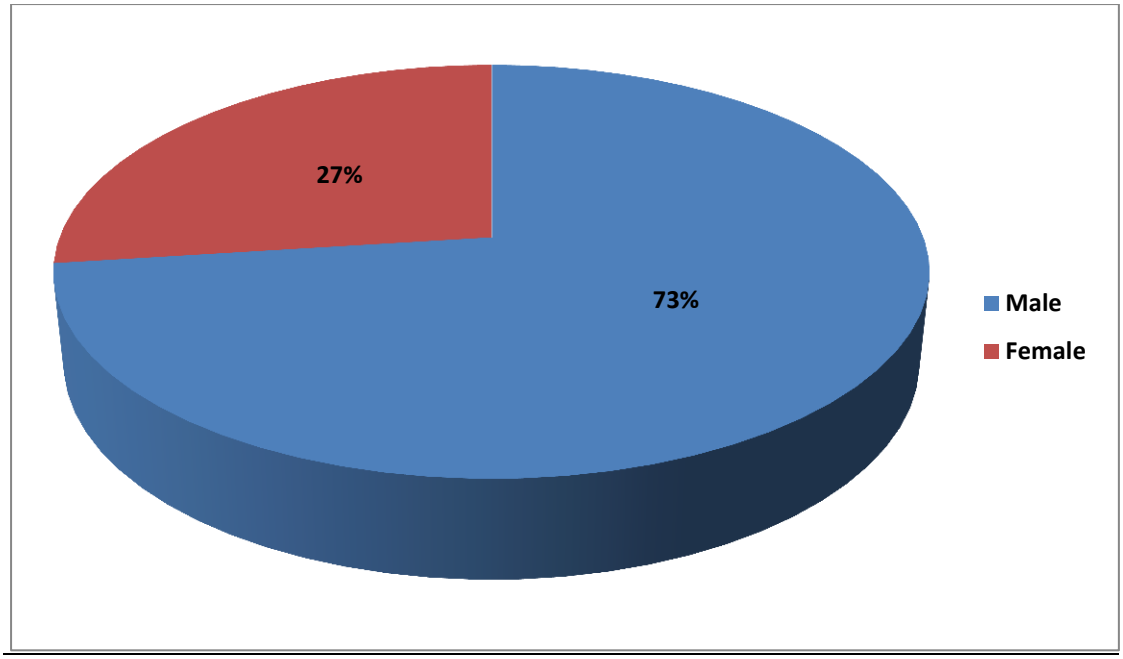

Figure 2: Gender distribution of MI patients.

More than half (55%) of AMI patients had 1-6 hours symptoms duration, 25% of them 7-12 hours and 20% of them <1 hour symptom duration. All these findings were shown in figure 3.

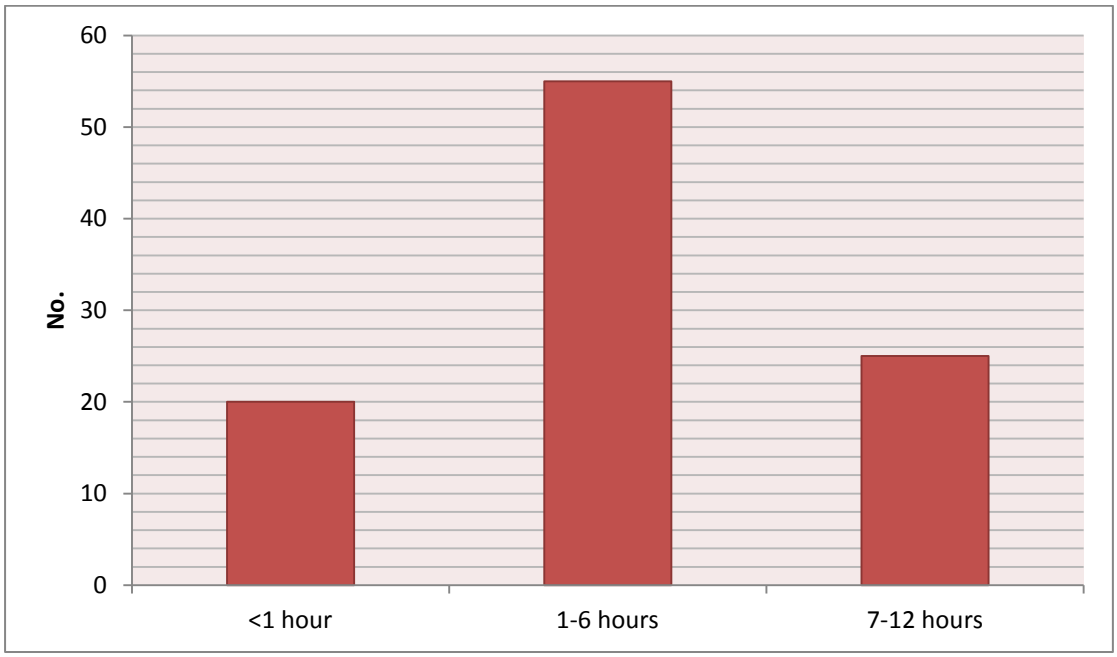

Figure 3: Symptoms duration distribution of AMI patients.

About one third of AMI patients were hypertensives, 32% of them were diabetics, 32% of them were obese, 60% of them had smoking history, 26% of them had positive family history of heart diseases and 19% of them had history of alcohol consumption, figure 4.

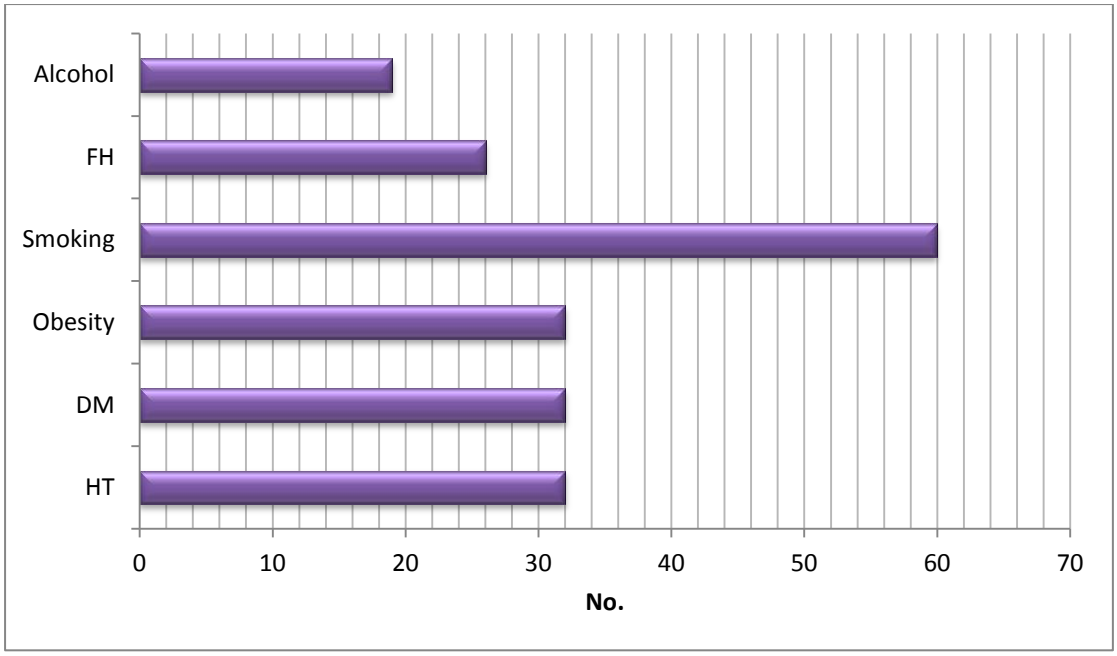

Figure 4: Cardiac risk factors.

Normal heart rate was record among 66% of studied AMI patients, sinus tachycardia found among 16%, sinus bradycardia 12%, AF 3% and VT 3%. Cardiogenic shock was present among 7% of AMI patients. ST-segment deviation was distributed as followings; 54% moderate, 40% severe and 6% mild. All these findings were shown in figures 5, 6.

