College: Pharmacy
Degree: M.Sc

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1	Talar Ahmed Merza	Prescriptions Containing Antihypertensive Drugs with Potential Drug Interaction	M.Sc	2006
2	Adnan Burhan Qadir	Development of a Stable Pharmaceutical Formulatic for Probiotic Bacteria Pellets	M.Sc	2006
3	Suha Saeed Aziz	The effect of atenolol and Diuresam on serum lipid profile and malondialdehyde in hypertensive pateints	M.Sc	2006
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7	Dana Muhamad H. Ameen	The Effect of Temperature on some Quality Control Tests for Amlodipine Besylate Tablets	M.Sc	2007
8	Bestoon Ali Mahmood	Formulation of fast disintegrating buccal effervescent ergotamine tartrate tablets	M.Sc	2008
9	Norjihan Ali Shaban	Effects of Estrogen Replacement Therapy on Symptoms and Clinical Parameters in Menopausal Women	M.Sc	2008
10	Hazhar Muhammad Muhammad	Isolation, purification, characterization and antileishmanial study of Plumbagin from Plumbago europaea grown in Kurdistan region	M.Sc	2008
11	Tara Abdul Rahman Abdulla	Development of Formulations and Quality Control Studies of Diclofenac Sodium Ophthalmic Drops	M.Sc	2008
12	Twana Muhsin Salih	Synthesis of new adenosine 5' peptidyl analogues with expected biological activity	M.Sc	2008
13	Sardar Kadir Omer	Comparative Study for the Effects of Repaglinide, Glibenclamide and Rosiglitazone on Some Biochemical Parameters in type 2 Diabetic Patients	M.Sc	2008
14	Wishyar Abbas Hamad	Effect of atorvastatin with or without ezetimbe on serum lipid profile and alt in Hyperlipidemic patients	M.Sc	2009

Prescriptions Containing Antihypertensive Drugs with Potential Drug Interaction

Name: Talar Ahmed Merza
Nature of the research: Academic
Degree: M.Sc
Specialty: Clinical Pharmacy
Date the discussion: 7/1/2007
Supervisor: Dr. Ashwaq Najeem Eldeen Aljaff

Abstract

The risk for drug-drug interactions is increased by advanced age, prescribing multiple medications, medications with a narrow therapeutic index, or medications requiring intensive monitoring. All of these factors are present in the hypertensive recipient. Not all drug interactions have adverse clinical consequences and there is a 10-fold interpatient variability exist in the magnitude of a drug interaction resulting from patient-related and drug-related factors. Patient-related factors predisposing to drug interactions include concomitant diseases, genetics, ethnicity, diet, and environmental exposures; while, drug-related variability may be dependent on dose, duration, sequence of administration, and timing of concomitant medications. Drug interactions may be pharmacokinetic or pharmacodynamic in nature. Pharmacokinetic interactions involve these alterations to the absorption, distribution, metabolism, or elimination of a drug. Pharmacodynamic interactions occur when a drug potentiates or diminishes the effect of another. This study was conducted for the assessment of hypertensive patients who receiving prescription containing more than one antihypertensive drug of the following class: diuretics, β-blockers, ACE-Is, ARBs and CCBs; and also the assessment of the reported drug interactions brought about by co-prescription of antihypertensives and with other medication.

Development of a Stable Pharmaceutical Formulation For Probiotic Bacteria As Pellets

Name: Adnan Burhan Qadir
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutics
Date the discussion: 28/6/2007
Supervisor: Prof. Dr. Alaa A. Abdulrasool

