Ovariectomy Alters Cytochrome C Oxidase Activity and Decreases ATP Levels in Hippocampus of Adult Rats

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INTRODUCTION: Since menopause and energy metabolism seem to be associated with the pathogenesis of neurodegenerative diseases, in the present study we evaluated the influence of ovariectomy, an animal model that mimics menopause, on activities of respiratory chain and ATP levels in hippocampus of adult rats. MATERIAL AND METHODS: Female Wistar rats of 80 days of life were separated into two groups: sham (submitted to surgery without removal of ovaries) and ovariectomized (submitted to surgery with removal of both ovaries). Animals were decapitated 30 days after surgical procedure and the hippocampus was removed. RESULTS AND DISCUSSION: Results showed that the ovariectomy altered cytochrome c oxidase, but did not alter the succinate dehydrogenase and complex II activities. We also observed a decrease in ATP levels in hippocampus of rats subjected to ovariectomy. CONCLUSIONS: Our results suggest that these changes in brain energy metabolism, with consequent reduction of ATP levels may be related, at least in part, to neurological symptoms observed in some women in the postmenopausal period.

Keywords: ovariectomy, energy metabolism, menopause
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