

## **Biochemical Estimation of Serum Calcium, Phosphate and Parathyroid Hormone in Patients with Bladder Cancer**

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**Degree:** Higher Diploma

**Specialty:** Clinical Biochemistry

**Date of the debate:** 21/1/2011

**Supervisor:** Dr. Shatha Rouf Moustafa

### **Abstract**

**Background:** The hypothesis of this study was based on and pointed to the fact that the suppression of serum intact parathyroid hormone (iPTH) was associated with humoral hypercalcemia of malignancies (HHM). Humoral hypercalcemia of malignancy (HHM) was characterized biochemically by elevated serum calcium, reduction the serum phosphate level with iPTH suppression. Parathyroid hormone has become a useful diagnostic tool in the differential diagnosis of hypercalcemia.

The concept of the study made it possible to reveal relationships between the serum levels of calcium, inorganic phosphate , intact PTH and the existence of HHM.

Hypercalcemia occurs among patients with humoral hypercalcemia of malignancy (HHM) as a result of osteoclastic bone resorption. Some studies suggested that PTH promotes calcium reabsorption by the kidneys, so PTH plays an important pathophysiological role in the hypercalcemia occurring in malignant diseases and in primary hyperparathyroidism. PTH also increases gastrointestinal calcium absorption by activating renal 1- $\alpha$ -hydroxylase in the kidney and increases the formation of calcitriol (1,25 (OH)<sub>2</sub>D ,active form of vitamin D and thus it indirectly increase intestinal calcium absorption.

This Biochemical study was supported by Halwer Medical University College of Pharmacy.

**Objectives:** a-The study aimed at: investigating, whether serum calcium, phosphate, and iPTH levels predict the presence of HHM events in patients with bladder cancer. b- determining the changes in serum levels of calcium, phosphate, intact parathyroid hormone (iPTH ) in patients with bladder cancer by comparing with apparently healthy adults as a control group. c-estimating the grade and stage effects bladder cancer on the serum levels of our interested parameters. d-identifying the correlation coefficient between serum levels of interest parameters in studied group. e- studying the gender effect on the serum levels of these studied parameters in healthy subjects and patients with bladder cancer and finally f-finding out the cut off values of our own parameters.

**Material and Methods:** A total of 30 newly diagnosed patients with bladder cancer were enrolled in the present study. Thirty apparently healthy adults bladder cancer – free were also involved in the study as a control group, after exclusion of the diseases by history, clinical examination and laboratory investigations biochemical, hematological, histopathological, cytological, urine cytology and treatment.

Serum concentration levels of calcium, were measured by colorimetric, assay, whereas, the serum level of phosphate was measured by U/ V method while, the serum concentration level of intact parathyroid hormone was estimated by ELISA kit.

Patients had these general criteria, newly discovered cases, with no deep x-ray therapy, no chemotherapy, no hormonal therapy with histologic or cytologic

confirmation of bladder cancers were enrolled in this study. Written informed consent was obtained from all subjects and patients.

#### Methods:

##### The Protocol of the Study:

I- Tissue biopsy was sent to the histopathological laboratory:

- a- To diagnose the bladder cancer and to measure the cancer tissue size.
- b- To identify the grade of the cancer.
- c- To identify the stage of the cancer.

II- Sampling: The blood samples were left for 30 minutes for coagulation purpose, and then made centrifugation for 15 minutes at 2500-3500 revolution per minutes (rpm). The sera of the participants were separated and were divided into several parts and were placed into several plastic plain tubes to avoid repeated freezing and thawing for doing the biochemical tests of the current study. The sera of the patients were stored at (-20 °C) till the day of the analysis within (1-4 months).

Statistical Analyses: Statistical analysis were carried out using SSPS, version 18.

The results of biochemical tests were expressed as mean  $\pm$  standard deviation (SD). Between groups analysis of variance (ANOVA) test was performed to measure the different level of significance (p -value) for each variable in each patient group as compared to the normal reference value and to those of the bladder cancer. Furthermore, a student t-test was applied to detect the sex difference in all of the studied parameters. The association between all of the research tests using simple correlation coefficient (r) was conducted in the bladder cancers. Chi square test of association was used to compare the proportions. Multiple regression analysis was used to adjust to the effect of age and sex (showing the independent effect of cancer). A (P) value of  $\leq 0.05$  was considered statistically significant.