Abstract

Probiotics generally defined as live microbes, which when ingested, enhance the well being of the host through their effect on the intestinal micro flora. Probiotic bacteria have been increasingly known for their therapeutic effect on human health when ingested. Many different types of probiotic products are available in the market. However, the short shelf life of the bacteria during storage has been highlighted as one of the problems faced by manufacturers. This study represents attempts to develop a formulation of enteric coated probiotic bacteria utilizing pellets as a multi unit dosage form. Micro crystalline cellulose (MCC) has been used as excipient for production of pellets with extrusion-spheronization technique. The influence of different factors such as rotation speed of spheronizer, spheronizing time, drying time of extrudate and using talc powder on the mean size of pellets, particle size distribution and friability of pellets were investigated. Enterococcus faecium M74 was used as probiotic microorganism with the natural excipient shellac as enteric coating polymer. The enteric coating properties of different percentages of shellac were also studied. In addition the effect of different stabilizers for probiotic bacteria such as sucrose, skim milk and trehalose in different percentages and under two different storage conditions (5°C and 25°C) for different periods of time were studied by utilizing fluid bed technology for both drying of bacteria on pellets and also for coating process. On the other hand, dissolution studies were performed using approximately 0.1 N HCl acid pH 1.2 and phosphate buffer pH 6.8 to simulate gastric and intestinal fluid respectively. The viability of bacteria was also monitored using traditional colony forming units (CFUs/ml) counts method. The results indicated that pellets with average size of 1000 µm and narrow particle size distribution with acceptable friability were obtained using rotation speed of 650 rpm, 30 min spheronization time and with 115g of distilled water /100g MCC (Avicel®) as a granulating liquid. Regarding the dissolution study the data showed that there was no bacterial cell viability after 2hours by uncoated pellets, whereas using shellac to achieve 10% weight of loaded pellets was enough to provide protection against the simulated gastric fluid and there was no effect of shellac concentration greater than 10% on the viability of bacteria and their protection against gastric fluid. Concerning the viable bacterial cell release in the simulated intestinal fluid, the results indicated that utilizing 20% weight mass of shellac; no release after 3h was obtained compared with almost 5 log (105) units cell release at the same time using 10% and 15% coating mass. Furthermore, the data showed that utilizing 90% (w/w) sucrose as probiotic protectant provided the best protection against mechanical stress among other materials used for this purpose; however skim milk 50% in combination with sucrose 50% was also used as protectant. Finally, the overall results suggest that the formula which contains 10% shellac as enteric coating material, 90% sucrose as probiotic protectant and using MCC pellets as multi unit dosage form may be utilized for preparation of probiotic as a stable pharmaceutical product using fluid bed technology.

The effect of atenolol and Diuresam on serum lipid profile and malondialdehyde in hypertensive patients

Name: Suha Saeed Aziz
Nature of the research: Academic
Degree: M.Sc
Specialty: Clinical Pharmacy
Date the discussion: 14/1/2007
Supervisor: Dr. Faris Abdul-Mawjood Ahmed

Abstract

Seventy hypertensive patients on atenolol therapy (100 mg/day), 35 hypertensive patients on Diuresam® (hydrochlorothiazide 50 mg + amiloride 5 mg)/day and 70 hypertensive patients on combination therapy of atenolol (100 mg/day) and Diuresam® (hydrochlorothiazide 50 mg + amiloride 5 mg)/day were included in the study. Furthermore, 70 untreated hypertensive patients were used as a control group. Serum lipid profile and malondialdehyde were measured for patients included in this study. In the hypertensive patients treated with atenolol, serum total cholesterol and low density lipoprotein-cholesterol (LDL-c) were significantly higher ($P<0.05$) while serum high density lipoprotein-cholesterol (HDL-c) and malondialdehyde were significantly lower ($P<0.05$) than those measurements in the control group. Serum triglycerides and very low density lipoprotein-cholesterol (VLDL-c) did not change significantly. In hypertensive patients treated with Diureasm®, serum LDL-c was significantly higher ($P<0.05$) while serum HDL-c and malondialdehyde were significantly lower ($P<0.05$) than those in the control group. At the same time, serum total cholesterol, triglycerides and VLDL-c did not change significantly. In hypertensive patients treated with combination therapy of atenolol and Diuresam®, serum triglycerides, VLDL-c and LDL-c were significantly higher ($P<0.05$) while serum HDL-c and malondialdehyde were significantly lower ($P<0.05$) than those in the control group. At the same time, serum total cholesterol did not change significantly. In addition, the measurements of serum lipid profile and malondialdehyde of combination treated group of atenolol and Diuresam® were not significantly different from those measurements in the Diuresam® and atenolol monotherapy groups. No significant difference was found between males and females for serum lipid profile and malondialdehyde in the atenolol, Diuresam® and combination treated patients. However, there was only a small significant difference between males and females in the serum triglycerides level in the control group. Moreover, serum lipid profile and serum malondialdehyde in premenopausal females were not significantly different from those measurements in postmenopausal females in the atenolol, Diuresam®, combination treated patients and the control group. No significant correlation was found between the age of hypertensive patients treated with atenolol or combination therapy and serum lipid profile or serum malondialdehyde. However, a significant correlation ($p<0.01$) was noticed between serum malondialdehyde and the age of patients treated with Diuresam®. In addition, the age of the control group was not significantly correlated with serum lipid profile or serum malondialdehyde. No significant correlation was found between the duration of treatment with atenolol or combination therapy and serum lipid profile or serum malondialdehyde. However, a significant correlation was found between the duration of treatment with Diuresam® and serum HDL-c ($P<0.05$), but there was no correlation between duration of treatment and other lipid profile or serum malondialdehyde. In conclusion, chronic use of atenolol and Diuresam® monotherapy or combination of both drugs is associated with a significant change in serum lipid profile. These drugs also decrease lipid peroxidation. The study encourages the periodical biochemical check for serum lipid profile for patients under atenolol, Diuresam® or combination therapy of both drugs.