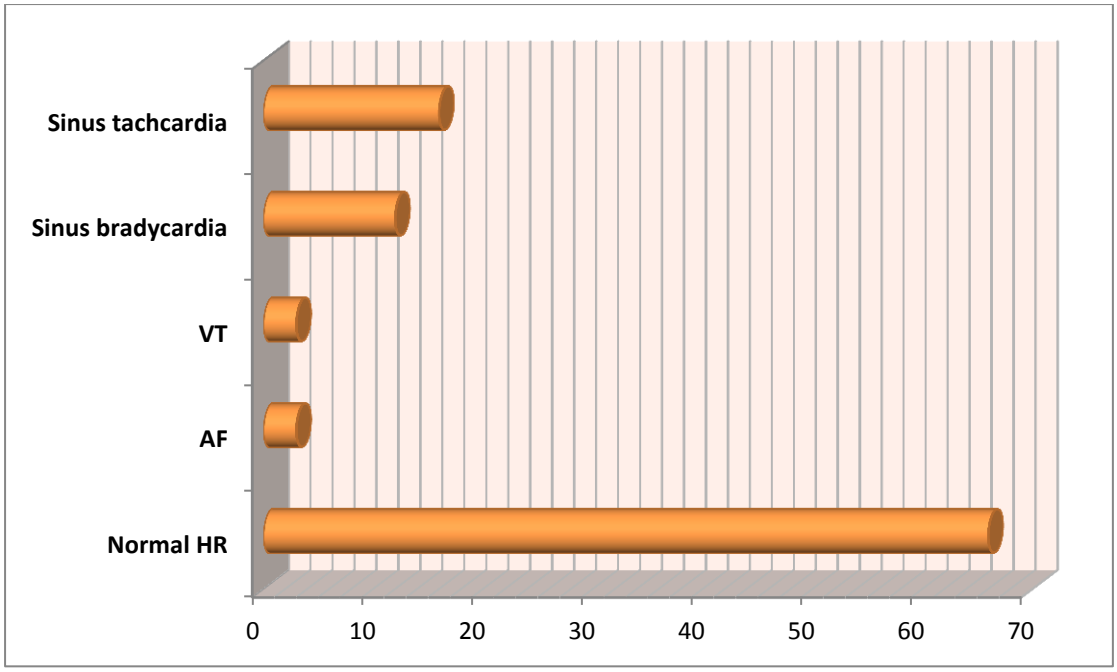

Figure 5: AMI patients' arrhythmias.

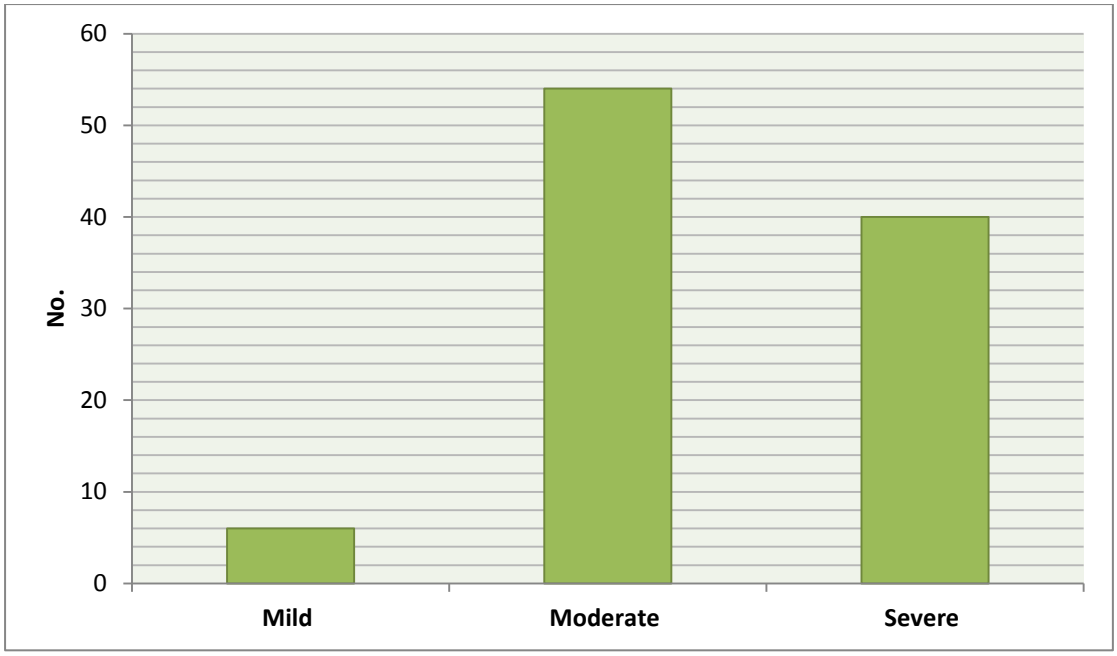

Figure 6: ST-segment deviation distribution AMI patients.

Bleeding was presented as minor bleeding among 20% of AMI patients, MR present among 31% of them, pericardial effusion present among 11% of them RWA detected among 47% of them. All these findings were shown in figure 7.

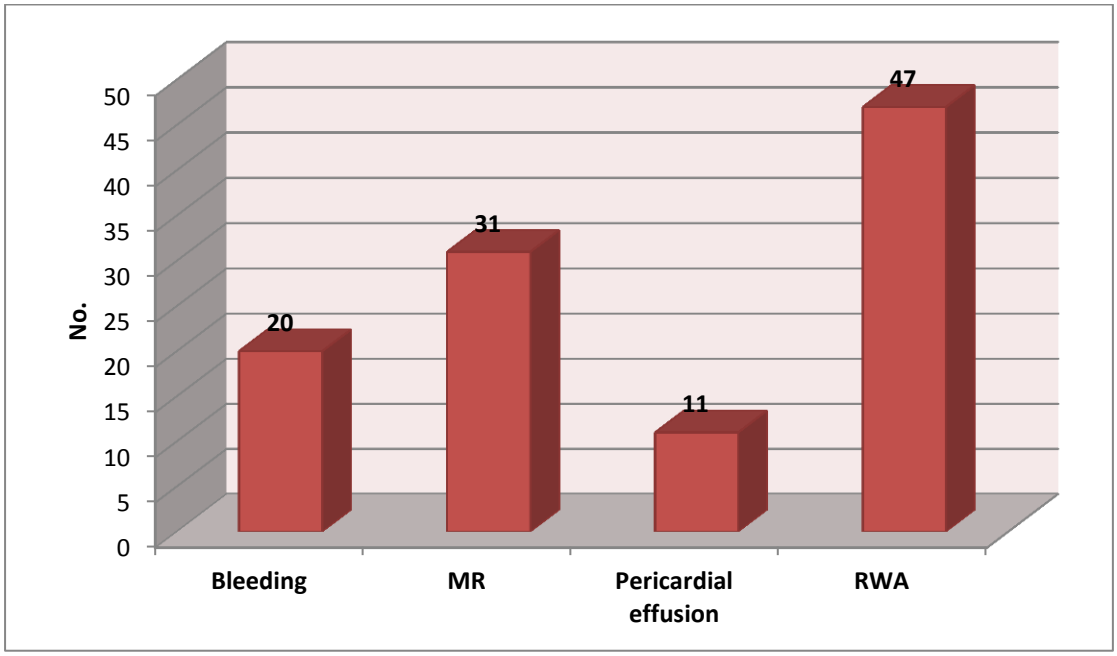

Figure 7: Complications.

Mean grace score was 2, EF% 30.9, FS% 15.5, LVSD 32.4 and LVDD 49.7, table 1.

Table 1: Outcome score means of MI patients.

Variable	Mean	SD
Grace score	2	1
EF%	30.9	31.5
FS%	15.5	15.9
LVSD	32.4	6.2
LVDD	49.7	8.8

Thrombolysis response was absent among 29% of AMI patients, partial response present among 56% of them and complete response present among 15% of them, figure 8.

