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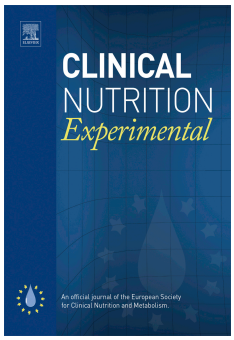

Effects of differences in the timing of ferrous sulfate supplementation on lipid peroxidation and activation of p-NF-kB p65 in the placenta of pregnant rats

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ABSTRACT

Objective: The purpose of the present study was to analyze the effects of ferrous sulfate in different trimesters of pregnancy on oxidative stress and p-NF-kB p65 in the placenta. **Material and methods:** Twenty-four female Wistar rats were divided into four groups: the control group (no treatment), the group treated with ferrous sulfate from the first trimester (the first day of pregnancy), the second trimester (the eighth day of pregnancy) and the third trimester (the fifteenth day of pregnancy). Malondialdehyde levels as a marker of oxidative stress in the placenta was analyzed by a spectrophotometer. Placental expression of p-NF-kB p65 was analyzed by western blotting. **Results:** Placental MDA levels were significantly higher for the three groups of ferrous sulfate administration relative to the group without ferrous sulfate administration ($p < 0.05$). Placental MDA levels increased significantly for the groups treated with ferrous sulfate in trimesters one and two relative to that in trimester tree ($p < 0.05$). There were no significant differences in placental MDA levels between the groups treated with ferrous sulfate during the first and the second trimester ($p > 0.05$). Expression of p-NF-kB p65 increased significantly for the groups treated with ferrous sulfate relative to that of controls ($p < 0.05$). There was a significant increase in placental expression of p-NF-kB p65 for the group treated with ferrous sulfate in the first trimester relative to that in the second and third trimesters ($p < 0.05$). Expression of p-NF-kB p65 was significantly higher for the group treated with ferrous sulfate in the second trimester than that of the first trimester ($p <0.05$). **Conclusion:** In conclusion, administration of ferrous sulfate will induce placental oxidative damage. Increased expression of p-p65 NF-kB is underlain by changes in the degree of oxidative stress in the placenta from administration of ferrous sulfate.

Keywords: pregnancy; ferrous sulfate; pro-oxidant; placenta; lipid peroxidation.