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Abstract

Widespread use of mobile phones which are a major source of electromagnetic fields might affect living organisms. However, there has been no investigation concerning prenatal exposure to electromagnetic fields or their roles in the development of the pyramidal cells of the cornu ammonis in postnatal life. Two groups of pregnant rats, a control group and an experimental group, that were exposed to an electromagnetic field were used. For obtaining electromagnetic field offspring, the pregnant rats were exposed to 900 megahertz electromagnetic fields during the 1–19th gestation days. There were no actions performed on the control group during the same period. The offspring rats were spontaneously delivered—control group ($n = 6$) and electromagnetic field group ($n = 6$). Offspring were sacrificed for stereological analyses at the end of the 4th week. Pyramidal cell number in rat cornu ammonis was estimated using the optical fractionator technique. It was found that 900 megahertz of electromagnetic field significantly reduced the total pyramidal cell number in the cornu ammonis of the electromagnetic field group ($P < 0.001$). Therefore, although its exact mechanism is not clear, it is suggested that pyramidal cell loss in the cornu ammonis could be due to the 900 megahertz electromagnetic field exposure in the prenatal period.



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