

## Pharmacodynamic Interaction between Tamsulosin and Finasteride Treatment on Induced Benign Prostate Hyperplasia in Mice by Using Chou-Talalay Method

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**Abstract :** Introduction: Benign prostatic hyperplasia (BPH) is a common condition as men get older. An enlarged prostate gland can cause uncomfortable urinary symptoms, such as blocking the flow of urine out of the bladder. It can also cause bladder, urinary tract, or kidney problems. Objective: to evaluate the efficacy and interaction of tamsulosin with finasteride treatment on induced benign prostate hyperplasia (BPH) in mice. Methods: BPH was induced by subcutaneous injection of testosterone propionate (20 mg/kg) for 30 days. Eighty-five mice were divided into five groups. The first group (G1): twenty-five mice induced BPH treated with tamsulosin orally and divided into five equal subgroups with doses (0.017, 0.052, 0.087, 0.123, and 0.158) mg/kg, the second group (G2): twenty-five mice induced BPH treated with finasteride orally and divided into five equal subgroups with doses (0.175, 0.527, 0.878, 1.23, and 1.580) mg/kg. the third group (G3): twenty-five mice induced BPH treated with a combination of tamsulosin with finasteride orally, and divided into five equal subgroups with doses (0.0085, 0.0875), (0.026, 0.2635), (0.0435, 0.439) , (0.0615, 0.615) and ( 0.079 , 0.790 ) mg/kg respectively. Fourth group (G4): five mice induced BPH and treated distilled water. Fifth group (G5): five mice were not inducing BPH and without any treatment. Results: The results showed a gradual significant increase in prostate weight % and prostate index % Inhibitions until reached saturation in the last two doses of tamsulosin, finasteride, and combination groups, the maximum effective dose of tamsulosin and finasteride were (0.156) and (1.495) mg/kg respectively. Moreover, the effective dose of the combination (tamsulosin and finasteride) was estimated (0.06876, 0.6876) mg/kg, respectively, as well as the type of interaction was synergism and the value of the combination index was 0.046. Conclusions: We concluded that the combination of tamsulosin with finasteride showed a synergistic effect in BPH treatment by minimizing the side effect of each drug as a result of decreasing the dose of each one.

**Keywords :** Tamsulosin, Finasteride, combination, BPH

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