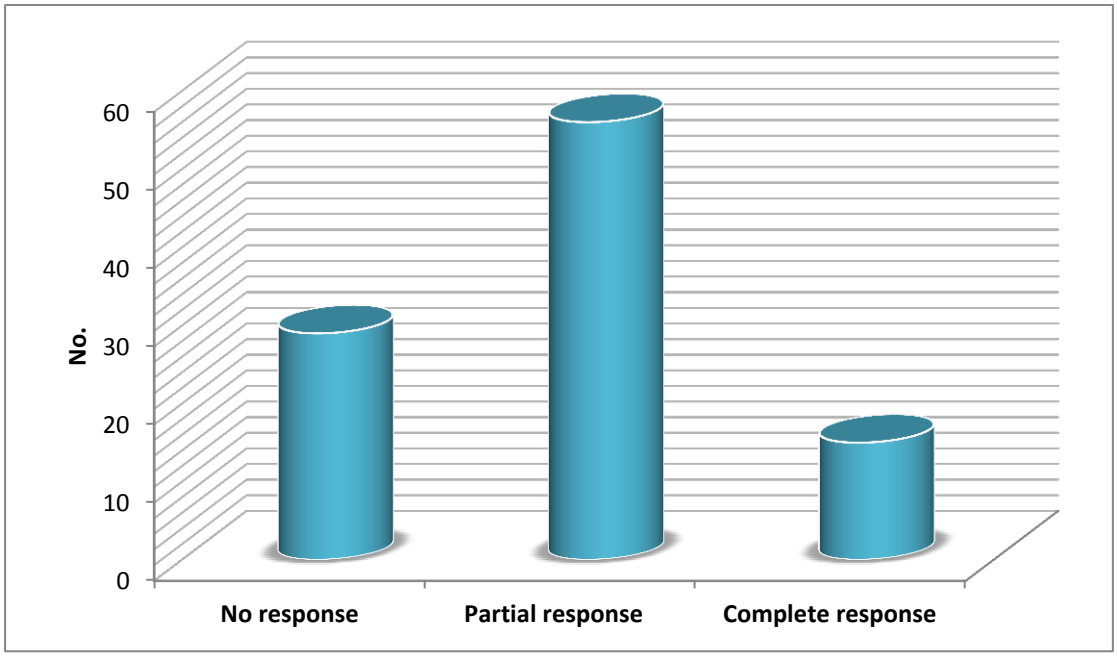

Figure 8: AMI patients' response to thrombolysis.

No significant differences were observed between AMI patients with different response to thrombolysis regarding their age and gender. All these findings were shown in table 2.

Table 2: Distribution of demographic characteristics according to response to thrombolysis.

Variable	No		Partial		Complete		χ^2	P
	No.	%	No.	%	No.	%		
Age							9.9*	0.1
30-39 years	6	50.0	6	50.0	0	-		
40-49 years	4	15.4	16	61.5	6	23.1		
50-59 years	11	36.7	13	43.3	6	20.0		
>60 years	8	25.0	21	65.6	3	9.4		

Gender							0.9	0.6
Male	20	27.4	43	58.9	10	13.7		
Female	9	33.3	13	48.1	5	18.5		

**Fishers exact test.*

There was a significant association between long symptoms duration and no response to thrombolysis ($p<0.001$). A significant association was observed between hypertensive AMI patients and partial response to thrombolysis ($p=0.009$). There was a significant association between diabetic AMI patients and no response to thrombolysis ($p=0.002$). A significant association was observed between obese AMI patients and partial response to thrombolysis ($p=0.01$). No significant differences were observed between AMI patients with different response to thrombolysis regarding their age and gender. All these findings were shown in table 3 and figure 9.

Table 3: Distribution of duration and risk factors according to response to thrombolysis.

Variable	**No**		**Partial**		**Complete**		χ^2	**P**
	No.	**%**	**No.**	**%**	**No.**	**%**		
Duration o symptoms							21.9*	**<0.001**
<1 hour	5	25.0	13	65.0	2	10.0		
1-6 hours	8	14.5	37	67.3	10	18.2		
7-12 hours	16	64.0	6	24.0	3	12.0		
HT							9.3	**0.009**
No	16	23.5	37	54.4	15	22.1		
Yes	13	40.6	19	59.4	0	-		
DM							12.9	**0.002**
No	16	20.5	50	64.1	12	15.4		
Yes	13	59.1	6	27.3	3	13.6		
Obesity							8.3	**0.01**
No	18	26.5	35	51.5	15	22.1		
Yes	11	34.4	21	65.6	0	-		
Smoking							2.2	0.3
No	9	22.5	26	65.0	5	12.5		
Yes	20	33.3	30	50.0	10	16.7		
Family history							2.3	0.3
No	19	25.7	42	56.8	13	17.6		
Yes	10	38.5	14	53.8	2	7.7		
Alcohol consumption							0.3	0.8
No	23	28.4	45	55.6	13	16.0		

Yes	6	31.6	11	57.9	2	10.5		

**Fishers exact test.*

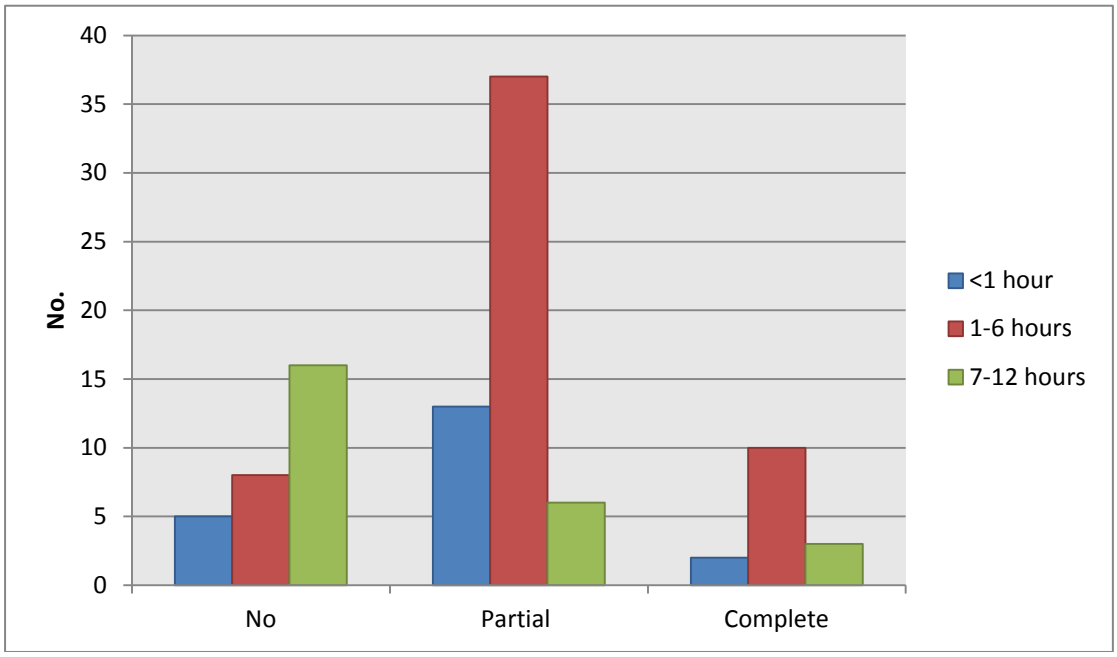

Figure 9: Symptoms duration distribution according to response to thrombolysis.

There was a significant association between AMI patients with AF and no response to thrombolysis ($p<0.001$). A significant association was observed between AMI patients with severe ST-segment deviation and partial response to thrombolysis ($p<0.001$). There was a significant association between MI patients with cardiogenic shock and no response to thrombolysis ($p<0.001$). A significant association was observed between AMI patients with bleeding, MR and pericardial effusion and no response to thrombolysis ($p<0.05$). There was a significant association between recorded RWA among AMI patients and no response to thrombolysis ($p<0.001$). All these findings were shown in table 4 and figures 10, 11.

Table 4: Distribution of complications according to response to thrombolysis.

Variable	**No**		**Partial**		**Complete**		**χ^2**	**P**
	No.	**%**	**No.**	**%**	**No.**	**%**		
Arrhythmias							29.5*	**<0.001**
Normal HR	15	22.7	41	62.1	10	15.2		
AF	3	100.0	0	-	0	-		
VT	0	-	0	-	3	100.0		
Sinus bradycardia	4	33.3	8	66.7	0	-		
Sinus tachycardia	7	43.8	7	43.8	2	12.5		
ST-segment deviation							11.1*	**0.02**
Mild	3	50.0	0	-	3	50.0		
Moderate	16	29.6	33	61.1	5	9.3		
Severe	10	25.0	23	57.5	7	17.5		
Cardiogenic shock							18.4*	**<0.001**

No	22	23.7	56	60.2	15	16.1		
Yes	7	100.0	0	-	0	-		
Bleeding							11.0*	**0.002**
No	17	21.3	51	63.7	12	15.0		
Minor	12	60.0	5	25.0	3	15.0		
MR							8.5	**0.01**
No	14	20.3	43	62.3	12	17.4		
Yes	15	48.4	13	41.9	3	9.7		
Pericardial effusion							15.5*	**<0.001**
No	21	24.4	53	61.6	12	14.0		
Yes	8	72.7	0	-	3	27.3		
RWA							17.4	**<0.001**
Negative	6	11.3	38	71.7	9	17.0		
Positive	23	48.9	18	38.3	6	12.8		

