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***Withania coagulans* extract induces cell apoptosis and inhibits cox-2 expression in a rat model of benign prostatic hyperplasia**

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Phytotherapy is a popular treatment option in cases of benign prostatic hyperplasia (BPH), with many different herbal products being used for the treatment of this condition. *Withania coagulans* (WC) is an herbal medicine that has shown anti-tumoral, anti-inflammatory, and antioxidant effects. Objectives: This study examined the effect of *Withania coagulans* extract (WCE) on prostatic cell apoptosis and cyclooxygenase-2 (COX-2) expression in cases of benign prostatic hyperplasia (BPH) in rats. Methods: Forty Wistar rats were equally divided into five groups: control, sham, BPH, BPH + WCE, and BPH + CLX (celecoxib) as a positive control group. The induction of BPH was achieved via the subcutaneous injection of 3 mg/kg of testosterone propionate (TP) daily for 28 days. The animals received WCE, celecoxib, or distilled water by oral gavage accompanied by the TP injection. After four weeks, the prostate glands of the rats were weighed to measure the prostatic index (PI). The ventral lobes of the prostates were dissected and processed with paraffin blocks in order to study the number of mast cells. A TUNEL analysis was performed to evaluate the cell apoptosis, while the expression of COX-2 was examined using immunohistochemistry. Results: BPH was obvious in the ventral lobe of the prostate, and the administration of WCE markedly decreased the PI and the number of mast cells ($P < 0.001$) in the BPH rats. Additionally, the WCE treatment induced prostatic cell apoptosis when compared to the BPH group. Furthermore, following the WCE treatment, the expression of COX-2 in the prostatic tissues was significantly decreased when compared to the BPH groups.

Conclusions: According to the results of this study, WCE was effective in the treatment of BPH in rats. It may therefore have beneficial effects in the treatment of patients with BPH.

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