In this study, the cut -off value was applied as a good diagnostic tool for the biochemical differentiation.

#### Results: Calculation of the results:

According to the manufacture's instructions:

The mean serum levels of calcium (Ca), phosphate and intact parathyroid hormone of the control group were  $8.618 \pm 0.249$ ,  $5.493 \pm 0.386$ ,  $80.890 \pm 18.005$  respectively, whereas, the mean serum levels of those parameters in patients group were  $12.385 \pm 0.190$ ,  $3.653 \pm 0.574$ ,  $39.116 \pm 12.928$  respectively. These results were in consistent with our hypothesis that, there were high significant differences between these two groups regarding our-interested parameters ( $p < 0.001$ ,  $P < 0.001$ ,  $p < 0.001$ , respectively).

**Conclusion:** This study focused on the association between the studied parameters and the existence of HHM. These data highlight the importance of serum calcium, phosphorous and intact parathyroid hormone as complementary and confirmatory tests for the diagnosis and follow up of the patients with bladder cancer. Suppression of serum intact PTH was associated with humoral hypercalcemia of malignancies (HHM), these findings supported the hypothesis of this study that, the serum levels of calcium were statistically significantly increased in patients with bladder cancer as compared with the control group  $P < 0.001$ , on the other hand, the serum levels of phosphate and intact PTH were statistically significantly decreased in the patient group as compared with control group  $P < 0.001$ ,  $0.001$ ,  $0.001$  respectively.

In addition, there were no sex-effect on serum levels of these parameters in patient and control groups  $p > 0.05$ , moreover, there were no statistical significant differences between different grades (Grade I, II, III) regarding the mean serum levels of P and iPTH  $p > 0.05$ , while the only significant difference was found between the mean value of the Ca of different grades in patients with bladder cancer (Grade I, II, III)  $p < 0.05$ , furthermore, there was statistical significant differences between different stages of patients with bladder cancer (T1, T2) regarding the mean serum level of Ca  $p < 0.05$ , whereas, the comparison between different stages (T1, T2) regarding the mean serum

levels of P and iPTH, there were no statistical significant differences between these two stages  $p > 0.05$  .

# Misuse of NSAIDs in Hypertensive Patients in Erbil City

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**Date of the debate:** 15/6/2011

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## Abstract

**Back ground:** Nonsteroidal anti-inflammatory drugs (NSAIDs) are one of the most common classes of medications used worldwide. Analgesics offer patients a way to treat minor symptoms without visiting a health care provider. These products are safe when used as directed; they have the potential to cause serious adverse effects when misused by taking overdose, long term use, and incorrect use. The present study is undertaken to evaluate misuse of non steroidal anti-inflammatory drugs in hypertensive patients in Erbil city.

**Method:** The study was conducted from 1st July to 1<sup>st</sup> October 2010 on 200 hypertensive patients , 138 female & 62 male, with orthopaedic and rheumatologic problems, on different antihypertensive agents & non steroidal anti-inflammatory drugs , age range (35-84) ,with mean and  $\pm$ SD (66 $\pm$ 8.56), attending private pharmacies in Erbil city with repeated use of prescription . The data of this study were collected according to patients information sheet by questionnaire form. Patients information were evaluated according to the type of single NSAID or combinations used, in addition to the number of NSAIDs prescribed /prescription, dose of NSAIDs prescribed, duration of NSAIDs used and also the number of NSAIDs prescribed for which the potency was absent.

**Results:** Hypertensive patients have misused non steroidal anti-inflammatory drugs in different ways such as; overdose(11.5%), long term consumption(85%), utilization of more than one non steroidal anti-inflammatory drug(65%), improper use (with out taken proton pump inhibitor or mesoprostol (40%),non naproxen medication (98%), non existence of calisium channel blocker (75.5%) and absence of the potency written by physicians. Significant number of patients has taken NSAID (either one or more) for a period more than optimal duration based on guidelines.

