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Pro-apoptotic and oxidative effects of artemisinin and l-carnitine on testes

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We evaluated the effects of artemisinin (ART) and L-carnitine (LC) on apoptosis and redox status of testicular tissue. Sixty mature male laboratory mice were randomly divided into six groups as follows. Control (saline + corn oil); Art50 (therapeutic ART) (50 mg/kg ART); Art250 (toxic ART) (250 mg/kg ART); Art50+L-car (370 mg/kg LC + 50 mg/kg ART); Art250+L-car (370 mg/kg LC + 250 mg/kg ART); and L-car (370 mg/kg LC). Drugs were given orally for one week. Therapeutic ART reduced the expression of the *Bax* without significant effect on *Bcl2*. Co-administration of LC and therapeutic ART reduced the expression of *Bax* and increased the expression of *Bcl2*. ART increased glutathione (GSH) and peroxidase activity. LC alone or together with ART also increased the GSH levels. Unlike the group receiving toxic ART, the number of apoptotic cells in the germinal epithelium was only slightly (~8%) higher than the control in the groups receiving therapeutic ART. Co-administration of LC and therapeutic ART reduced the number of apoptotic cells to the control level. Therapeutic ART not only did not induce apoptosis and oxidative stress but together with LC increased the antioxidant power of the testis by increasing the GSH level.

Keywords: Artemisinin, l-carnitine, *Bax*, *Bcl2*, Peroxidase, Glutathione