**Fishers exact test.*

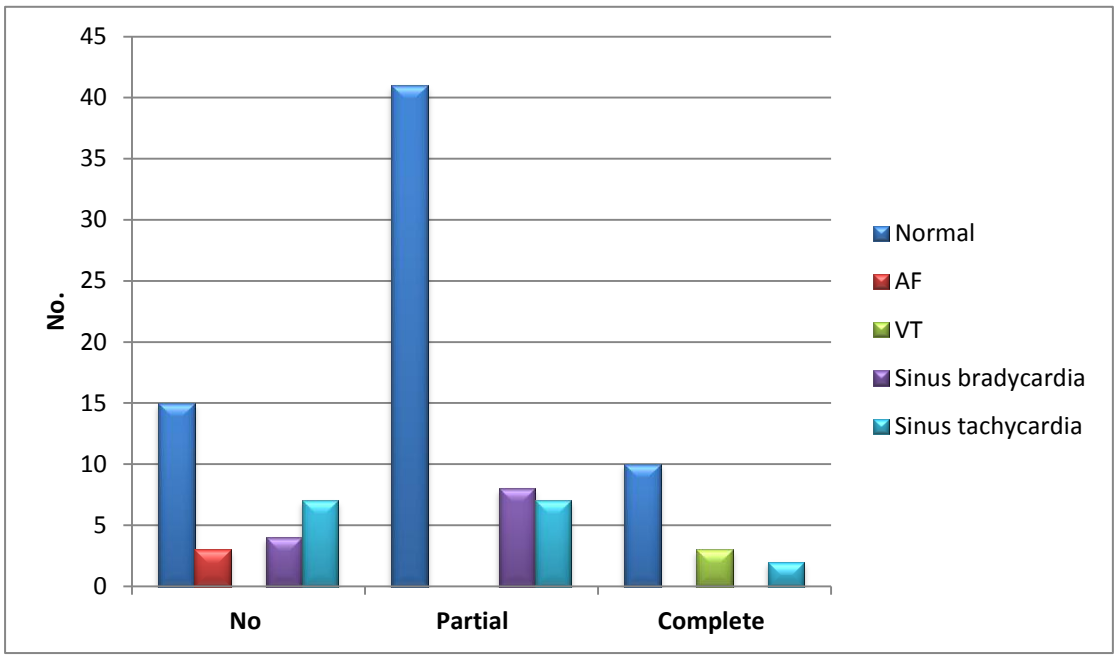

Figure 10: ST-segment deviation distribution according to response to thrombolysis.

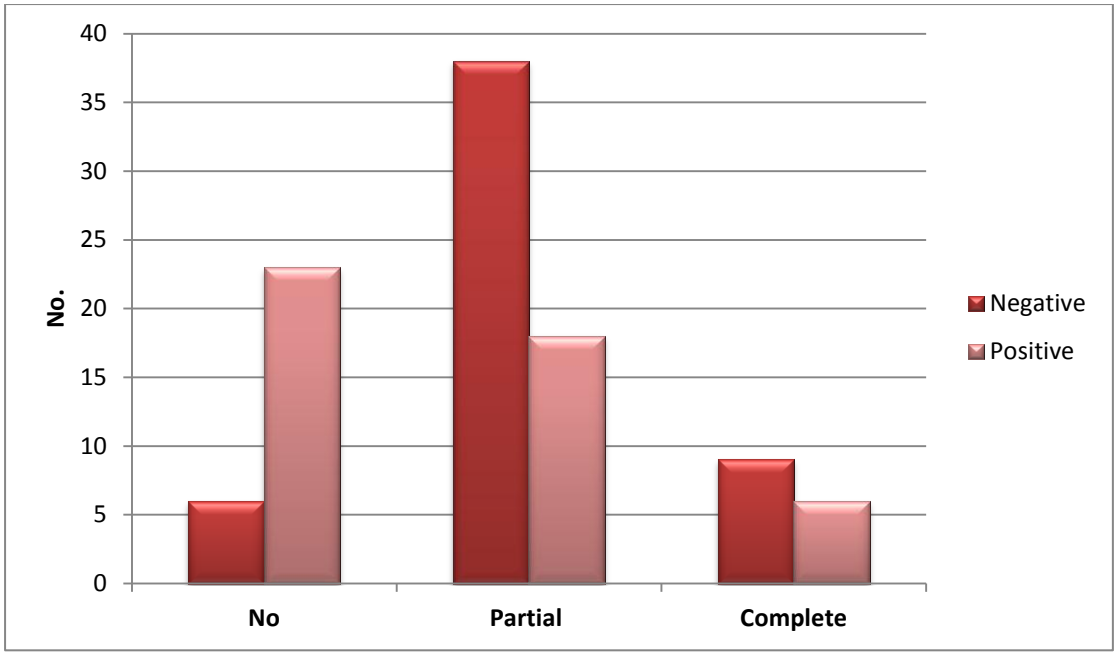

Figure 11: RWA distribution according to response to thrombolysis.

There was a significant association between higher means of grace score and LVDD among AMI patients with no response to thrombolysis (p<0.001), table 5 and figure 12.

Table 5: Distribution of outcome scores means according to response to thrombolysis.

Response	**Grace sc.**	**EF%**	**FS%**	**LVSD**	**LVDD**
	Mean±SD	**Mean±SD**	**Mean±SD**	**Mean±SD**	**Mean±SD**
No	2.1±0.7	29.5±30.9	14.7±15.6	33.6±7	55.8±7.5
Partial	1.3±0.5	33.6±31.5	16.9±15.8	31.6±6.1	46.5±8.6
Complete	1.2±0.4	23.3±33.2	11.6±16.3	33±4.5	49.4±5.3
P value*	**<0.001**	0.5	0.5	0.3	**<0.001**

**ANOVA*.

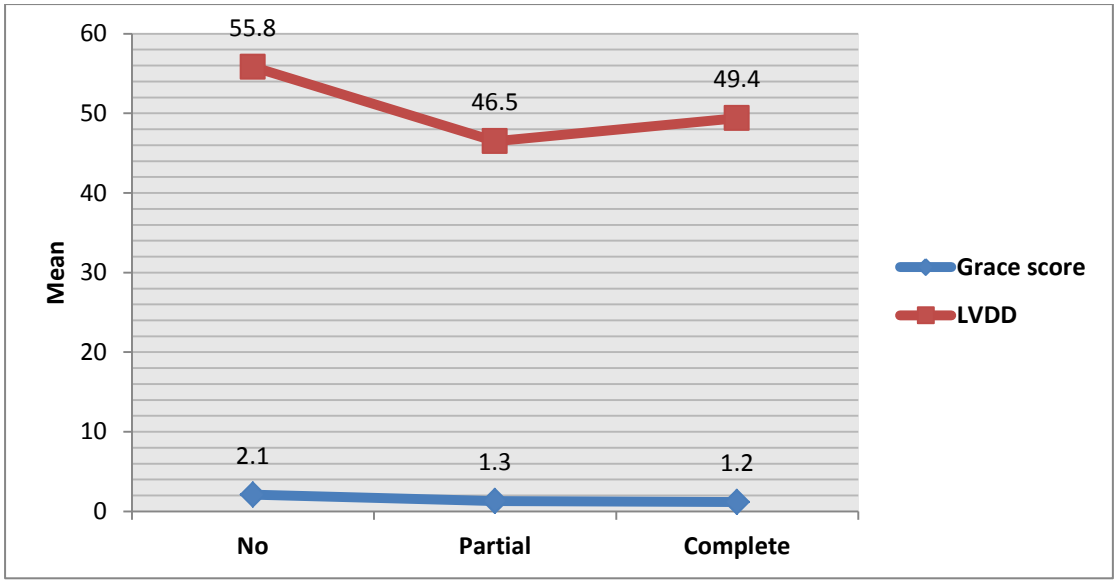

Figure 12: Grace score and LVDD means distribution according to response to thrombolysis.

Discussion

Reperfusion therapy in acute MI attempts to reduce mortality and morbidity. Therefore, it is necessary to obtain complete and sustained patency of the infarct-related coronary artery as early as possible.[56] Closer collaboration between disciplines handling various life-threatening complications of atherosclerosis has the potential to improve our understanding of ways of improving treatment. The literature about the early treatment of stroke has mainly appeared during the last decade, whereas similar literature about the heart often appeared 10 years earlier.[57]

In present study, only 15% of AMI patients had complete response to thrombolysis therapy after follow up, 56% of them had partial response and 29% of them had no response to thrombolytic therapy. These findings are better than results of Al-Selaimy and Al-Missari study in Iraq [58] which found that 7.3% of AMI patients had complete response after treatment with thrombolysis, 41% of them had partial response and 51.7% of them had no response. This difference is attributed to highly qualified cardiac centers in Kurdistan in comparison to Diyala province.

