INFLUENCE OF "TINIDAZOL" IN NATURAL HERBS ON THE HUMAN BODY

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ANNOTATION

Tinidazole has a high absorption rate, bioavailability is about 100%. Plasma protein binding - 12-12.5%. After a dose of 2 g, Cmax is reached after 2 hours and is 41-52 μg / ml, after 24 hours - 10-19 μg / ml, after 72 hours - 0.9-1 μg / ml. Vd - 50 l. Penetrates through the BBB and the placental barrier. It is excreted in breast milk within 72 hours after ingestion. It is metabolized in the liver to form pharmacologically active hydroxylated derivatives, which inhibit the growth of anaerobic microorganisms and may enhance the effect of tinidazole. T1 / 2 is excreted by the kidneys after 12-14 hours with 52% bile, 24% (unchanged) and 11-12% (as metabolites) due to reabsorption in the renal tubules. Tinidazole can cause trichomoniasis (a sexually transmitted disease in women and men), giardiasis (an intestinal infection that causes diarrhea, gas, and stomach cramps), and amoebiasis (which can lead to diarrhea. Intestinal infection) is used to treat gas that can spread to other organs such as stomach and liver cramps). Tinidazole is also used to treat bacterial vaginosis in women (an infection caused by an overgrowth of harmful bacteria in the vagina). The class of drugs called antimicrobials also includes tinidazole and nitroimidazole. It works by killing the organisms that cause the infection, but antibiotics are not used for colds, flu, or other viral infections. Overuse of antibiotics increases the risk of an infection that is then not treatable with antibiotics.

Key words: *tinidazole, chemical formula, tinidazole derivatives, trichomoniasis, effects on the body, chemical composition, which plants are included.*

INTRODUCTION

The protozoan tinidazole has been known for decades as an effective treatment for infections. The pharmaceutical effect of tinidazole, the nitro group, which is part of its molecule, is restored by cell extracts of microorganisms, such as Trichomonas. As a result, a free nitro radical can be formed. The drug responsible for the activity is an antiprotozoal that releases chemically reduced tinidazole nitrites, which has also been shown in a number of studies, and harms the purified ones. Inhibits bacterial DNA in vitro or its synthesis. A well-organized group of protozoans and bactericides represent an important class of 5-nitroimidazole DNA-based drugs in microorganisms.

Due to the understanding of the importance of tinidazole and in many drugs used in modern medical practice, this component and other derivatives of nitroimidazole are, for example: metronidazole, tinidazole, ornidazole, secnidazole and ronidazole. Preparations containing these components have proven themselves as a result of treatment. Serious infections caused by anaerobic bacteria and protozoa: trichomonas vaginalis, etamoeba histolytica and lamblia instseptis: have a bactericidal effect against the following anaerobic bacteria Bacteroides spp. (including Bacteroides fragilis, Bacteroides melaninogenicus), Clostridium spp., Eubacterium spp., Fusobacterium spp., Peptococcus spp., Peptostreptococcus spp., Veillonella spp. The widespread use of tinidazole and its derivatives in pharmaceuticals requires systematic quality control of preparations and continuous improvement of the efficiency of existing analytical methods.

The quantitative determination of tinidazole and its derivatives in glacial acetic acid by acidometric titration and adapted spectrophotometric methods is described in pharmaceutical articles. However, these methods have a number of disadvantages, including the use of toxic organic solvents, expensive reagents and instruments. However, the great variability of conditions under which normative documents differ from each other requires the availability of a large assortment of reagents in the laboratory. This creates additional difficulties in reproducing methods of analysis and is not economically feasible. These data indicate the relevance of the problem of improving existing methods for the analysis of tinidazole and developing new ones. The aim of this work is to develop a simple method for determining the amount of tinidazole in drugs by spectrophotometric method and its verification by various parameters.

1. IR spectrum. In the region where the infrared spectrum of the substance obtained from the disk containing potassium bromide is 4000-400 cm-1, the state of the absorption lines should correspond to the spectrum of the standard sample of tinidazole.
2. UV spectrum. The absorption spectrum of ultraviolet radiation of a 0.001% solution of the substance in methanol with a wavelength of 220 to 340 nm should be a maximum of 305-310 nm.
3. Qualitative reaction. To 10 mg of the substance add 10 mg of zinc powder, 0.25 ml of concentrated hydrochloric acid and 1.5 ml of water. Heat up and put in a water bath for 5-8 minutes. The solution reacts characteristically for aromatic primary amines.

