DIET-INDUCED OBESITY EFFECTS ON TESTICULAR HISTOPATHOLOGICAL CHANGES AND BECLIN-1 LEVEL IN A RAT MODEL

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Introduction

Obesity is a complex pathophysiological process that negatively impacts a variety of tissue including the testes resulting in abnormality in spermatogenesis and in semen parameters. Autophagy plays a fundamental homeostatic role in inside the cell. Dysregulated autophagy was recognized with obesity. Melatonin is a well-established antioxidants treatment.

Aim of the work

The aim of this study was to assess the effect of high fat diet on testicular histological tissues and the level of Beclin-1, as a marker of autophagy, in a rat model.

Patients and Methods

Experimental animals: 30 adult male wistar rats, were kept under standard laboratory conditions and randomly divided into three groups. Group I (n=10): control group, Group II (n=10): high fat diet group and Group III (n=10): high fat diet group treated with melatonin.
Methods: After 8 weeks of induction of high fat diet, melatonin was given to the third group and the study ended at 16 week. Excision of testicular tissues was conducted. BECLIN1 level was determined using ELISA. Histological examination was performed.

Results

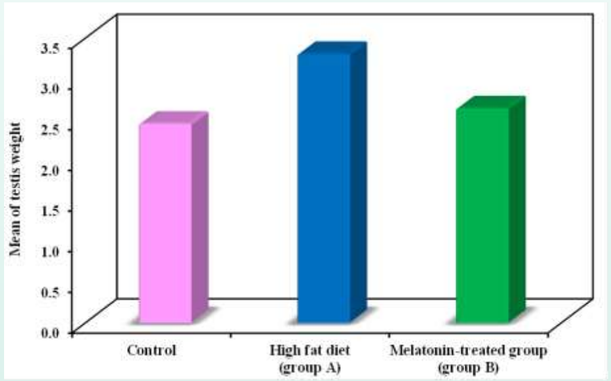

Figure 1: Comparison between the three studied groups according to testis weight

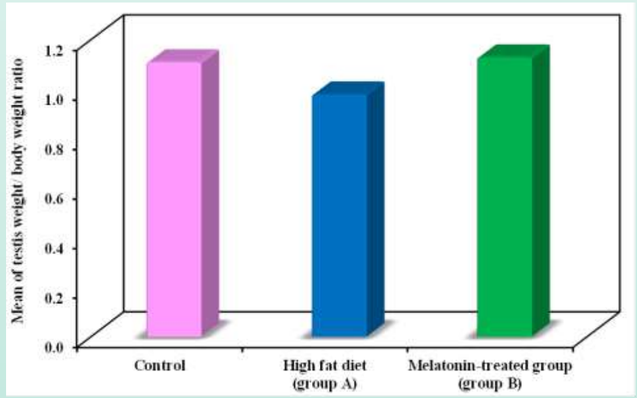

Figure 2: Comparison between the three studied groups according to testis weight / body weight ratio

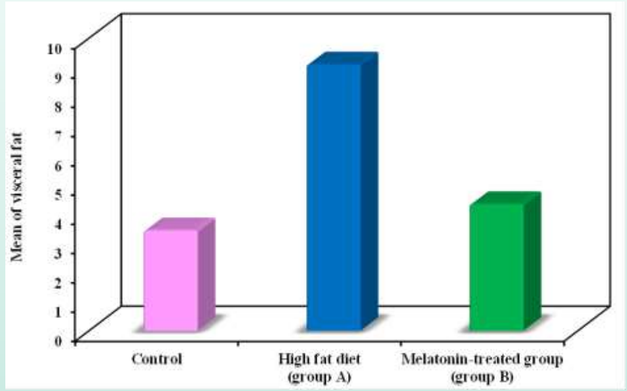

Figure 3: Comparison between the three studied groups according to visceral fat

Conclusion

High-fat Diet was associated with testicular histopathological changes which in turn affects different sperm parameters.
The use of Melatonin in obese rats showed considerable protective effect against the harmful changes resulting from High-fat Diet via decreasing autophagy markers.