Our findings regarding thrombolysis outcome are lower than that reported by Schofield study in UK [59] which revealed that 42% of AMI patients treated within 1st hour with thrombolytics had complete response. Another study in UK [60] reported that shortening prehospital delay in acute myocardial infarction will tend to increase the risk profile of patients presenting to emergency departments. Memon et al [61] study in Pakistan found that not only mortality was improved by thrombolysis but also patients had less complications, early pain relief and shorter hospital stay. The Comparison of Angioplasty and Prehospital Thrombolysis in Acute Myocardial Infarction (CAPTIM) trial suggested that early fibrinolysis could lead to comparable results such as those of primary angioplasty.[62] Patients with cardiac arrest due to MI are seen very early after the onset of ischemia because most of the time the collapse is only preceded by a short duration of symptoms. A further advantage of thrombolysis in these patients could be a positive effect on the microcirculatory reperfusion of the brain.[63]

Our study found no significant association between demographic characteristics of AMI patients and response to thrompolysis therapy. This finding is inconsistent with results of Ghadimi et al [64] study in Iran and Herlitz et al [57] study in Sweden which stated that younger age females had good in-hospital outcome after thrombolysis treatment. This difference might be due to difference in sample size and inclusion criteria between studies.

Current study showed that AMI patients with long duration of symptoms had significantly no response to thrombolysis ($p<0.001$). This is consistent with results of McGinn et al [65] studywhich found that long symptoms duration and delay in thrombolysis treatment associated with high mortality of AMI patients. Despite large-scale efforts to reduce the delay between the onset of symptoms and the patient's decision time and admission to hospital respectively, the results have not been particularly impressive. In Sweden, the prehospital delay in AMI has not changed much during the last 10 years.[57]

AMI patients in present study with HT and obesity had significantly partial response to thrombolysis than others ($p<0.05$). This is similar to results of Mousa and Sherhan study in Iraq [66]. Diabetic AMI patients in this study had significantly no response to thrompolysis than others ($p=0.002$). This finding is in agreement with results of Gurm et al [67] study in UK which concluded as compared to nondiabetics, diabetics continue to have a worse outcome with MI. Although combination therapy did not provide a survival benefit, nonfatal ischemic outcomes, including reinfarction, recurrent ischemia, and urgent revascularization, were substantially reduced. Diabetics have evidence of increased platelet activation, adhesiveness and aggregability, and greater expression of platelet GP IIb/IIIa, thrombospondin, and P selectin.[67]

Other studied cardiac risk factors as smoking, alcohol and family history had no significant effect on thrombolysis response of AMI patients ($p>0.05$). These findings are similar to results of Goldman and Eisenberg study in Canada[68]. Survival following thrombolytic therapy for AMI is closely related to the early restoration of coronary blood flow in the infarct-related artery. Numerous studies have demonstrated a consistent relationship between mortality rates and TIMI flow grade at 90 minutes. The in-hospital mortality rate after MI is 3.9% for TIMI 3, 6.7% for TIMI 2, and 9.9% for TIMI 0 or 1 flow. [69] Since thrombolysis achieves TIMI 3 flow in less than 60% of patients, coronary angioplasty performed early after thrombolytic therapy may improve coronary patency rates and thereby improve clinical outcomes.[70]

The main associated cardiac characteristics that significantly associated with no response of AMI patients to thrombolysis were AF (p<0.001), moderate to severe ST segment deviation (p=0.02), cardiogenic shock (p<0.001), bleeding (p=0.002), MR (p=0.01), pericardial effusion (p<0.001) and positive RWA (p<0.001). These findings are consistent with results of Ghadimi et al [64] study in Iran. Other studies reported incidence of 1% for asystole and 4.5% for ventricular fibrillation among AMI patients in Western countries.[71] On the other hand, other arrhythmias were as frequent as, or less common than, the rates mentioned in large series [71], reporting 10, 5 and 10–15% frequencies for paroxysmal supraventricular tachycardia, atrial flutter and fibrillation, respectively. First-degree atrioventricular block, Mobitz type I and II and complete atrioventricular block have a global incidence of 15, 10, 1 and 5–15%, respectively.[71] Cardiogenic shock was seen in 7.5% of patients in a large study of 4762 American patients.[72] Recurrent angina pectoris was encountered in 29% of STEMI and 37% of non-STEMI cases in GRACE.[73] Reinfarction was reported in 4.6% and extension of infarct in 3% of Indian STEMI patients.[74] Stroke (4.3%) was more common, however, than Western studies like GRACE [73] and of others who reported an incidence of 1–2%. Nevertheless, a 5% incidence for stroke among AMI patients has been observed in previous study.[64]

In this study, Mean LVDD was significantly higher among AMI patients with no response to thrombolysis (p<0.001). This is similar to results of Al-Othman and Al-Tawil study in Erbil [75] which concluded that early reperfusion therapy in acute anterior myocardial infarction can decrease the incidence of early left ventricular infarct expansion, preserve left ventricular systolic function and decrease in-hospital mortality.

Limitations of the study

1. Loss to follow up.
2. Single center study.
3. Selection bias.
4. Interference with PCI.

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Primary angiosarcoma of the right atrium: Case report

Abdulkareem Abdulwahab Al-Othman[*] ,Chalak Ismael[**] , Yusra Abdulkhaliq Qasim[***]

Key words: Primary angiosarcoma

Abstract

Primary tumors of the heart are rare and angiosarcoma is the most common primary cardiac malignant tumor.

We present a 45-year-old lady admitted on November 2015 to the Coronary Care Unit at Hawler Teaching Hospital with shortness of breath for one month with clinical features of right-sided heart failure. Transthoracic echocardiography showed large mass in the right atrium. Computed tomographic pulmonary angiography confirmed a large atrial mass with direct extension to the superior and inferior vena cava up with extensive thrombosis involving the right subclavian vein and internal jagular vein in addition to a thrombus occluding the distal branch of the proximal segment of both right and left pulmonary artery.

Open-heart surgery done at Hawler Cardiac Center after obtaining informed consent from the patient. Surgery revealed a big solid tumor in the right atrium protruding to the right ventricle through tricuspid valve with extension to superior and inferior vena cava. De-bulking of the tumor was done but the evolution was marked by sudden death intra-operatively. The pathological and immune histochemical examination revealed a primary cardiac angiosarcoma.

Conclusions: Primary atrial angiosarcoma may present late with clinical features of right-sided heart failure and may be associated with vascular metastasis as well as pulmonary embolism.

Introduction

Primary cardiac tumors are rare entities (0.0017–0.003%) of routine autopsy studies,[1]. Angiosarcoma is the most frequent primary malignant cardiac tumor (31% of all the malignancies)[2].

Primary cardiac angiosarcoma (PCA) mostly arise in the right atrium and have a tendency to occur in the third to fifth decade and more commonly in males[3]. They

frequently extend to the pericardium, vena cava, or tricuspid valve, causing tamponade and/or heart inflow obstruction with superior vena cava syndrome.

The authors describe a case of large primary angiosarcoma located in the right atrium in a 45-year old lady with direct vascular metastasis .To our knowledge this association has not previously been described.

Case presentation

A 45-year-old lady with no previous co-morbid illness presented to the Coronary Care Unit (CCU) of Erbil Teaching Hospital with gradual shortness of breath for one month. There was no history of alcohol ingestion, neither was there any history of cigarette smoking.

On examination the patient was conscious oriented to time and place with mild jaundice, not cyanosed, she had a tachycardia of 105 bpm regular, blood pressure of 110/70 mmHg in both arms, respiratory rate of 26/min, a temperature of 36.5°C. and oxygen saturation of 90% on room air. Bilateral pitting leg edema up to the knees. Cardiovascular examination revealed regular heart sounds with no murmur, a slightly raised jugular venous pressure, and pulses of good volume.

Examination of the chest revealed stony dull percussion on the right lower zone and decreased vesicular breath sound on the right lower zone. The abdomen was moderately distended, soft, not tender, no organomegaly and no other remarkable finding on clinical examination.

The resting electrocardiography (ECG) showed sinus tachycardia, right axis deviation, low voltage and no ischemic changes.

The hemoglobin was 13.7gm/dl and the white blood cell count was $8.5x10^9$/L, with lymphocyte count of 22.3%, neutrophil count of 71%, and platelet count of $205x10^9$/L, normal renal function test. Total and direct bilirubin levels were elevated at 3.8 mg/dl and 2.3mg/dl respectively, Aspartate Transaminase, Alanine Transaminase, Alkaline Phosphatase were all elevated at51.2 IU/L, 47.9 IU/L, 1067IU/L respectively (Normal being 10-50 IU/L,10-45IU/L and 40-125IU/L respectively. Total protein was 6gm/dl and albumin level of 3.5gm/dl. Normal level of both prothrombine and partial thromboplastin time. Viral were negative.

