

Effect of Electromagnetic Pulse Exposure on Permeability of Blood-testicle Barrier in Mice¹

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Objective To study the effect of electromagnetic pulse (EMP) exposure on the permeability of blood-testicle barrier (BTB) in mice. **Methods** Adult male BALB/c mice were exposed to EMP at 200 kV/m for 200 pulses with 2 seconds interval. The mice were injected with 2% Evans Blue solution through caudal vein at different time points after exposure, and the permeability of BTB was monitored using a fluorescence microscope. The testis sample for the transmission electron microscopy was prepared at 2 h after EMP exposure. The permeability of BTB in mice was observed by using Evans Blue tracer and lanthanum nitrate tracer. **Results** After exposure, cloudy Evans Blue was found in the testicle convoluted seminiferous tubule of mice. Lanthanum nitrate was observed not only between testicle spermatogonia near seminiferous tubule wall and sertoli cells, but also between sertoli cells and primary spermatocyte or secondary spermatocyte. In contrast, lanthanum nitrate in control group was only found in the testicle sertoli cells between seminiferous tubule and near seminiferous tubule wall. **Conclusion** EMP exposure could increase the permeability of BTB in the mice.

Key Words: Electromagnetic pulse (EMP); Blood-testicle barrier (BTB); Lanthanum; Evans Blue; Permeability; Mice

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