The effect of glibenclamide on serum malondialdehyde and some liver function tests in type 2 diabetic patients

Name: Tarza J. Thanoon
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmacology
Date the discussion: 30/6/2007
Supervisor:

Abstract

In this study fifty diabetic patients treated with glibenclamide were included in this study. In addition, two other groups were included, 50 diabetic non-treated patients and 50 apparently healthy control subjects. Blood samples were taken from all groups and analyzed for serum glucose, malondialdehyde (MDA) and some liver function tests including serum alkaline phosphatase (ALP), aspartate aminotransferase (AST), alanine aminotransferase (ALT) and bilirubin. In glibenclamide treated patients, serum glucose and MDA were significantly lower ($P < 0.05$) than these measurements in the diabetic non-treated patients, while serum ALP, AST, ALT and bilirubin did not change significantly. Furthermore, in diabetic non-treated patients, serum glucose, MDA, bilirubin, ALT and ALP were significantly higher ($P < 0.05$) than the apparently healthy control group. At the same time serum AST did not change significantly. No significant difference was detected between males and females for serum glucose, MDA and liver function tests. However, there was a significant difference between males and females for serum MDA in diabetic non-treated group. No significant correlation was found between ages of the glibenclamide treated, diabetic non-treated and control groups; and serum glucose, MDA, ALP, AST, ALT and bilirubin. However, only a significant correlation was found between age and serum bilirubin in the control healthy group. No significant correlation was found between serum glucose; and MDA in the glibenclamide treated diabetic patients and the control group. However, a significant correlation was found between serum glucose and MDA in diabetic non-treated patients. No significant correlation was found between the duration of treatment with glibenclamide and serum glucose, MDA, ALP, AST, ALT and bilirubin. In conclusion, glibenclamide has no effect on liver function tests in diabetic patients. The reduction in lipid peroxidation by glibenclamide may be due to the drug itself and also by lowering serum glucose. This study encourages antioxidant supplements to diabetic patients.

Synthesis of a new regular amino polysaccharide as a candidate matrix component in pharmaceutical products

Name: Huner Kamal Omer
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutics
Date the discussion: 27/6/2007
Supervisor: Prof. Dr. Alaa A. Abdulrasool

Abstract

An attempt has been made to synthesize a new aminopolysaccharid derivative which was based on organic synthesis of oligosaccharide derivatives and enzyme catalyzed polymerization reactions.The 6-azido-cellulose was synthesized through a number of chemical reactions started from cellobiose powder. The structure of synthesized polymer was confirmed using H-NMR spectroscopy and thin layer chromatography (TLC). Chitosan, which is used as an excipient for direct compression of tablets in addition to improving the solubility and dissolution of poorly water soluble drugs has been utilized for comparison with the synthesized polymer by using the phase solubility method and invitro dissolution test. Celecoxib drug, a specific inhibitor of cycloxygenase-2 (COX-2) is a poorly water-soluble nonsteroidal anti-inflammatory drug with relatively low bioavailability, was used as a model drug in the study. The result of phase solubility studies showed that the synthesized polymer had an effect to increase the solubility of celecoxib more than chitosan. At the concentration (0.25 % w/v) of synthesized polymer, the solubility of celecoxib was 42.5 mcg/ml, compared to 32 mcg/ml with chitosan and 5 mcg/ml for the drug alone. In addition, the drug solubility increased with the increase in polymers (the synthesized polymer and chitosan) concentration, and type AN phase solubility diagram was obtained. The study also showed that the stability constant for complex formation (1:1) of the synthesized polymer with celecoxib [$K_{1:1}$ $3*10^{-3}$ $(mcg/ml)^{-1}$] is higher than chitosan with drug [$K_{1:1}$ $0.4*10^{-3}$ $(mcg/ml)^{-1}$]. On the other hand, the dissolution studies revealed that the dissolution rate of celecoxib was improved by the presence of chitosan as well as the synthesized polymer and a significant (P-value 0.11) increase in the percent of drug dissolved was obtained with the synthesized polymer, which exhibited a relative dissolution rate (2.42) at 10 min (RDR 10 min) higher than the chitosan (1.84) and with respect to the drug alone. The overall results suggest that the synthesized polymer can be used as an excipient in the pharmaceutical products and to enhance the solubility of poorly water solubile drugs.