Chest x ray showed slight cardiomegaly (cardiothoracic index of 0.58) with obliteration of right costophrenic angle.

Transthoracic echocardiography revealed markedly dilated right atrium containing large fixed mass with irregular vague borders (5cm long x 1.3cm maximum width) attached to the inter-atrial septum, shifting the septum toward the left atrium and partially obstructing the tricuspid valve (Figure-1), normal left ventricular size, wall thickness and global left ventricular systolic function with ejection fraction of 64%.

Abdominal ultrasound revealed mild ascites, no intra or extra hepatic biliary dilatation, no organomegaly or other remarkable findings.

Computed tomographic (CT) pulmonary angiography confirmed the large atrial mass with direct extension to the superior and IVC up to the level of renal veins as well as extensive thrombosis involving the right subclavian vein and internal jagular vein ((Figure-2). The CT pulmonary angiography also showed a thrombus occluding the distal branch of the proximal segment of both right and left pulmonary artery. (Figure-3). Mild pleural effusion was seen on the right side of the chest.

The differential diagnosis was primary tumor of the right atrium, mostly expected to be malignant with vascular metastasis into the superior and IVC with sub-massive pulmonary embolism.

The patient received oxygen therapy and low-molecular-weight heparin (Enoxoparin, given subcutaneously, 8000 IU twice daily).

The patient referred next day to Hawler Cardiac Center and a team including cardiologist, cardiovascular surgeon and anesthesiologist was built. After obtaining the patient informed consent, open-heart surgery was done.

Cardiopulmonary bypass was instituted via canulation of left common femoral vein and innominate vein as the venous line and the ascending aorta as the arterial line, there was severe adhesion between the heart and the pericardium, adhesiolysis was done.

There was a big solid tumor in the right atrium, which has a wide base arising from inferno-lateral wall of right atrium and almost filling the lumen of right atrium, invading the lumen of SVC, protruding to right ventricle through tricuspid valve and heavily

infiltrating the wall of IVC and sub totally occluding the lumen of IVC.

De-bulking of the tumor was done (Figure-4), there was restoration of blood flow through SVC, IVC, and tricuspid valve. Closure of Right atrium was done .the patient was gradually weaned from bypass machine however; the evolution was marked by the sudden death of the patient intra-operatively.

The gross pathology of the specimen showed two pieces of tissue measured 5 cm in aggregate, gray brown in color. The histopathological examination of the biopsy material obtained revealed primary angiosarcoma of the right atrium. The microscopic finding stained by Hematoxylin & Eosin (H&E) revealed a complex anastomosing vascular channels ,blood filled spaces lined by atypical endothelial cells with enlarged hyperchromatic nuclei with many mitotic figures and wide area of necrosis, the tumor is suggestive of primary cardiac angiosarcoma grade III (Figure-5,A) and confirmed by immune-histochemical staining which demonstrate their endothelial origin and aid in the diagnosis as a panel of Antibodies that include CD31 and CD34 were positive (Figure-5,B), vimentin positive (Figure-5,C).

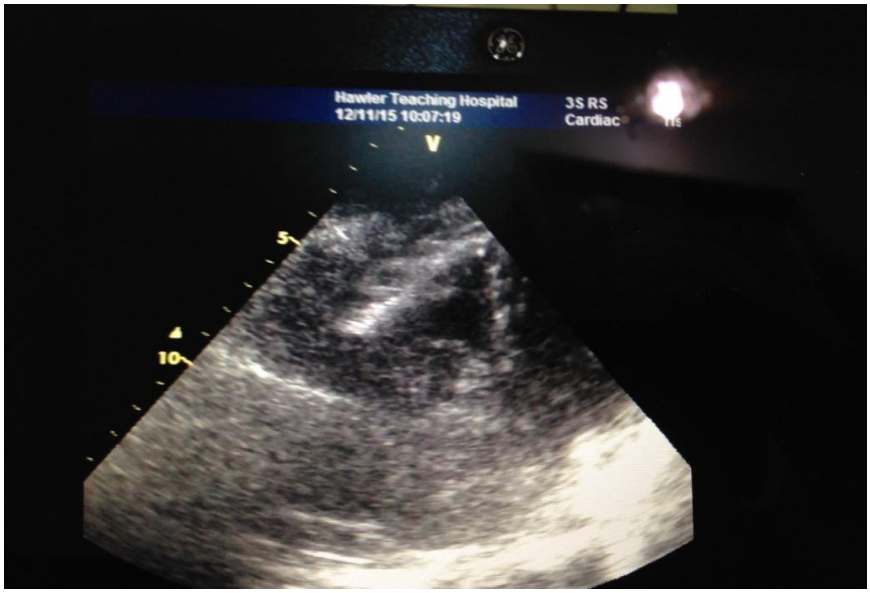


Figure 1: Transthoracic echocardiography showing large right atrial mass protruded through the tricuspid valve toward the right ventricle

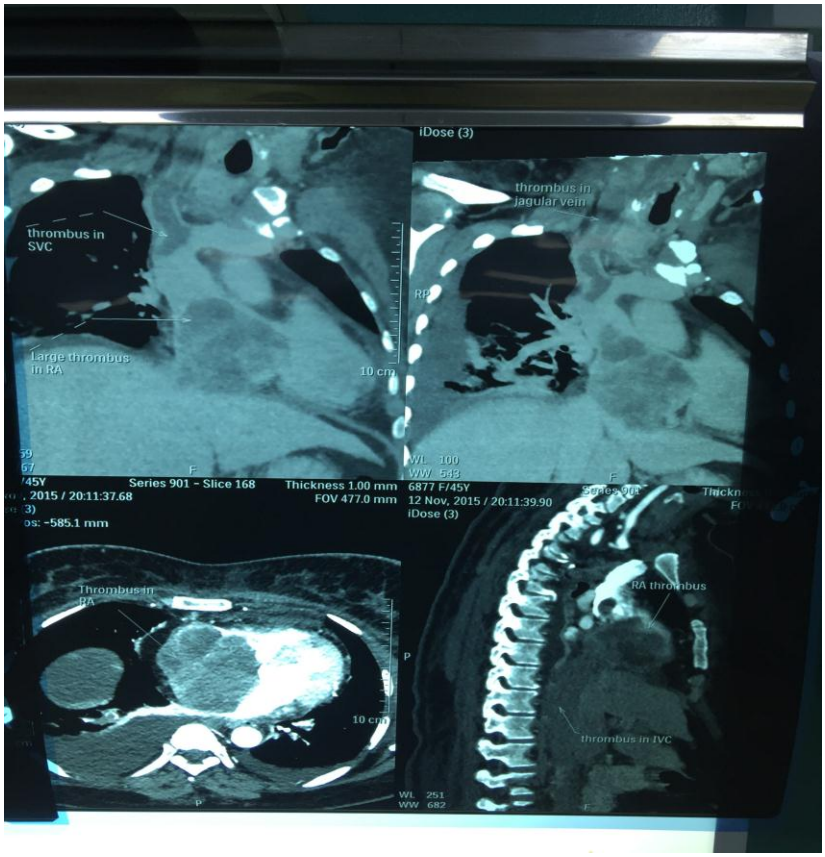


Figure-2: Computed tomographic pulmonary angiography showing large right atrial mass with extension to the internal jugular vein, superior and inferior vena cava.

