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Study The Effect of Tenoxicam and Ibuprofen Drugs Used for Treatment of Hyperuricemia in Blood Human

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Abstract

The high level of uric acid in infection leads to a high level of uric acid in the development of this disease, in addition to the high rate of heart disease and joints. The objective of this research was to develop, validate and used spectrophotometric Method in the quantitative determination of Tenoxicam and Ibuprofen drugs in pure and tablets preparations that used to decrease uric acid in blood human. Used tablets containing 20.0 mg of Tenoxicam and 400 mg of Ibuprofen were analyzed. Know which of the two drugs works on the uric acid enzyme? It must be qualitative and interact with the substance and go with it to be excreted outside the body and the concentration decreases or increases? The chemical results showed that the concentrations of the drug tablets of tenoxicam and ibuprofen are absorbed by the human blood and reduce the symptoms of the disease.

Keywords

Tenoxicam, Ibuprofen, UV-Vi's spectroscopy, Hyperuricemia, blood.

A pharmaceutical preparation contains a substance that is pharmacologically active called active pharmaceutical ingredient is often abbreviated to API.An active ingredient is not given to the patient as a pure substance but is combined with excipients into a dosage form in order to be able to give an exact dose to the patient. The excipients are not pharmacologically active. Pharmaceutical analysis is the scientific discipline of analytical chemistry applied to pharmaceuticals, to identify and quantify drug substances in a given sample (1). In this work, new chemical/biochemical substances are identified and tested for their pharmacological activity. Chemical substances are [(Tenoxicam (TNX) and Ibuprofen (IBU)] drugs, pharmaceutical analysis is involved processes for characterization, identification, and quantitation of the drug candidate as a pure substance, in preparations blood sample, enter clinical trials on humans to ensure efficacy and safety and analyzed to quantify the API. Analysis is crucial in the detection of drugs of abuse in biological samples (blood, urine, saliva) from humans. Pharmaceutical analysis is important for people working in the pharmaceutical industry, hospital laboratories, contract analytical laboratory, pharmaceutical and medical research institutions, and institutions investigating cases of drug abuse and doping in sports (forensic and doping laboratories). Chemical analysis of drug substances in biological fluids (2, 3,4). Effectiveness of Tenoxicam (TNX) and Ibuprofen (IBU) for reducing post-endodontic pain.it can be detected in high concentrations in blood.

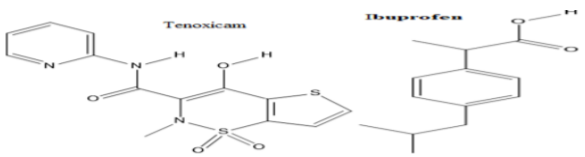

Figure1: Chemical Structure for Tenoxicam and

Ibuprofen compounds

Its quantitative determination in pharmaceutical formulations is important to guarantee.

the desired therapeutic effects.the quantitative determination of tenoxicam and Ibuprofen in tablet preparations (5,6, 7, 8). uric Acid (Blood) : This test measures the amount of uric acid in your blood,Test Includes: Uric acid concentration reported in mg/dL. Uric acid is the end product of purine metabolism, either synthesized or dietary, and is normally cleared by the kidney. An increased level in joints is known as gout. Uric acid may also be increased with acidosis, uremia, and in conditions associated with tissue destruction, such as leukemia, Normal values between 3.0 and 7.0 mg/dL (9,10).

The majority of compounds of pharmaceutical interest are colorless. Ultraviolet- Visible

Spectrophotometry available for the qualitative tests to provide quantitative applications. Studies of their light absorbance characteristics only developed when, UV-visible spectrophotometer qualitative analysis provides selective and sensitive spectrophotometric method and based on increasingly exacting chemical standards.And drug molecules are completely absorbed by the body and distributed to the right places. Pharmaceutical researchers make use of this qualitative analysis or uric acid analysis to get exact drug formulations in blood. The aim of the work is to find out the effect of the two drugs on the decrease or increase in the symptoms of this disease by taking samples of human blood for patients and non-patients of the age group of forties only, and chemical analysis using the ultraviolet-visible spectroscopy and a wavelength of 550nm.

