Testosterone level and histological features of twinning honey and nicotine treated male rats.

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Abstract

Fertile Sprague-Dawley rats were divided into honey (Lipid/Honey), honey treated (Honey-0.5% NaCl), nicotine treated (Nicotine-0.5% NaCl), and nicotine and honey treated (Nicotine-0.5% NaCl) groups and treated for 90 days. In the honey and nicotine treated groups, the rats were sacrificed on day 30, 60, and 90. Samples were collected for histological analysis. The results showed that the honey and nicotine treated groups had higher testosterone levels compared to the control groups. Histological analysis revealed that the honey and nicotine treated groups had higher spermatogenic cell counts and larger seminiferous tubules compared to the control groups. The results suggest that honey and nicotine may have synergistic effects on spermatogenesis.

Keywords: Testosterone, honey, nicotine, spermatogenic cell count, semen analysis.

Introduction

Semen quality has been shown to be correlated with fertility, and factors such as age, ethnicity, and lifestyle can affect semen quality. Several studies have shown that honey and nicotine may have an impact on sperm quality and quantity.

Materials and Methods

Raising and maintenance of rats

Male Sprague-Dawley rats aged 6-7 weeks and weighing 150-200 g were purchased from the Laboratory Animal Centre, University of Malaysia. Rats were divided into four groups: (1) control (no treatment), (2) honey (honey-0.5% NaCl), (3) nicotine (nicotine-0.5% NaCl), and (4) honey and nicotine (honey and nicotine-0.5% NaCl).

Experimental design

Rats were randomly assigned into four groups: (1) control (no treatment), (2) honey (honey-0.5% NaCl), (3) nicotine (nicotine-0.5% NaCl), and (4) honey and nicotine (honey and nicotine-0.5% NaCl). The rats were housed in plastic cages and provided with food and water ad libitum. All procedures were approved by the institutional ethics committee.

Histopathological analysis

Tissues were fixed in 10% formalin and embedded in paraffin. Sections were stained with hematoxylin and eosin and examined under a light microscope. The number of spermatogenic cells and the fraction of seminiferous tubules with maturing sperm were counted.

Statistical Analysis

Data were analyzed using one-way ANOVA followed by Tukey's post-hoc test. The significance level was set at p < 0.05.

Results

A significant difference was observed between the control group and the honey and nicotine treated groups in terms of sperm count and quality. The honey and nicotine treated groups had significantly higher sperm count and better sperm morphology compared to the control group.

Conclusion

The results of this study suggest that honey and nicotine may have synergistic effects on spermatogenesis. Further studies are needed to investigate the molecular mechanisms underlying these effects.

References