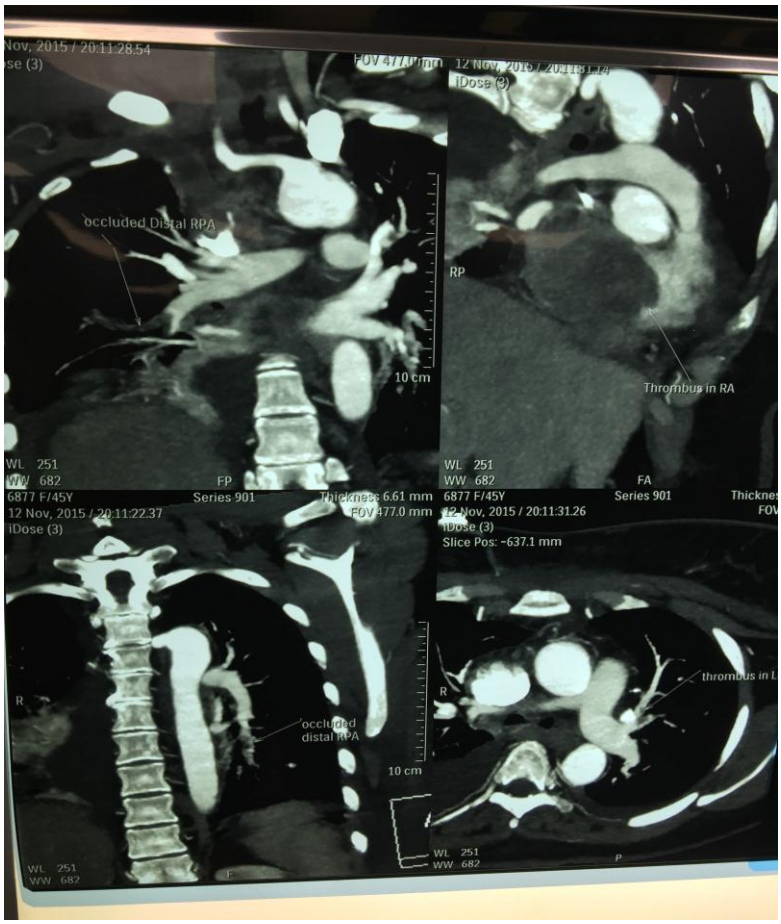


Figure-3: Computed tomographic pulmonary angiography showing distal pulmonary occlusion

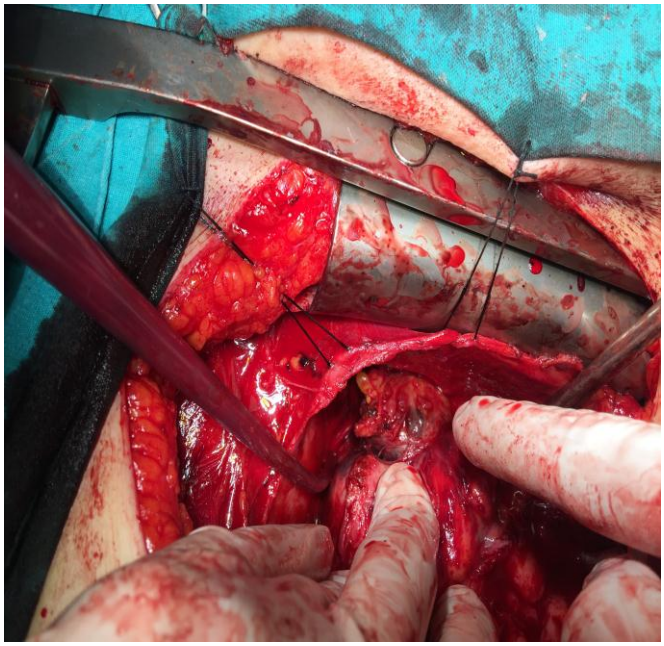
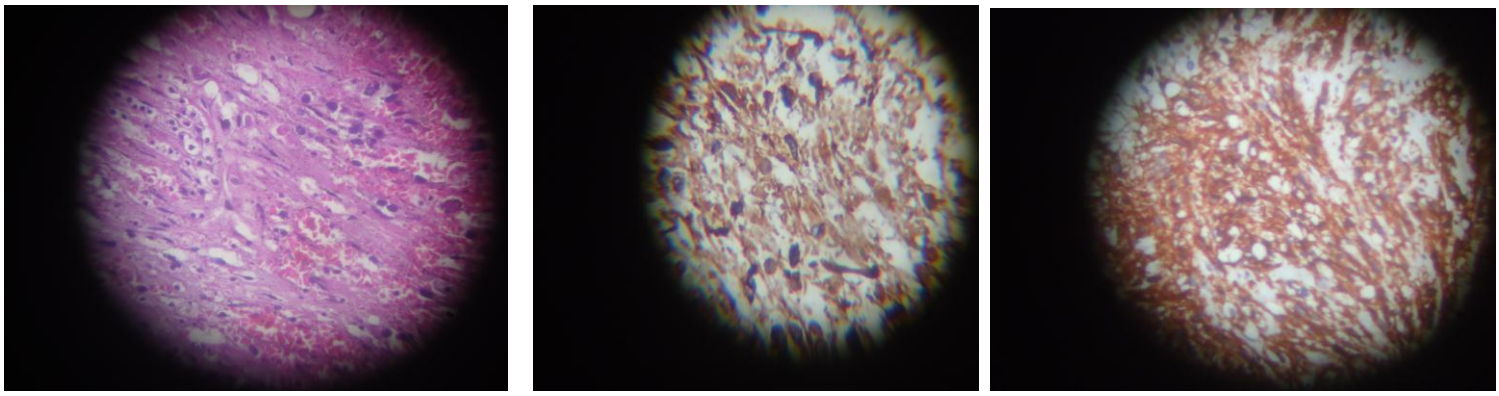


Figure-4: Surgical removal of right atrial mass



A **B** **C**

Figure-5:

A: (H&E)stain showing anastomosing vascular channels lined by malignant endothelial cells.(X400).
B: CD 31 positive (immunohistochemichemical staining).(X 400).
C: Vimentin positive (Immunohistochemical staining).(X 200).

Discussion

Primary malignant neoplasm of the heart are exceptionally rare, of these primary cardiac angiosarcoma is the most common[4].

Our patient presented with clinical features of right-sided heart failure manifested as elevated JVP, bilateral leg oedema, hepatomegaly and mild ascites. The most common symptom of angiosarcoma is congestive heart failure followed by embolization. These symptoms are usually based on the location of the tumors; vary with the size, shape and physical activity of patients. In this tumour, the presentation may include edema hepatomegaly, and pulmonary embolization ,other clinical symptoms are fatigue, malaise, low-grade fever and weight loss [5,6].

The differential diagnosis of a right atrial mass includes benign entities such as myxoma and thrombus and malignant causes such as metastatic involvement of the heart, primary cardiac angiosarcoma and other sarcomas, pericardial mesothelioma, and primary cardiac lymphoma[7].

The absence of any other primary or metastatic lesions on the initial work-up suggests

that the tumor was a primary cardiac tumor of the right atrium with a rapid metastatic progression, seventy-five percent of PCA occur in the right heart especially in the right atrium[8]

Our patients presented with vascular metastasis, which explain the aggressive behavior of angiosarcoma and the high incidence of metastasis at the time of diagnosis with bad prognosis.

Echocardiography confirms the diagnosis of a cardiac mass. Computed tomography scanning has been a valuable adjunct to echocardiography. Magnetic resonance imaging is rapidly becoming the imaging modality of choice for evaluating pericardial and cardiac tumors due to its accurate evaluation of the mass and extension into neighboring structures.

Treatment options are limited. Results of surgical resection alone have been discouraging because most patients have advanced disease with a mean survival of nine months, depending on whether adjuvant treatment with radiation and/or chemotherapy was given[9]. Angiosarcoma responds poorly to chemotherapy [6].

Conclusions

Primary atrial angiosarcoma may present with clinical features of right-sided heart failure and may be associated with vascular metastasis. Multi-imaging modalities like CT angiography,MRI,transthoracic echocardiography and trans-esophageal echocardiography are mandatory for early diagnosis.

Conflicts of interest

The authors report no conflicts of interest.

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*__Coresponding author__, FICMS ,Professor of Medicine, Department of Medicine, College of Medicine, Hawler Medical University , Hawler Teaching Hospital, Erbil-Iraq.e-mail: kareem.abdulkarim@gmail.com. Mobile:0750 427 8097

**Chalak Abdulsamad Ismael ; Cardiothoracic surgeon, FICMS,MRCS, Lecturer in college of medicine ,Hawler Medical University, Hawler Cardiac Center, Erbil- Iraq, e-mail: chalak.ismael@hotmail.com.

*** FICMS.Path , DSP .Lecturer in Histopathology, Department of histopathology, College of Medicine, Hawler Medical University, Rizgari Teaching Hospital, Erbil-Iraq.Email: yuqasim61@gmail.com, mobile: 0750 735 5930

Open discectomy versus microdiscectomy for lumbar disc herniation: comparative study

Injam Ibrahim Sulaiman, FIBMS Neurosurgery, Head of Neurosurgery unit, College of Medicine, Hawler medical university
Sherwan A. Hamawandi, FIBMS Orthopedic Surgery, Head of orthopedic unit, College of Medicine, Hawler medical university

Abstract

Background and Objective Discectomy for symptomatic lumbar disc herniation is a commonly performed spinal surgical procedure.Since the introduction of lumbar microdiscectomy in the 1970's, many studies have attempted to compare the effectiveness of this method with that of standard open discectomy with conflicting results. This study evaluates effectiveness of microdiscectomy compared with open discectomy in treatment of lumbar disc herniation relating in relieving chronic leg pain, postoperative back pain, postoperative hospital stay and return to daily activity.

