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Ameliorative Effects of Ganoderma lucidum Extracts on Testosterone Induced Prostatic Hyperplasia in Rats

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Abstract : Introduction: Nowadays, androgen-mediated diseases such as prostate cancer, hirsutism, acne, androgenic alopecia and benign prostatic hyperplasia (BPH) have become serious problems. The aim of the present study was to find out whether Ganoderma lucidum (GL) can be used as a clinically effective medicine for the management of prostatic hyperplasia. Methodology: In vitro studies were conducted to assess the 5α-reductase inhibitory potential of GL. Testosterone (3 mg/kg s.c.) was administered to the rats along with the test extracts (10, 20 and 50 mg/kg p.o for a period of 28 days. Finasteride was used as a positive control (1 mg/kg p.o.). Major Findings: GL extracts attenuated the increase in the prostate/body weight ratio (P/BW) induced by testosterone. Most of the values were significant when compared to testosterone-treated group and finasteride treated groups. Petroleum ether extract (50 mg/kg p.o.) exhibited the best activity ($P < 0.01$). Ethanolic extract (20 and 50 mg/kg p.o.) also exhibited significant activity ($P < 0.01$). The urine output also improved significantly ($P < 0.01$ in all groups as compared to standard finasteride), which emphasize the clinical implications of the study. Testosterone levels measured weekly and prostate-specific antigen (PSA) levels measured at the end of the study also support the findings. Histological studies suggested improvement in prostatic histoarchitecture in extract-treated groups as compared to the testosterone-treated group. Conclusion: Study clearly reflects the utility of extracts in BPH. Because of conversion of testosterone to dihydrotestosterone, the prostate size is increased, thereby causing obstruction in urinary output. The observed effect that extracts do not allow the increase as reflected by urinary output, P/BW ratios and histoarchitecture showed that activity of administered testosterone was blocked by the extract and resulted in recovery.

Keywords : benign prostatic hyperplasia, Ganoderma lucidum, prostate-specific antigen, 5α-reductase, testosterone
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