### Conclusion:

In converse with the guideline, major percentage of the hypertensive patients have misused non steroidal anti-inflammatory drugs as they have consumed 2 or more non steroidal anti- drugs, besides, substantial number of them haven't taken NSAIDs of choice which is naproxen.

Significant number of patients on non calcium channel blocker medication and this is mismatched with the guide line for concomitant hypertension and NSAIDs use, in addition, Considerable number has received NSAIDs without taking mesoprostol or proton pump inhibitor, this result is not in agreement with the guidelines.

However, insignificant percentage of hypertensive patients misused the medications by using extradoses of diclofenac sodium, piroxicam, meloxicam, for few number of NSAIDs in prescriptions of hypertensive patients, the potency was not written.

# Antibiotic Prescription in Surgical Department Of Rizgary Teaching Hospital in Hawler City

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**Date of the debate:** 27/4/2011

**Supervisor:** Assist. Prof. Ibrahim A. Majeed

## Abstract

**Background:** Antibiotics are one of the most common drugs prescribed in the hospitals. The present survey was performed to study the strategy of prescription of different types of antibiotic prescription in different surgical operations in Rizgary Teaching Hospital and assess the appropriateness of antibiotic therapy through a comparison with the standard guidelines for antibiotic prescription.

**Methodology:** A retrospective survey was used to evaluate the patient's undergone surgery through one month duration beginning from the 1<sup>st</sup> of July 2010 to the 1<sup>st</sup> of August 2010. Four hundred and ninety one patients were enrolled in our survey and questionnaires concerning demographic data, type of surgery, and parameters of antibiotic therapy (selection of antibiotic, dose, route and duration of therapy) were recorded.

**Results:** results showed that (81.3%) patients received one antibiotic while (18.7%) patients received two or more antibiotic combinations. Cefotaxime was the most common antibiotic prescribed in (38.3%) patients as a single agent or in combination with other antibiotics. Concerning duration of therapy during hospitalization, (60.30%) of patients received antibiotics for 1 day, (32.40%) and (5.60%) of patients for (2-3 day) and (4-7 day) respectively.

In addition to that ENT operations were the commonest contributing factor to antibiotic prescription in (31%) of all cases which followed by urological surgeries and herniotomy in (19.34%) and (12.83%) of patients respectively.

**Conclusion:** The selection of antibiotic in this hospital was optional and not according to any guidelines or recommendations. The utilization of culture and sensitivity studies was absent in studied cases and antibiotic prescription is almost totally empirical.

# **Assessment of Smoking Behavior as a Risk Factor in Patient with Recurrent Myocardial Infarction in Erbil City**

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**Date of the debate:** 29/12/2012

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## **Abstract**

Acute myocardial infarction (MI), more commonly known as a heart attack, is a medical condition that occurs when the blood supply to a part of the heart is interrupted. The resulting ischemia or oxygen shortage causes damage and potential death of heart tissue. It is a medical emergency, and the leading cause of death for both men and women all over the world.

Smoker experience four times the risk of death from all cardiovascular disease and three times the risk of death from coronary artery disease. The aim of the present study was to assess the smoking behavior before MI events and to evaluate the modification of patients smoking status on recurrent myocardial infarction in Erbil Governorate.

The study was conducted at Rizgary Teaching Hospital, Hawler Teaching Hospital and cardiac center in Erbil city from 15 April to 15 June 2012 for collection of data. Sixty patients of both genders having recurrence MI were involved in this study. Smoking behavior before and after MI event among male and female patients was assessed. Number of cigarettes smoked, period of smoking, sources of advice to stop smoking, and educational level and occupation were also assessed. The result of the present study revealed that the proportion of smoking habits among MI Patients before the first MI attack were 28% and from these 58% became quit smoker and 42% continued smoking at the time of disease reoccurrence and then persisted after disease occurrence. The total period of smoking and number of cigarette per day had largely decreased after MI occurrence. Resource of advice, educational level and occupation of patients had great influences on smoking habit. In conclusion the percentages of smokers before and after MI events in Erbil city were high. Sources of advice from pharmacist and clinical pharmacists were negligent. Educational level and occupation of the patients had significant effect on persistent of smoking behaviors.