Method: 60 patients were included in this study, 30 patients underwent open discectomy and 30 patients underwent microdiscectomy. Those patients were followed for 12 months after surgery. Each patient was evaluated for the postoperative back pain, chronic leg pain, duration of hospital stay postoperatively and return to daily activity.

The methods used to evaluate each patients are Visual analogue scale and Oswestry disability index.

Results: There is significant difference in the postoperative back pain, duration of postoperative hospital stay and the time of return to daily activities between two groups making micrdisiectomy superior to open discectomy while no significant difference in the relieving chronic leg pain between the two groups. The

disadvantage of Microdiscectomy in our study is longer operative time in comparing to open discectomy.

Conclusion: Microdisctomy is effective as open discectomy in relieving the chronic leg pain with advantage of less postoperative back pain, less postoperative hospital stay and early return to daily activities.

Introduction

Discectomy for symptomatic lumbar disc herniation is a commonly performed spinal surgical procedure. Mixter and Barr performed the first lumbar discectomy by a laminectomy and transdural approach in 1934. Semmes described the hemilaminectomy approach with retraction of the dura to remove the disc. Discectomy via a laminectomy was the popular approach for a long time. However, this involved removal of a large amount of normal bone, muscle tissue and sometimes facet joints which resulted in iatrogenic instabilities to the spine and failed back syndromes. Hence, conventional laminectomy and discectomy has been replaced by bone-sparing techniques. With the advent of better retractor systems and illumination and magnification, discectomies are performed via a more conservative route of inter-laminar approaches. Lowe [1] described his inter-laminar fenestration technique as early as 1939. Surgeons have modified Lowe's technique to make it more tissue sparing. Conventional fenestration technique used bilateral paraspinal muscular elevation and larger incisions and retractor systems. Inter-laminar approach was used to enter the epidural space. Minimally invasive techniques evolved where paraspinal muscular elevation is done for only 2 to 3 cm using specialized retractor systems. Caspar [2] in 1977 and Williams [3] in 1978 described micro-lumbar discectomy technique. Adequate illumination and magnification are achieved via the use of microscopes, operating loupes and head

lamps or endoscopes. Minimally invasive techniques have the theoretical advantage of less tissue scarring and better visualization of the dura, roots and disc space (as they are done under magnification of operating loupes or microscopes), and hence are expected to have better postoperative outcomes.[4-7]

We attempted to compare outcomes of two techniques for lumbar discectomy; conventional open fenestration and minimally invasive lumbar Microdiscectomy.

Methods

This study was done in Erbil teaching hospital and PAR private hospital by Neurosurgeon and orthopedic surgeon from March 2015 until October 2016 and involved 60 patients which were divided into two matched groups; Group A: 30 patients was treated with conventional fenestration laminectomy and discectomy and Group B: 30 patients was treated with Microdiscectomy. The age of patients involved in this study ranged from 19 year old to 46 year old with mean of 35. Half of the patients are females and half are males.All patient were suffered from symptomatic lumber disc herniation L4-5. Each patient was assessed clinically and MRI was done for all patients to prove clinically symptomatic lumber disc herniation which was present in all patients. Conservative treatment for 6weeks was failed in all the patient selected for this study.

Exclusion criteria are smoking, previous lumbar spine surgery, D.M and neuromuscular disorders.

Selection of patients into 2 groups done randomly by computer system and when 3 patient were lost during follow up were replaced by 3 matched patients.

All patient were assessed preoperatively and postoperatively by two methods; VIS and ODI.Those patients were followed for 12 months after surgery. Each patient was evaluated for the postoperative back pain, chronic leg pain, duration of hospital stay postoperatively and return to daily activity.

Surgical technique: General anesthesia and prone position had been used for all patients in both groups.

Conventional fenestration discectomy involved skin incisions (5 cm), bilateral paraspinal muscle elevations, fenestration laminotomy/flavotomy and discectomy. The level was identified by using spinal needle as a marker with C-arm image.

In minimally invasive lumbar Microdiscectomies, the operating level was first identified by same method overlying the disc space, and a C-arm image was taken. Skin incision of 1.5cm was centered on the marker. The paraspinal elevation was done only on the symptomatic side and the operation done with microscope and specialized retractors were used for this type of surgery.

Results:

Table 1. Classification of patients according to Oswestry Disability Index, before and after the operation.

ODI		
Group	**Pre-operative ODI**	**Post-operative ODI**
Group A	9 patients —moderate disability	minimal disability
	17 patients —severe disability	minimal disability
	4 patients —crippled disability	minimal disability
Group B	11 patients —moderate disability	minimal disability
	16 patients —severe disability	minimal disability
	3 patients —crippled disability	minimal disability

Table 2. VAS for back pain and radicular leg pain

	Group A		**Group B**	
	Back pain	**Radicular leg pain**	**Back pain**	**Radicular leg pain**
Pre-operative	8.6	9.5	8.9	9.7
Day 7	3.7	1.3	2.1	0.9
3 months	1.2	0.6	1.1	0.6
6 months	0.8	0.2	0.7	0.3
1 year	0.7	0.1	0.4	0.2

Table 3. Operative outcomes of the two study groups.

	Group A	Group B
Operative time	45 minutes	65 minutes
Post-operative back pain	7.8	4.6
Post-operative hospital stay	1-2 days	0-1 day
Time to return to daily activities	10 days	3 days

The results of Operative time, Post-operative back pain,Post-operative hospital stay and time to return to daily activities

Discussion

In our study, we found that both open discectomy and Microdiscectomy have same good results in relieving radicular leg pain but the post operative back pain is significantly less with microdiscectomy and the same better results regarding postoperative hospital stay and return to daily activities with microdiscectomy. Regarding the operative time, we found that with Microdiscectomy more operative time is needed in comparing with open discectomy with longer learning curve.

Katayama [8] et al. concluded that there is no significant difference between the two groups(conventional and microsurgical techniques) in outcomes based on JOA score and VAS for leg pain as in our study. Although a statistically significant difference was noted in the duration of surgery and VAS for lumbago in the Katayama study which is also has been found in our study.

Huang [9] et al. found a smaller blood loss in the group of patients treated endoscopically when compared to those treated with the classic technique as we found in Microdiscectomy, minimal soft tissue dissection and less blood loss.

Kelly [10] et al. concluded that patients undergoing microdiscectomy had less tissue trauma when compared with those who underwent the classic technique; however, no difference could be noted in the clinical response and this also matched our study.

Acharya [11] et al. have found good results in 96.5% of patients with minimally invasive lumbar discectomy in primary cases. However, there is no control group for this study.

Findlay [12] et al. retrospectively reviewed a cohort of 88 patients and reported the outcome of microlumbar discectomy at 10 years. They reported an initial success rate of 91% which declined to 83% at 10-year follow-up.

In a controlled randomised trial, Henrikson[13] et al. concluded that there is no significant advantage in postoperative outcomes and duration of hospital stay between conventional fenestration discectomy and microlumbar discectomy.

Porchet et al. [14] in an observational study have concluded that there is no difference between the two techniques when patient response outcomes were studied.

Tureyen[15] compared the outcome of single- sided, single-level, first-time lumbar disc herniation treated with and without the help of a microscope in 114 patients followed up for 1 year. They found that MLD had 90% success rate while conventional surgery had 89% success rate.

Majeed et al.[16] showed that both Minimally invasive lumbar discectomy (MLD) and fenestration give comparable results at short-term follow-up. There is statistically significant improvement in MLD with regard to improvement in (Japanese Orthopedic Association) JOA, VAS and Roland-Morris (RM) scores at 2 years. However, the difference is not large and may not be clinically significant.

Righesso and colleagues[17]and Ryanget al.[18]reported the results of 2 prospective randomized trials of minimally invasive versus open microdiscectomy in patients with first-time lumbar radiculopathy caused by disc herniation. In both studies the investigators identified no differences in clinical outcome between the groups at a mean follow-up of 16 months as determined by Visual Analog Scale, Oswestry Disability Index, and Short Form- 36 score. It should be noted that a power anlysis was not included in either study, and it is possible that these studies were underpowered to identify small differences between groups.

German et al.[19] concluded in their retrospective study, that patients who underwent minimally invasive discectomy were found to have similar perioperative results as those who underwent open microsurgical discectomy. The differences, although statistically significant, are of modest clinical significance.

Conclusion

Microdisctomy is effective as open discectomy in relieving the chronic leg pain with advantage of less postoperative back pain, less postoperative hospital stay and early return to daily activities. The operative time is more with Microdiscectomy because of prolonged learning curve of Microdiscectomy

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