Formulation of Povidone Iodine 10% vaginal suppository and evaluation of it's physicochemical characteristics, stability and in-vitro effectiveness

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Abstract: Vaginal infections are common infection in developing countries. Untreated cases lead to pelvic inflammatory diseases such as endometritis, salpingitis, oophoritis, pelvic peritonitis or tubo-ovarian abscess which will occur widely in the upper part of the tube and female genitalia. Povidone iodine with wide effect spectrum on microorganisms involved in vaginal infections is one of the most common antiseptics used in these cases. It has several pharmaceutical forms for the treatment of vaginal infections but only two type of this dosage forms is available in Iran: vaginal gel and douche. This two form have some problems like skin reactions and discomfort of the patient.

In this study we decided to formulate Povidone iodine 10% vaginal suppository and evaluate it's physicochemical and antimicrobial specifications.

The sample of povidone iodine were tested according to the United states Pharmacopoeia (USP32). Then several formulations with various grades polyethylene glycol were made and tested for weight uniformity, content uniformity, hardness, rate of disintegration in water. The pattern of drug release from the formulation were examined and compared with a commercial formulation (BETADINE). Inducing of inflammation and irritation of optimum formulation was evaluated and compared with a conventional vaginal gel dosage form, by using rabbit test. Then 10 clinically isolated strains of vaginal samples of candida albicans were collected, purified, identified and used to evaluate the effectiveness of the pessaries.

According to the result povidone iodine pessaries did not cause any vaginal irritation or redness at the site of application. The optimum formulation could decrease Candida albicans in a vagina simulated environment containing 10^5 CFU/ml of the microorganism to less than 10 CFU/ml in the time less than 2 minutes.

According to the test result it could be concluded that the optimum formulation can be used as an effective pessary with minimal side effects to treat vaginal infections.

Keyword:
Vaginal infection, Vaginal candidiasis, Povidone iodine