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INVESTIGATION OF THE TOXIC EFFECT OF DIFFERENT DOSES OF DUPROST ON KIDNEYS OF ALBINO MICE

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ABSTRACT : The aim of this study was to detect the toxic effect of different doses of Duprost on kidney of albino mice. Twenty four albino mice were fractioned into three parts: control (3 mice), acute group (12mice), and chronic group (9mice). The acute group was divided into 4 subgroups each of which contained 3mice. Each subgroup was given a lonely oral dose of the following doses: subgroup1 dosed with 0.25ml (0.5mg\kg), subgroup 2 dosed with 0.15ml (0.12mg\kg), subgroup3 given 0.1ml (0.08mg\kg), and subgroup4 got 0.05ml (0.04mg\kg) for 24 hours. The chronic group was subdivided into 3 subgroups and each set was given a daily dose of (0.15ml, 0.1ml, and 0.05ml of Duprost respectively) for 42day. After the mentioned period, the residual mice of all groups were sacrificed and the kidney of each animal was removed, processed, sectioned and stained for histological analysis. In acute group all mice that dosed with (0.25ml) passed after 15 minutes of dosing. The histological analysis of the kidney in residual mice of acute subgroups showed mononuclear cells infiltration in the interstitial tissue as well as vacuolar degeneration mainly in the proximal tubules epithelia with proteinous material in their lumen. While the microscopic examination of kidney sections obtained from mice of chronic subgroups exhibited degeneration and occasional interstitial mononuclear cell infiltration in renal tubules at low dose (0.05 ml). In contrast with higher doses (0.1 ml and 0.15 ml) at which an atrophy of glomerular tufts was seen with focal degeneration of epithelial cells of renal tubules.

Key words : Duprost, dutasteride, drug toxicity.

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a medical condition occurring in older men (those aged >60 years), resulting from enlargement of the prostate gland. Consequently, affected men may experience bothersome urinary tract symptoms and diminished quality of life. The risk of lower urinary tract symptoms and complications such as acute urinary retention (AUR) may increase if BPH is untreated (Djavan *et al*, 2010).

This illness is a progressive condition, with growth in prostate size accompanied by lower urinary tract symptoms that can result in long-term complications and need for enlarged prostate-related surgery (Djavan *et al*, 2004).

Benign prostatic hyperplasia is commonly treated with alpha-adrenergic-receptor antagonists (alpha-blockers) or 5 alpha-reductase inhibitors. The long-term effect of these drugs, singly or combined, on the risk of clinical progression is unknown (Djavan *et al*, 2011).

Duprost capsules are used to treat BPH. This medicine helps to shrink the prostate and reduce the risk of urinary retention caused by restricted urine flow as the prostate gland becomes enlarged and presses against the urethra, which helps urine to flow more easily, prevents urine backlog in the bladder and restores bladder control (Greco and McVary, 20084). This drug is also used to treat male pattern hair loss by increasing hair growth and preventing further hair loss from all areas of the scalp, including the front (Keam *et al*, 2008).

The active ingredient Dutasteride inhibits the action of both forms (type I and type II) of the enzyme 5α-reductase that convert the male hormone testosterone to dihydrotestosterone (DHT) in the skin and the liver (Ku *et al*, 2012). DHT is the androgen primarily responsible for development and growth of the prostate gland and also causes (BPH) (Perrotti *et al*, 2012).

The action of Dutasteride is to reduce the levels of DHT in the blood, so that prostate growth is no longer stimulated in men with BPH allowing the enlarged prostate to shrink (Marihart *et al*, 2005). The 5alpha-reductase inhibitor was shown to reduce the risk of retention and surgery in men with large prostate volumes and/or high PSA. Recent studies have examined the role