



Protective effects of chinese Red ginseng on the spermatogenic cells apoptosis and sperm quality of epididymo-orchitis in the rat model

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Objective

Bacterial infections are mostly the consequence of an ascending infection of the genito-urinary tract which can ultimately lead to epididymo-orchitis. Ginseng has proven its worth with respect to reproductive function in several reports. Therefore, *Escherichia coli* M39 was employed to investigate whether Ginseng have protective effects on the testis of epididymo-orchitis in the rat model.

Methods

Thirty male Wistar rats were divided into five equal groups as follows: The control group underwent left and right orchidectomy. PBS (50 μ l) was injected into the right and left vas deferans in the Vehicle group. *Escherichia coli* M39 (5 \times 10⁶cfu/50 μ l) was injected into the right and left vas deferans in the infection group(M39). The fourth group received red ginseng treatment intraperitoneally (IP) (15 mg/kg/daily) after *E. coli* M39 inoculation for 7 days (MG). The fifth group received red ginseng (15 mg/kg/day) for 7days (Ginseng). In all groups, bilateral orchidectomy was performed 7 days after the challenge.

Results

Red ginseng caused recognizable histological recovery associated with a decrease in germ cell apoptosis ($p\leq 0.0001$) and a decrease in the Immotile Sperm Percent ($p\leq 0.001$) and a decrease in abnormal sperm percent ($p\leq 0.0001$) in the experimental groups. The concentration of TNF- α was not significantly changed in the experimental groups. Infection caused increased sex organ weight but red ginseng was not able to change organ weight except in the prostate which was not significant. Red ginseng caused an increase in the rat body weight that was not significant. Red ginseng significantly increased the sperm count ($p\leq 0.05$) and significantly increased Johnson's score in infected group treated with it ($p\leq 0.007$). However, there was not seen significantly different in miller's score.

Conclusion

Red ginseng could probably prevent the cytotoxic effects of epididymo-orchitis on the sperm quality and apoptosis of germ cell.