Synthesis of a new polymer from azido polysaccharide as a possible excipient in pharmaceutical products

Name: Nawzad Rasheed Hussain
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutics
Date the discussion: 27/6/2007
Supervisor: Prof. Dr. Alaa A. Abdulrasool

Abstract

Excipients are the additives used to convert pharmacologically active compounds into pharmaceutical dosage forms, also they are used for other different purposes, such as to increase solubility of poorly water soluble drugs. A new polymer (derivative of chitosan) as a possible excipient to be used in pharmaceutical product was synthesized from azido polysaccharide, it was prepared through a number of chemical reactions started from cellobiose. H^1-NMR spectroscopy was used for confirming the structure of the final product. The study was involved with the comparison between the effect of synthesized polymer (6'-azido-6'-deoxy-cellulose derivative) and chitosan on the solubility of the poorly water soluble meloxicam as a model drug by using the phase solubility method and in vitro dissolution test. The results indicated that the synthesized polymer had an effect on solubility of meloxicam more than chitosan, since the synthesized polymer at a concentration of 0.25% increased the solubility of meloxicam by 3.3 fold compared to chitosan which increased the solubility by 2.7 at the same concentration. The data also showed that the solubility of the drug increased by increasing polymer concentration with A_N (it means negative deviations from linearity) type phase solubility diagram. Further more, the results indicate the formation of a 1:1 drug: polymer complex for both polymers with the stability constant $K_{1:1}$ =1.06 * 10^{-3} $(mcg/ml)^{-1}$ and 0.745 * 10^{-3} $(mcg/ml)^{-1}$ for the synthesized polymer and chitosan with meloxicam respectively. On the other hand the results also showed that the dissolution rate of meloxicam slightly improved in the presence of the synthesized polymer(6'-azido-6'-deoxy-cellulose derivative) compared to the chitosan, since the synthesized polymer exhibited a relative dissolution rate (1.55) at 10 min (RDR 10 min) higher than the chitosan with drug (1.3) with respect to pure drug alone.

The Effect of Temperature on some Quality Control Tests for Amlodipine Besylate Tablets

Name: Dana Muhamad H. Ameen
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutical Chemistry
Date the discussion: 20/5/2007
Supervisor: Dr. Mahmood Nadir Ahmed Darwesh

Abstract

Amlodipine belongs to a class of medications called dihydropyridine calcium channel blockers,recently introduced for the treatment of angina and hypertension. In order to document its stability in vitro, some quality control tests were performed. This study was carried out on 2nd of May 2006 till 15th of December 2006 at the college of Pharmacy/ Hawler Medical University, three different expiry date of amlodipine besylate tablets (June 2005, August 2008, and September 2009) were exposed to 15° C, 25° C, 35° C, 45° C, and 55° C for six months, and then subjected to some quality control studies. The results show that there is no significant effect of temperature on the uniformity of weight mass, uniformity of content and friability for amlodipine besylate tablets expiry date 2005, 2008, and 2009 from one month till six months. The results reveal that there is a significant effect (p value < 0.05) of temperature on the hardness of amlodipine tablets (expiry date 2005 and 2008) that are exposed to 55° C after one month, tablets of expiry date 2008 that are exposed to 45° C, and 55° C after three and six months and tablets of expiry date 2005 which are exposed to 35° C, 45° C, and 55° C after three and six months. The results also illustrate that there is a significant effect (p value < 0.05) of temperature on the hardness of amlodipine tablets of expiry date 2009 that are exposed to 45° C and 55° C after three months and tablets that are exposed to 35° C, 45° C, and 55° C after six months. The data reveal that there is a significant effect (p value < 0.05) of temperature on the release profile for amlodipine tablets (expiry date 2005 and 2008) that are exposed to 55° C after one month, tablets of expiry date 2008 that are exposed to 45° C, and 55° C after three and six months and tablets of expiry date 2005 which are exposed to 35° C, 45° C, and 55° C after three and six months . The results also reveal that there is a significant effect (p value < 0.05) of temperature on the release profile for amlodipine tablets of expiry date 2009 after three months that are exposed to 45° C and 55° C and tablets that are exposed to 35° C, 45° C, and 55° C after six months. Accordingly, the study encourages the storing of amlodipine besylate tablets at 15° C and 25° C; in addition to prohibiting the use of the expired one.

