

论文

维生素E对孕鼠及胎鼠脑组织受手机辐射影响的保护作用

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摘要:

目的 研究妊娠期补充维生素E对母鼠及胎鼠脑组织受手机辐射影响的保护作用。方法 40只受孕大鼠随机分为5组, 自妊娠第1天起, 维生素E低、中、高剂量组分别按5mg/kg、15mg/kg、30mg/kg的剂量补充, 阴性对照组和阳性对照组灌服脱维生素E的花生油, 同时给予1h/次、3次/d的手机辐射, 连续辐射21d, 分娩后测定母鼠及胎鼠脑组织总抗氧化能力(T-AOC)和ATP酶(Na⁺-K⁺ ATP酶和Ca⁺-Mg⁺-ATP酶)的活力变化。结果 阳性对照组T-AOC、Na⁺-K⁺-ATP酶、Ca⁺-Mg⁺-ATP酶活性均较阴性对照组下降(P<0.05)。与阳性对照组比较, 维生素E各剂量组T-AOC含量升高, 其中, 母鼠维生素E中、高剂量组较阳性对照组升高, 胎鼠维生素E低、中、高剂量组均高于阳性对照组(P<0.05)。母鼠维生素E各剂量组Na⁺-K⁺-ATP酶和Ca⁺-Mg⁺-ATP酶活力均高于阳性对照组, 胎鼠维生素E中、高剂量组ATP酶活力较阳性对照组升高(P<0.05)。结论 维生素E对受手机辐射影响的母鼠及胎鼠的抗氧化能力和能量代谢有一定的保护作用。

关键词: 维生素E; 手机辐射; 总抗氧化能力; ATP酶; 大鼠, Wistar

Protective effects of vitamin E against electromagnetic radiation from cell phones in pregnant and fetal rats' brain tissues

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Abstract:

Objective To investigate protective effects of maternal vitamin E supplement against electromagnetic radiation from cell phones in pregnant and fetal rats' brain tissues. Methods 40 pregnant rats were randomly divided into five groups. Low, middle and high dosages of vitamin E groups were supplemented with 5mg/kg, 15mg/kg, and 30mg/kg of vitamin E, respectively. The negative control group and the positive control group were given peanut oil which had vitamin E removed. All groups were exposed to a certain intensity of cell phone radiation for 1 hour each time, 3 times per day for 21 days from the first day of pregnancy. Total anti-oxidant capacity(T-AOC) and ATP enzyme (Na⁺-K⁺-ATP enzyme and Ca⁺-Mg⁺-ATP enzyme) activities in pregnant and fetal rats' brain tissues were determined after delivery. Results T-AOC, Na⁺-K⁺-ATP enzyme activity, and Ca⁺-Mg⁺-ATP enzyme activity were all significantly lower in the positive control group than in the negative control group (P<0.05). Compared with the positive control group, T-AOC of pregnant mice was significantly higher in middle and high dosages of vitamin E groups, and -AOC of fetal mice was significantly higher in all three different dosages of vitamin E groups (P<0.05). ATP enzyme activity in pregnant mice was significantly increased in the three dosages of vitamin E groups compared with the positive control group(P<0.05), and that in fetal mice was higher in middle and high dosages of vitamin E groups than in the positive control group(P<0.05). Conclusion Vitamin E has a protective effect against damage to antioxidant capacity and energy metabolism induced by cell phone electromagnetic radiation in pregnant mice and fetal mice.

Keywords: Vitamin E; Electromagnetic radiation from cell phones; Total anti-oxidant capacity; ATP enzyme; Rats, Wistar

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