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Oral Presentations

O-19

Protective effect of crocin on electromagnetic field-induced testicular damage and heat shock protein A2 expression in male BALB/c mice

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Background: Exposure to electromagnetic fields (EMF) emitted from mobile phones may cause a deleterious effect on human health and may affect the male reproductive system. Crocin, a carotenoid isolated from *Crocus Sativus* L. (Saffron), is a pharmacologically active component of saffron.

Objective: This study was conducted to investigate the protective effect of crocin on the male reproductive system of 60 day old mice after EMF exposure.

Materials and Methods: Twenty-four male BALB/c mice were randomly divided into 4 groups: 1) electromagnetic (EM) group (2100 MHz); 2) Crocin (Cr) group (50 mg/kg); 3) Em+Cr group (2100 MHz+50 mg/kg), and 4) Control group. Sperm parameters (count, and abnormal percent), testis

weight index, testis volume, seminiferous tubule diameter, germinal epithelium thickness, luteinizing hormone, follicle-stimulating hormone and testosterone serum level, testicular Heat shock protein A2 (HspA2) immunoreactivity, and apoptosis were evaluated.

Results: HspA2 immunoreactivity, apoptosis in the germinal epithelium and abnormal sperm were increased in EM group compared with the control group ($p < 0.05$). Sperm count, luteinizing hormone, and testosterone serum level were decreased in the EM group compared with the control group ($p < 0.05$). These parameters were improved in the EM+Cr group compared with EM group significantly ($p < 0.05$).

Conclusion: Our findings revealed that EMF exposure leads to harmful impressions on the male reproductive system, while crocin can attenuate EMF-induced destructive effects.

Key words: Apoptosis, Electromagnetic field, Crocin, Heat shock protein, Testis.

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