# **Comparative Study between Open Cholecystectomy and Laparoscopic Cholecystectomy from the Point of Cost View in Uncomplicated Patients**

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**Specialty:** Clinical Pharmacy

**Date of the debate:** 13/11/2012

**Supervisor:** professor. Marwan S.M. Al –Nimer

## **Abstract**

Cholecystectomy is one of the most common operations done in our hospitals, in both forms, i.e open and laparoscopic cholecystectomy. There are no definite guidelines to follow regarding of therapy and hospital stay causing indiscriminate use of these drugs in a post operative cholecystectomy case done with complete aseptic measures producing excess burden of cost on government. The study was done based on this procedure to generate data regarding the cost of pharmacotherapy and hospital stay in open and laparoscopic cholecystectomy and to study the usage pattern of these cost in Kirkuk general hospital and Azadi teaching hospital.

The aim of this study is to compare between laparoscopic cholecystectomy and open cholecystectomy to study the cost of pharmacotherapy of the patients based on duration of stay in the post operative period.

The sample size of the study was 54 cases. This study was done for a time period of two months. An observational, prospective analytical study by collection of data without intervention was done in Kirkuk general hospital and Azadi teaching hospital for short term. Open cholecystectomy done in our study is 24 patients; laparoscopic cholecystectomy is done in 30 patients. Among antibiotics: ceftriaxone, cefotaxime, metronidazole and gentamicin; analgesics: tramadol, meperidine, diclofenac and acetaminophen in both groups. The average duration of stay in post operative period in open cholecystectomy was found to be 3-5 days and that in laparoscopic cholecystectomy was found to be 1-2 days. The average cost of pharmacotherapy in case of open cholecystectomy is (26845) ID and (6260) ID in laparoscopic cholecystectomy per patient.

Hospital and total costs of treatment were on average higher in open cholecystectomy patients than laparoscopic patients in Kirkuk general hospital and Azadi teaching hospital.

# **Medication Error in Drug Prescription and Potential Drug Interaction in Patients Admitted To Haemodialysis in Kirkuk General Hospital**

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**Specialty:** Clinical Pharmacy

**Date of the debate:** 14/11/2012

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## **Abstract**

The medication errors represent the largest single cause of errors in the hospital setting, and some of them may cause serious patient morbidity and even mortality. Investigating the incidence, type and preventability of medication errors is crucial to improve the quality of health care delivery. Chronic haemodialysis patients have multiple complications that require pharmacologic therapy and this may accompany with medication errors. This study aimed to point out the medication errors in prescription of drugs to patients admitted to the hemodialysis as a part of their management. Patients with renal failure were allocated from, inpatient admission to the Artificial Kidney Unit in Kirkuk General Hospital, Kirkuk, Iraq.

A total number of fifty four patients (26 males and 28 females) with renal failure of different stages and subjected to hemodialysis enrolled in this study. Drugs prescribed pre-, during, and post-dialysis were recorded and the data were analyzed for the potential drug-drug interactions using Medscape checker of drug interactions. Hypertension and diabetes mellitus were reported in twenty and twelve out of fifty four patients, respectively. The patients were overweight by the evidence of body mass index which exceeded 25 kg/m<sup>2</sup> were twelve patients. Most cases (46 out of 54) were presented with end-stage renal disease. In patient medical records revealed different modalities of drugs were prescribed reaching to 5 items per patient. Medication errors were identified with heparin, hydrocortisone sodium succinate, calcium gluconate, aminoglycosides and glycopeptides. These medical errors were so obvious when the numbers of prescribed drugs are increased. All patients who received 5 items per session of hemodialysis are more potential for medication errors. It concludes that medication errors occur in hemodialysis unit and the potential drug-drug interactions increased with increase prescription of drug items. These medical errors may be avoided if the pharmacist play a role in the drug prescriptions and provide the hemodialysis unit with a specific guideline of drug prescriptions in renal failure.