Formulation of fast disintegrating buccal effervescent ergotamine tartrate tablets

Name: Bestoon Ali Mahmood
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutics
Date of the discussion: 3/12/2008
Supervisor: Professor Dr. Alaa A. Abdul-Rasool

Abstract

For a long time, ergotamine tartrate is considered as the most effective drug for the treatment of acute migraine and head ache attacks due to its potency. A buccal fast disintegrating ergotamine tartrate tablet formulation was prepared by direct compression method, capable of dissolving rapidly in the buccal cavity in an attempt to increase ergotamine bioavailability through the enhancement of its dissolution rate. An effervescence couple, asuper disintegrant-binder sodium starch glycolate (SSG) and a pH adjusting agent (sodium carbonate) were utilized to enhance disintegration and dissolution rates. Six tablet formulas (F1, F2, F3, F4, F5 and F6) were prepared containing 5, 6, 7, 8, 10 and 12 % w/w of SSG (respectively). Each formula was divided into four groups with different tablet weight (150, 200, 250,and 300 milligrams tablets), then each group was subdivided into three subgroup tablets depending on the compression force applied (40, 50 and 60Kilo Newtons (KN.(Weight variation, hardness and friability tests were performedaccording to USP/BP for all prepared tablets to determine the formulas subgroup that have the characteristics to be considered as acceptable one and to be qualified to pass through the disintegration and dissolution tests. Results showed that only 4 formulas (F4,300mg,60KN, F5,300mg,60KN, F6,300mg,50KN and F6,300mg,60KN tablets) from the 72 prepared formulas possessed friability values within the allowed limits (< 1 %). Disintegration and dissolution tests were performed for the successful subgroup tablets as well as for reference tablets (Cafergot®). The disintegration time of the prepared tablets was 1:38, 3:03, 1:40 and 5:45 min for F4,300mg,60KN, F5,300mg,60KN, F6,300mg,50KN and F6,300mg,60KN tablets respectively, which were more faster than that of reference tablets (33 min). On the other hand the dissolution time for the prepared tablets with lower and higher friability was 8 and 12 minutes respectively, which also was faster than that of reference tablets (40 min.(The results indicated there is a direct relationship between the 3 parameters; tablet weight, SSG percent and compression force with the hardness, disintegration and dissolution time from one side, and an inverse relationship with friability of the prepared tablets on the other side. Finally, results showed that ergotamine tartrate could be prepared as fast disintegrating buccal effervescent tablets.

Effects of Estrogen Replacement Therapy on Symptoms and Clinical Parameters in Menopausal Women

Name: Norjihan Ali Shaban
Nature of the research:
Degree: M.Sc
Specialty: Clinical Pharmacy
Date of the discussion: 12/10/2008
Supervisor: Assis. Prof. Dr. Kawa F. Dizaye