Materials and Methods

The materials used in this study were standard solutions of Tenoxicam, Ibuprofen, methanol.

Preparation of Tenoxicam

Tenoxicam (TNX) stock standard: with purity >99% was obtained from Middle East Pharmaceutical Industry Co. Ltd. Baghdad, Iraq, (200 µg mL^{1}) was organized by dissolving 0.02g of TNX in 10mL of Ethanol and volume was completed with distilled water in 100 mL volumetric flask.

Preparation of Ibuprofen

Ibuprofen (IBU) stock standard: with purity >99% was obtained from Middle East Pharmaceutical Industry Co. Ltd. Baghdad, Iraq, (200 µg mL 1) was organized by dissolving 0.02g of TNX in 10mL of Ethanol and volume was completed with distilled water in 100 mL volumetric flask.

Preparation of TNX and IBU tablets

Drug pharmaceutical tablets The Tenoxicam tablet was bought from the pharmacy in Baghdad, Iraq and the drug form is (Tilcotil: Tenoxicam 20 mg,10 film-coated tablets, Switzerland) and (profinal: Ibuprofen 400 mg,24 film- coated tablets, Gulf pharmaceutical industries, Ras Al khaimah,U.A.E). Taken known weight dissolved in same solvent for pure standard than filtered to remove additives, fill volumetric flask 25 ml with filtered liquid.

Blood Sampling

serum blood (total volume is 10 cc) from different people female and male at forties age (41, 42,45,46,48) year who were taking tenoxicam and ibuprofen to treat joint pain.

Uric acid Kit (BIOLABO –ACIDE URIQUE / France).

Instrumentation

The instrument of this research was Ultraviolet-visible (UV-Vis) spectrophotometry device.

Results and Discussion

Studying the effect of drugs and tracking their different concentrations (0, 0.2, 0.4, 0.6, 0.8) mg /dl (shows in table 1) by adding them to blood samples to obtain the effect of the drug on uric acid. The pure drugs are Tenoxicam and Ibuprofen, from which diluted solutions are prepared and the uric acid level is determined by changing color, the absorbance was calculated at maximum wavelength 550 nm. It was observed that the acid value decreased with increasing drug concentration and the relationship was linear. Absorption obtained by ultraviolet-visible device extracted the calculations and plotted between drug concentration and absorption, (figure 2 and 3) explain the linear relationship.

Table1: The range of concentrations taken from the drugs for the study

Conc of drugs	0	0.2	0.4	0.6	0.8
ABS of TNX	0.02	0.188	0.364	0.54	0.674
ABS of IBU	0.05	0.1	0.15	0.178	0.205