# Comparison between Using Correct and Incorrect Metered Dose Inhaler in Asthmatic Patients in Erbil City

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**Date of the debate:** 27/10/2012

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## Abstract

**Background:** The inhalation route is widely used for the treatment of asthma, one of the most common inhalation route technique is the Metered Dose Inhaler (MDI), inefficient metered-dose inhaler (MDI) technique results in poor drug delivery, that will exacerbate the asthma, and the exacerbation of asthma has a negative impact on quality of life.

**Objective:** The aim of study is to clarify the importance of education about the correct inhaler technique in the management of mild to moderate acute and chronic asthma.

**Subjects and Methods:** A comparative study was conducted at private clinics and hospitals in Erbil city. Sample size of 32 mild to moderate asthmatic patients their mean age (37 years) was selected using salbutamol inhaler (MDI), divided in to two groups of 16.

Group one, were educated about correct inhaler technique, and group two patients did not receive an education. Information was collected through a structured questionnaire on socio-demographic variables, and the symptoms of cough, chest tightness, wheezing, and shortness of breath, measurement of Peak Expiratory Flow Rate (PEFR) by peak flow meter was also conducted.

Comparison between the two groups was done after one month of MDI technique of salbutamol inhaler. Student's t-tests was used for statistical analysis and probability level less than 0.05 was considered significant.

**Results:** There was a significant difference between PEFR of the two groups ( $P < 0.05$ ), and the percentage of symptoms of group one was less than that of group two.

**Conclusion:** Incorrect inhaler technique will exacerbate asthma, and education of asthmatic patients about correct inhaler technique has a role in controlling asthma and reducing symptoms.

# Diabetic Patient's Knowledge assessment of their condition in Kurdistan Region

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**Date of the debate:** 23/4/2013

**Supervisor:** Assist. Prof. Ibrahim Adham Majeed

## Abstract

**Background:** Developing countries will see more than a 200% increase in the number of diabetes. This increase is due to population growth, aging, urbanization and increasing prevalence of obesity and physical inactivity. Globally, as of 2010, an estimated 285 million people had diabetes, with type 2 making up about 90% of the cases. Its incidence is increasing rapidly, and by 2030, this number is estimated to almost double. (ADA, 2011).

**Objective:** The objective of this study is to:

- 1- Evaluate the respondents' knowledge about diabetes mellitus.
- 2- Evaluate respondents' knowledge about diabetes management, diagnosis and control measures.
- 3- Evaluate the relationship between diabetic patient, physician and pharmacist.

**Patients and methods:** A cross sectional survey was conducted on a sample of 500 diabetic patients with type I and type II in Kurdistan region (Erbil, Sulaymania and Duhok). A questionnaire was used to collect the information required for the purpose of this study.

**Results:** From the results we conclude that answers of diabetic patients with high level of education were more scientific compare with low level of education. (61.6%) of respondents are overweight and only 16.33% of them knew that being overweight was one of the most important risk factors for developing diabetes mellitus. (79.6%) of respondents knew the causes of diabetes and (20.4%) of them did not know the causes and risk factors of diabetes. (88.2%) of respondents believe that the drugs they use to decrease and control blood sugar levels did not help them to improve their health. (78.2%) of them did not know the cause of hypoglycemia and how to treat it. (80%) of them did not know how exercise decreases blood glucose level and play role in management of diabetes. And finally (63.4%) of respondents did not measure HbA1c which is an important laboratory diagnosis for controlling diabetes. (56%) of them believe that pharmacist has no role in controlling and management of diabetes.

**Conclusion:** From this study we conclude that there are a small number of patients with diabetes who have full knowledge of their disease, risk factors, monitoring, and methods of treatment and prevention of its complications. Also there were lack of awareness about the role of Physician and Pharmacist in the treatment and controlling of Diabetes Mellitus.

# Assessment of Patient's Knowledge Regarding Gastric Pain and Peptic Ulcer, Causes, Prevention and Treatment in Erbil City

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**Date of the debate:** 26-12-2013

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## Abstract

Peptic ulcer is one of the most prevalent diseases. Its prevalence is estimated to be 6-15% and about 10% of the people get the disease during their life time.