MATERIALS AND METHODS

It is no secret that chemicals and organic solvents are categorized as chemically pure. and "h.ch.". In all experiments, we used distilled water obtained in a BS-6 glass distiller. The solvent for chromatography was methanol. A phosphate buffer with a pH of 6.86 was prepared from a suitable fixative; electronic spectra were recorded on an SF-2000 spectrophotometer in quartz cuvettes 1 cm in diameter against the background of a solvent. The pH was controlled using an ESL-63-07 glass electrode and an ESL1-M3 reference electrode with silver chloride on an I-130 universal ionometer.

Calibration solutions were prepared by diluting the initial standard solution, for which 1 ml of the standard solution was poured into a 20 ml volumetric flask and made up to the mark with phosphate buffer. A blank sample was prepared by appropriate dilution of methanol with phosphate buffer and a concentrated (0.02 mg/mL) solution of tinidazole was scanned in the wavelength range of 250–450 nm to determine liters max.

To determine the optimal pH, the optical densities of working solutions with the same concentration of tinidazole were compared at different pH values in the range of 2–10, measured at l 317 nm. As a result, a spectrophotometric method for determining the dosage form of tinidazole was developed and tested. The content of tinidazole in tablets containing the declared content of tinidazole at a dose of 500 mg was evaluated. To do this, 20 tablets were crushed into powder, from which a sample of 1000 mg of the drug was taken, which was dissolved in 100 ml of methyl alcohol. To speed up the dissolution process, the suspension was treated with ultrasound at a frequency of 40 kHz for 10 min, filtered, transferred into a 2.0 ml volumetric flask, and topped up to the mark with a buffer solution.

Reference solution B: Approximately 5 mg (net sample) of the impurity A standard and approximately 5 mg (net sample) of the mixture B standard are dissolved in 10.0 ml of methanol and the volume of the PF solution is adjusted. 100.0 ml. The resulting solution was brought to 10.0 ml by adding 2.0 ml of PF.

Microbiological purity: "Microbiological purity" according to the OFS.

Approximate amount: 0.2 g (test) of the substance is dissolved in 50 ml of anhydrous acetic acid and titrated with vigorous stirring with 0.1 M perchloric acid. The end point of the titration is determined potentiometrically (OFS "Potentiometric titration"). 1 ml of 0.1 M perchloric acid corresponds to 24.73 mg of tinidazole C8H13N3O4S.

Treatment criteria: There is an etiological and clinical recovery from trichomoniasis. Treatment of etiological recovery in men. For control studies, culture and bacterioscopic laboratory methods are used; Trichomonas are not detected within 1-2 months after the course.

Clinical recovery: Dropout of symptoms is not uncommon. Symptoms of trichomoniasis persist in men after the onset of etiological recovery. Postrichomonous inflammatory processes occur in patients with complicated or chronic forms of the disease. Etiotropic therapy of trichomoniasis is carried out with several drugs: metronidazole, tinidazole, nimorazole, tenonitrozole, ornidazole, secnidazole, flunidazole, carnidazole. The first five drugs registered and used in Ukraine, drug resistance, its mechanisms and clinical significance: In recent years, microorganisms have become uncontrollable, rather intensive or long-term treatment, self-medication, increased drug resistance to various drugs due to use.

The frequency of development of resistance and the degree of resistance vary significantly depending on the type of microorganism, the chemical composition of the drug, the effectiveness of the doses used and the treatment regimen.

The development of resistance is primarily associated with a decrease in the activity of microbial cell nitroreductases and, accordingly, a decrease in intracellular biotransformation of drugs. As a result, the formation of complexes with DNA decreases, the processes of formation of free radicals and the concentration of cytotoxic metabolic products decrease. The development of resistance may be associated with a violation of cellular transport systems (decrease in the permeability of the cell wall in anaerobes and microaerophiles and the permeability of the cell membrane in protozoa), including the phenomenon of ejection. At the same time, the main problem in the treatment of trichomoniasis today is the increase in the resistance of Trichomonas to antiprotozoal drugs. So, according to a study by the authors of 1999, only 35% of Trichomonas strains are sensitive to metronidazole. According to other studies, only 55% of Trichomonas are sensitive to tinidazole.

Plants containing Trichomonas (tinidazole):

Juniper cones - Fructus Juniperi (Vassae juniper)

Yellow capsule rhizomes - Nuphar luteum

CONCLUSION

The variety of diagnostic and treatment procedures and the expansion of the scope of medical care provided by the surgeon at the stage of primary health care to patients indicate the presence of effective, safe and inexpensive antibacterial drugs in the arsenal of the drugs used.

The review will consider the possibility of using the combined antibacterial drug ciprofloxacin + tinidazole in outpatient surgery in terms of clinical efficacy and drug safety.

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