

عنوان مقاله:

Assessment of Oxidative Stress and Chromatin Status in Varicocele-Induced Rats

محل انتشار:

بیستمین کنگره بین‌المللی بیولوژی تولید مثل و پانزدهمین کنگره بین‌المللی سلول های بنیادی (سال: 1398)

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خلاصه مقاله:

Background: Varicocele (VCL), dilation of the veins of the pampiniform plexus within the spermatic cord, occurs more often in the left testicle. Etiologically of male infertility in these individuals is multifactorial. Several studies showed that increase in oxidative stress (OS) level could effect on quality of sperm and lead to low sperm concentration, and motility and high percentage of sperm abnormal sperm morphology and DNA damage. Therefore, the aim of this study was assessment of sperm lipid peroxidation, protamine deficiency, residual histone and DNA damage in VCL-induced rats. **Materials and Methods:** 36 wistar male rats were used and rats were divided into three groups including VCL, control and Sham. Left VCL model were induced by partially ligating left kidney veins for the VCL group. After two months, rats from three groups were sacrificed and sperm functional tests including lipid peroxidation, protamine deficiency, residual histone and DNA damage evaluated by BODIPY (581/591) C11, Chromomycin A3, aniline blue and acridine orange, respectively, were assessed on epididymal sperm. All of the statistical analyses were carried out using the Statistical Program for Social Sciences (SPSS Inc., Version 25.0) and one-way ANOVA test was used for comparison of parameters between three groups. $P < 0.05$ was considered statistically significant. **Results:** Mean percentage of sperm lipid peroxidation were significantly higher in VCL in comparison of control and sham groups ($P < 0.001$). In addition, mean percentage of protamine deficiency ($P < 0.001$), residual histone ($P < 0.01$) and DNA damage ($P < 0.001$) were significantly higher in VCL group in comparison of control and sham groups. **Conclusion:** Testicular heat stress has harmful effects on testis and spermatogenesis via high production of oxidative stress.

کلمات کلیدی:

Varicocele, Chromatin Status, Sperm Parameters, Residual Histone, DNA Damage

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