Proper management requires the patient to be aware of the nature of the disease, its risk factors, its treatment and its complications. The patient should know the main life modification that helps to reduce peptic ulcer incidence or at least to aid peptic ulcer management. The objective of our study to evaluate

1. The patient's knowledge about peptic ulcer causes, treatment, risk factors and prevention.
2. The patient – health professional relationship.
3. The patient's adherence to treatment. Patient and method:

A cross-sectional survey was conducted on a sample of 500 respondents in Erbil city who were suffering from epigastric pain and suspected to have peptic ulcer. A questionnaire was used to collect the information required for the purpose of the study.

## Results

The study included 500 patients with epigastric pain. (87.4%) of the respondents' ages were between (36-75 years). (22.6%) of our respondents were smokers (69.8%) didn't know the effect of smoking on peptic ulcer disease. (5.2%) of the respondents were alcohol consumers. (54.6%) did not know the effect of alcohol on peptic ulcer. Only (41.6%) of the respondents knew that they should reduce their caffeine intake while (34%) of the respondents thought that it helps to relieve symptoms. Only (25%) of the patients thought that milk is helpful for peptic ulcer disease treatment. (26.2%) of the respondents didn't know that they should eat small multiple meals to decrease the severity of the disease. (13.2%) did not know what food to avoid when having peptic ulcer disease. (8%) did not know any of the simple life style modifications that helps to improve their life styles. (9.6%) of the respondents knew that they should visit their doctors for follow up after finishing their treatment course to ensure cure. (18%) of the respondents didn't know the symptoms of peptic ulcer. (20.4%) of the respondent didn't know the causes of the disease. (27.8%) of the patients didn't know how to prevent having H.pylori and finally (4.8%) of the respondents did not know what to do when medication, especially NSAID, harms their digestive system.

## Conclusion:

From this study, we conclude that there are a small number of patients with peptic ulcer who have a complete knowledge about their disease, risk factors, treatment, dietary plans, life style modification and complication. It also showed a low patient's adherence and poor patient –physician communication.

# Assessment of Pharmacist-Patient Relationship to Measure Adherence of Patients with Chronic Diseases in Erbil City

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**Specialty:** Clinical Pharmacy

**Date of the debate:** 22/1/2013

**Supervisor:** Assist. Prof. Ibrahim Adham Majeed

## Abstract

**Introduction:** Patient's understanding and applying effective communication skills by the pharmacists with the patients are very important issues in improving adherence of patients with chronic diseases and reducing medication related problems. However, patient adherence, counseling and pharmacist-patients communication are still rather new areas within pharmacy education and research in Erbil city.

**Objective:** Investigating whether there is a need in Erbil city to increase awareness of patients with chronic diseases and to orient pharmaceutical practice towards patient adherence, patient counseling, communication skills and assessment of knowledge regarding different drugs aspects.

**Method:** A questionnaire is used to collect and analyze the information needed for the purpose of the study from a random sample of (750 patients) with some common chronic diseases in Erbil city.

**Results:** It was found that (50.7 %) of the respondents had non-adherence to their medication due to medication multiplicity, (46.9 %) due to forgetfulness and (52.3 %) stopped taking medication because they felt that their health had become better. In addition (46.7 %) of the respondents don't receive counseling about the benefits (effects) of their medications, (58.0 %) of them don't know what to when they miss a dose, and (73.2 %) of the respondents don't know the duration of their medical treatment, also (55.1 %) of the respondents had dispensed their prescription from a pharmacy although they knew that it had no pharmacist and (75.1%) of them return to the physician to explain the proper use of their medications.

**Conclusions:** This study revealed that non-adherence to the long term therapy was common among patients with chronic diseases and many of pharmacists don't effectively practice their role properly which affects patients' health outcomes and contributes to weak trust in the pharmacist role. It's recommended to raise the level of patients' awareness and education in concordance with developing programs to activate the pharmacists' role in Erbil city.