Abstract

This prospective study was undertaken to evaluate the effectiveness of oral estrogen replacement therapy (ERT) in healthy menopausal women on lipid profile, Body mass index (BMI), blood pressure, and blood glucose. Moreover, its effect on bone pain, hot flushes and night sweats, which are vasomotor symptoms commonly experienced by menopausal women. Sixty four postmenopausal women, involving 36 postmenopausal women who were treated with Conjugated equine estrogen (CEE), and 20 postmenopausal women as placebo were involved in a prospective study. In postmenopausal women treated with CEE, total level of serum cholesterol were decreased significantly ($p<0.05$) also serum level of LDL-c decreased significantly ($p<0.01$) as compared with placebo while there was no significant change in the serum level of HDL in both groups. Estrogen induced changes in plasma triglyceride and reduced the size of LDL particles. These observations suggest that the plasma TG increase may reduce the size of LDL particle. Blood sugar levels of postmenopausal women treated with CEE were decreased significantly. There were slight but statistically significant rise in mean blood pressure of menopausal women treated with CEE, while not detectable changes were found in the mean blood pressure of women in placebo group. In postmenopausal women treated with CEE, BMI was significantly increased. No correlation was found between BMI and blood sugar of postmenopausal women treated with CEE. There was negative correlation between BMI and blood pressure but statistically was insignificant. Significant positive correlation was found between the BMI and total blood cholesterol whereas significantly negative correlation was found between the BMI and LDL-c of treated postmenopausal women. Oral administration of 0.625mg of CEE was significantly effective in alleviating hot flushes and night sweat. Vaginal dryness is one of vulvovaginal atrophy symptoms that improved at the treated women were compared with placebo.In conclusion CEE decreased the level of total LDL-c and increase plasma triglyceride level. ERT has no observed effect on HDL. CEE lowered blood pressure, decreased fasting blood sugar as compared with placebo and increased BMI of postmenopausal women. CEE effectively alleviated bothersome symptoms of postmenopausal women such as hot flushes, night sweat and vaginal dryness.

Isolation, purification, characterization and antileishmanial study of Plumbagin from Plumbago europaea grown in Kurdistan region

Name: Hazhar Muhammad Muhammad
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmacognosy
Date of the discussion: 27/9/2008
Supervisor: Assistant professor Dr. Kawkab Y. Saour

Abstract

The aim of the present work is the phytochemical investigation of the leaves and roots of Plumbago europeae, to isolate and identify plumbagin as a main constituent and to study its antileishmanial activity. Different classes of natural products groups have been isolated from Plumbago species, such as tannins, flavononids, essential oils and naphthoquinones. In this study the main active constituents from dried powdered leaves and roots of Plumbago europaea were extracted by soxhlet apparatus using ethyl acetate as extracting solvent to obtained (8.53%) total leaves extract (TL), and (4.4%) total roots extract (TR). Plumbagin was identified by thin layer chromatography (TLC) technique from TL and TR extracts and retardation factor (Rf) values were recorded as (0.73 and 0.68) respectively. Preparative TLC techniques was used for quantitative separation and isolation of plumbagin from the leaves and roots of Plumbago europaea and the percentage of plumbagin was recorded as (2.5%) (7.5%) respectively. Characterization of the purely isolated plumbagin was carried out using different physicochemical techniques such as melting point (M.P), infrared (IR), proton nuclear magnetic resonance (^{1}H NMR), carbon thirteen nuclear magnetic resonance (^{13}C NMR), and gas chromatography coupled mass spectroscopy (GC-MS). Quantitative and qualitative study of plumbagin in the roots and leaves extracts was carried out by high performance liquid chromatography (HPLC) and retention time (RT) was recorded to be (6.567min), and the percentage of plumbagin in the leaves and roots extracts was recorded to be (1.5%) and (1.9%) respectively. The antileishmanial activity, of TL, TR extracts and pure isolated plumbagin against leishmania donovani promastigotes was studied in which both types of extracts along with isolated plumbagin showed antiparasitic activity against Leishmania donovani promastigotes. Finally concentration corresponding to 50% growth inhibition (IC_{50}) for TL, TR extracts and isolated plumbagin was determined and recorded as (20), (15) and (0.7) µg/ml respectively.

Development of Formulations and Quality Control Studies of Diclofenac Sodium Ophthalmic Drops

Name: Tara Abdul Rahman Abdulla
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutics
Date of the discussion: 13/9/2008
Supervisor: Assistant professor Dr. Nidhal Khazaal Marie