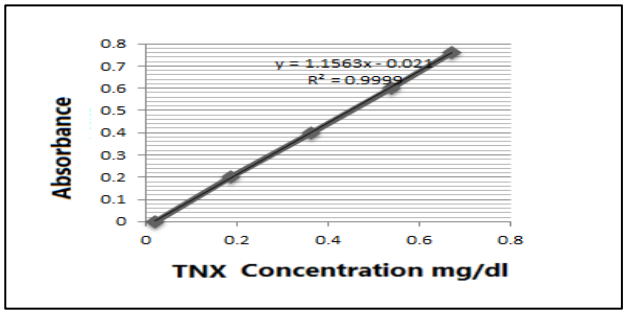

Figure2: Calibration curve of TNX drug

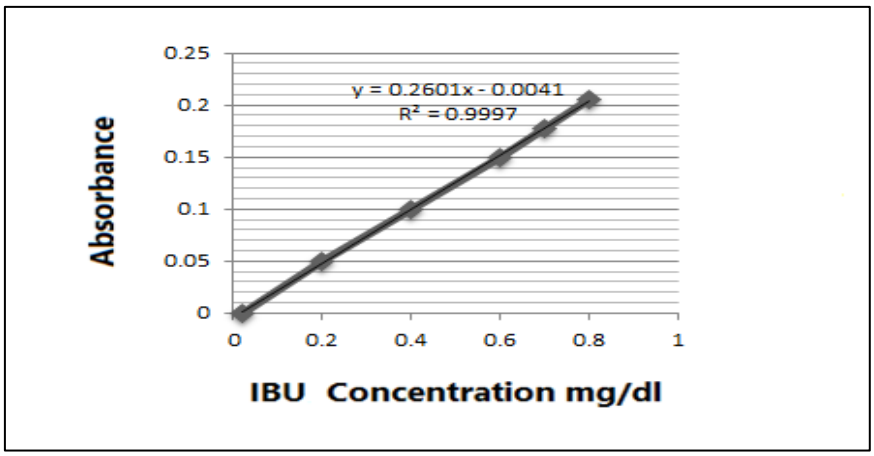

Figure3: Calibration curve of IBU drug

Using statistical analysis calculations and calibration curves for both drugs, the values shown in Table 2 were obtained.

Table 2: Analytical values of the suggested methods for determinate of TNX and IBU

Parameters	Tenoxicam	Ibuprofen
Regression equation	Y=1.1563x -0.021	Y=0.2601x-0.0041
Correlation coefficient, r	0.9999	0.9997
Linearity percentage, r^2	99.99	99.97
Dynamic range (mg/dl)	0-0.8	0-1
Slope	0.021	0.0041
Intercept, a	1.1563	0.2601
Limit of detection (µg. mL 1)	2.13	2.09
Limit of quantification (µg. mL 1)	4.17	4.26

Using statically analyses for results

Analysis and interpretation of statistical results is one of the most important steps that are undertaken in any research or study, as the process of statistical analysis of data and results enables researchers to reach clear and accurate interpretations of the dependent and main variables that directly affect the subject of the study (11). From table (1) Uric acid is a waste product found in blood, Most uric acid dissolves in blood and travels to the kidneys. Than passes out in urine. If the body produces too much uric acid or does not remove enough of it, it can get sick. A high level of uric acid in the blood is called hyperuricemia. Hyperuricemia can cause crystals of uric acid (or urate) to form. These crystals can settle in the joints and cause gout, a form of arthritis that can be very painful. They can also settle in the kidneys and form stones. If untreated, high uric acid levels may eventually lead to permanent bone, joint and tissue damage, kidney disease and heart disease Analysis of the

Tablet Formulation The proposed method was applied for quantifying (Tilcotil : Tenoxicam 20 mg,10 film-coated tablets,Switzerland) and (profinal : Ibuprofen 400 mg,24 film- coated tablets, Gulf pharmaceutical industries, Ras Al khaimah,U.A.E) on uric acid in blood (Figure 4). Analyzed successfully with good results.

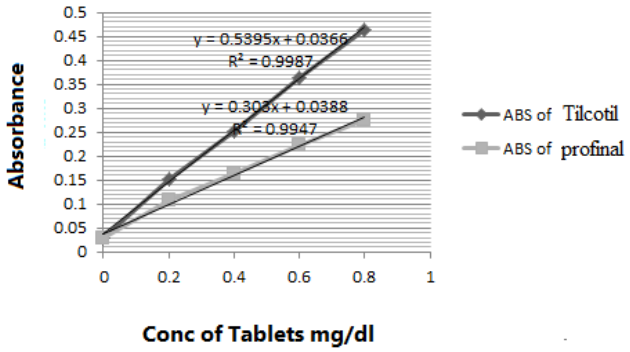

Figure4: Calibration curve for mix pharmaceutical tablets.

The calibration curve shows that tablets increased absorbance with increased concentrations and decresed uric acid in blood.

Conclusion

This study using spectrophotometry method for determining TNX and IBU in pure and tablet formulations,that used to lower the level of uric acid in the blood, The drug treatment is to lower the level to less than 6 milligrams per 100 milliliters of blood. Maintaining a level below 6 will stop the deposition of uric acid in the joints and soft tissues, and the deposits will eventually dissolve,Decreased body production or increased excretion in the urine. The proposed method has the advantages of simplicity, rapidity and suitable results. the Absorbance of drugs increases and had positive affected in uric acid.

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