

Abstract

Objective: To analyze the difference in the number of spermatogonia, leydig cells and sertoli cells in young age of white mice Wistar strain after inhalation of chronic nicotine exposure.

Method: Laboratory experimental study with post test only control group design, measurement of spermatogonium, leydig cell, sertoli cell in 5 groups of young male Wistar strain, negative control group and treatment group given nicotine exposure 0.5 mg, 1 mg, 2 mg, and 4 mg/kg body weight /day for 30 days.

Results: A significant reduction in spermatogonium was found in the group given nicotine 0.5 mg/kgBW/day ($p = 0.048$), 1 mg/kgBW/day ($p = 0.002$), 2 mg/kgBW/day ($p = 0.002$) and 4 mg/kgBW/day ($p = 0,000$) when compared to the control group. Significant decreases were also seen in the group receiving 4 mg of nicotine exposure compared with 0.5 mg ($p = 0.018$). Significant decrease in sertoli cell count was seen only in the nicotine group of 4 mg / kgBW/day compared with the control group ($p = 0.047$). A significant decrease in leydig cell count was found in the nicotine 2 mg/kgBW/day ($p = 0.037$) and nicotine group 4 mg/kgBW/day ($p = 0.023$) when compared with the control group. Significant decreases were also found in the 4 mg/kgBW/day group compared to the 0.5 mg/kgBW/day group ($p = 0.004$). In this study there was also a decrease in the number of spermatogonia, sertoli cells, and leydig cells in the increased dose of nicotine given although not statistically significant.

Conclusions: Chronic exposure of nicotine per inhalation may decrease the number of spermatogonia, sertoli cells, and leydig cells. The higher the dose of nicotine given the greater the decrease in the number of spermatogonium cells, sertoli cells, and leydig cells that occur. This proves that nicotine is one of the causes of infertility in men.

Key word: *nicotine, spermatogonia, sertoli cells, leydig cells, infertility*