

عنوان مقاله:

Evaluation of the Effects of Fullerene C₆₀ Nanoparticles on Oxidative Stress Parameters at Liver and Brain of Normal Rats

محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان، دوره 27، شماره 124 (سال: 1398)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Fariba Namdar - *Dept. of Physiology and Medical Physics, School of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Farideh Bahrami - *Dept. of Physiology and Medical Physics, School of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Zahra Bahari - *Dept. of Physiology and Medical Physics, School of Medicine, Baqiyatallah University of Medical Sciences, Tehran, Iran*

Bahram Ghanbari - *Dept. of Chemistry, Sharif University of Technology, Tehran, Iran*

Seyed Ahmad Elahi - *Dept. of General Surgery, School of Medicine, Alborz University of Medical Sciences, Tehran, Iran*

Mohammad Taghi Mohammadi - *Neuroscience Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran*

خلاصه مقاله:

Background & Objective: The potent antioxidant property of fullerene C₆₀ nanoparticles and their derivatives has been demonstrated in a wide range of in vitro and in vivo studies. Hence, we examined the effects of fullerene C₆₀ on the oxidative stress parameters at brain and liver of rats in normal situation. **Materials & Methods:** The study was performed in two groups of Wistar rats (each group, n = 6); normal and fullerene-treated normal animals. Treated rats received orally fullerene via oral gavage at dose of 1 mg/kg/day for 60 days. At termination of the study, the oxidative stress parameters were determined at brain and liver tissues, including the contents of glutathione (GSH) and malondialdehyde (MDA), and the activity of catalase (CAT) and superoxide dismutase (SOD). The t-test was used to analyze the data between two groups. **Results:** Fullerene C₆₀ treatment did not change blood glucose of treated rats compared to untreated rats. Fullerene C₆₀ significantly increased the value of CAT activity (by 66%) and MDA levels (by 68%), whereas decreased SOD activity (by 33%) at liver of treated rats compared to untreated animals (P < 0.05). Fullerene administration significantly increased only CAT activity of brain in the treated rats (0.34 ± 0.10 U/mg protein) compared to untreated animals (0.12 ± 0.03 U/mg protein), (P < 0.05). **Conclusion:** Our findings indicated that oral administration of fullerene C₆₀ nanoparticles differently changes the oxidative stress parameters in liver and brain at normal condition. It is suggested that these effects must be considered for application of these nanoparticles in various therapeutic purposes.

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1191875>