Abstract

Diclofenac sodium as eye drop solution is considered as the most effective nonsteroidal anti-inflammatory agents commonly used in the management and prevention of ocular inflammation. This study was carried out in order to formulate a stable diclofenac sodium aqueous solution for ophthalmic use containing 0.1% diclofenac sodium. The results showed that the use of HP-β-CD as a solubilizing agent gave more stable formula for diclofenac sodium solution, where the shelf life was about 1.92 years. The results indicated that the use of disodium edetate as a sequestering agent gave more stable formula. The results also showed that diclofenac sodium undergoes hydrolysis at low and high pH with optimum stability at pH 7 which is the most suitable pH for the formulation of this ophthalmic solution. Also it was found that the type of buffer slightly affects rate of hydrolysis of diclofenac sodium and optimum stability was obtained by using phosphate buffer. In addition, the results indicated that the concentration of phosphate and borate buffers had significant effects on the hydrolysis of diclofenac sodium and the rate of hydrolysis increased as the concentration of both buffers increased. Furthermore, the results showed that, ionic strength affects the hydrolysis rate of diclofenac sodium and the hydrolysis increased as the ionic strength increased in both borate and phosphate buffer. The results showed that light had a significant effect on the rate of hydrolysis of the drug and the drug losses 10% of its potency after 9.73 months of exposure at room temperature. On the hand the results showed that the formula had no irritation on the eye of experimental animals and it passes successfully quality control tests including drug content, pH, clarity and sterility test and comply with united state pharmacopoeia for ophthalmic solutions.

Synthesis of new adenosine 5' peptidyl analogues with expected biological activity

Name: Twana Muhsin Salih
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmaceutical chemistry
Date the discussion:1/9/2005
Supervisor: Asst. Prof .Dr. Kawkab Y. Saour
Prof. Dr. Azad Taufiq Faezulla

Abstract

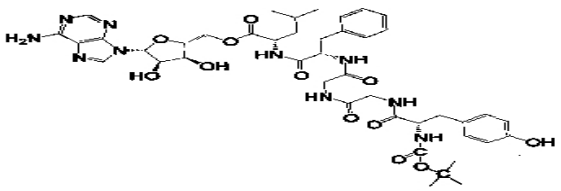
Along the modern trends for designing antimetabolite with antineoplastic, antibacterial and antiviral activities expectations of the biological activities (opioid like activity) coupled by natural metabolites (nucleoside-pcptides) are proposed in the present investigation, they are :

1. Boc - Enkephalin -51- adenosine (Boc- Tyr- Gly- Gly- Phe- Leu - 5s-adenosine)
2. Boc - Tyr-Gly-Gly-5'-adenosine

The analogues were synthesized by applying the conventional solution method and the coupling between peptide and nucleoside adenosine were carried out through ester linkage. The physical techniques used to characterize these prototypes or analogues for confirmation of synthesis, were thin layer chromatography (T.L,C)5 melting point (M,P.), infrared spectroscopy (IR)5 optical rotation, CHN micro analysis and amino acid analysis. It's hoped that such combination in addition of expectation of having antimetabolite activity could have efficient transporting system across membrane, naturally penetration inside the cell and nucleus, represent an essential criteria for specifically inducing the antiviral activity and also help for exploring other expected biological activities.

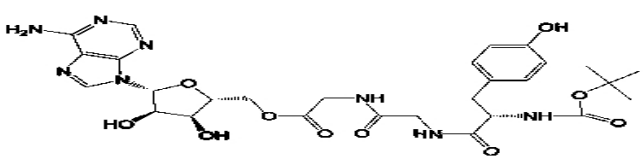
The designed analogues as follows:

1-



N-t-butoxycarbonyltyrosylglycylglycylphenylalanylleucyl-5'-adenosine
(Boc-enkephaline-5'-adenosine)

2-



N-t-butoxycarbonyltyrosylglycylglycyl-5'-adenosine

Comparative Study for the Effects of Repaglinide, Glibenclamide and Rosiglitazone on Some Biochemical Parameters in type 2 Diabetic Patients

Name: Sardar Kadir Omer
Nature of the research: Academic
Degree: M.Sc
Specialty: Pharmacology
Date the discussion: 27/9/2008
Supervisor: Assistant professor Dr.Ibrahim A. Majeed

Abstract

Background: Type 2 diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both**.** Many therapeutic approaches have been utilized for treatment of this disorder including the use of oral hypoglycemic agents. The present study was designed to compare affects of the oral hypoglycemic agents Glibenclamide, repaglinide, and rosiglitazone on some biochemical parameter in type 2 diabetes mellitus patients.
Methods: One hundred twenty newly diagnosed type 2 diabetes mellitus patients were enrolled in this clinical trial and randomly allocated in to 3 groups. 40 patients treated with repaglinide 2 mg three times daily (Group1), 40 patients treated with glibenclamide 5 mg daily (Group2) and 40 patients treated with rosiglitazone 4 mg twice daily (Group 3). Furthermore, 40 healthy subjects were utilized as a control group. Fasting blood glucose (FBG), 2-hr postprandial blood glucose (2-hrPP), lipid profile (total cholesterol, triglycerides, low density lipoprotein, high density lipoprotein, and atherogenic index), serum alanine aminotransferase (ALT), and serum creatinine(S Cr) were measured at zero time (before treatment) and after 4 and 8 weeks during treatment.
Results: Results showed that in diabetic patients treated with repaglinide (Group 1) there is significant reduction in 2-hr postprandial blood glucose after 8 weeks of treatment, which is greater than that reported with glibenclamide (group 2), and rosiglitazone (group 3). Rosiglitazone (group 3) significantly increased LDL-c and total cholesterol after 4 and 8 weeks compared with glibenclamide (group 2) and repaglinide (group 1), while HDL-c was significantly increased in diabetic patients treated with rosiglitazone only after 8 weeks of treatment. Triglycerides were significantly reduced after 4 weeks of treatment ($P<0.05$). Atherogenic index in diabetic patients treated with rosiglitazone was increased but not significantly different compared to that reported with repaglinide and glibenclamide ($P<0.05$) after 4 and 8 weeks of the treatment. No significant differences between alanine aminotransferase (ALT) and serum creatinine (S.Cr) were reported in diabetic patients treated with repaglinide (group 1), glibenclamide (group 2), and rosiglitazone (group 3) after 4 and 8 weeks of the treatment. Hypoglycemia and weight gain were fewer episodes in diabetic patients treated with repaglinide compared to glibenclamide and rosiglitazone. Correlation between fasting and postprandial blood glucose was higher in diabetic patients treated with repaglinide compared to glibenclamide and rosiglitazone.
Conclusion: Repaglinide was highly effective and superior in lowering postprandial blood glucose. Less episodes of hypoglycemia occurs especially in elderly diabetic patients. Less weight gain were observed because short time stimulates early phase insulin secretion due to rapid onset and short duration of action.

Effect of atorvastatin with or without ezetimbe on serum lipid profile and alt in Hyperlipidemic patients

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Abstract

Background: Hyperlipidaemia is the term used to denote raised serum levels of one or more of total cholesterol (TC), low-density lipoprotein (LDL-C), triglycerides (TG), or both total cholesterol and triglyceride (combined Hyperlipidaemia) or it may be combined with low levels of high-density lipoprotein (HDL-C).
Many drugs have been used for the treatment of this disorder. The present study was designed to compare the effects of atorvastatin with or without ezetimibe on lipid profile, atherogenic index and serum alanine aminotransferase (ALT).
Methods: This study includes 90 subjects, 60 untreated hyperlipidemic patients, and 30 healthy subjects.
Patients were divided into 2 groups, the first group includes 30 patients treated with atorvastatin 20 mg/day alone, the second group includes 30 patients treated with a combination of 2 drugs (atorvastatin 10 mg plus ezetimibe 10 mg) taken daily at night. After 12 hours fasting, serum lipid profile (total cholesterol, triglyceride, high density lipoproteins, low density lipoproteins, very low density lipoproteins (VLDL) and atherogenic index) in addition to alanine amniotransferase (ALT) were measured for the patients in 3 intervals before treatment, after 8 weeks and 16 weeks of treatment.
Results: After 8 and 16 weeks of therapy for both groups of patient serum TC, TG, LDL-C and VLDL-C were significantly reduced and HDL-C was significantly increased. Comparison between serum lipid profiles of the two groups of patients after 8 weeks shows no significant differences except the atherogenic index which was significantly reduced by drug combination than atorvastatin alone. After 16 weeks of therapy, the combined drug shows significant reduction in serum (total cholesterol, triglycerides, low density lipoproteins and very low density lipoproteins) in comparison to treatment with atorvastatin alone. In addition, significant increase in serum high density lipoproteins noticed by both groups of treatment, with no significant difference between them. Serum alanine aminotransferase (ALT) increased by both groups of treatment with no significant difference between the two mode of treatment. Comparison between the serum levels of alanine aminotransferase of the two groups with control shows no significant difference.
Conclusion: In controlling serum lipid profile and atherogenic index, the study shows that the combined atorvastatin 10 mg and ezetimibe 10 mg daily is more effective than atorvastatin 20 mg alone.