Histological Study on Testis of Grower and Adult Wistar Rat

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SUMMARY

The present study was conducted on testes of grower (20-30 days) and adult (50-60 days) Wistar rats having 10 animals in each group. The thickness of tunica albuginea, average diameter of seminiferous tubule and number of Sertoli cells per seminiferous tubule were significantly higher in adults than growers, whereas number of interstitial cells per field were significantly higher in growers than adults of Wistar rat. The reproductive performance of the animals can be better understood by testicular histomorphometry.

Key words: Histology, Testis, Wistar rat

Wistar rats are used in most of the pathological, pharmacological and toxicological studies. There is paucity of detailed information on histological aspects of testis in Wistar rat. Hence, the present experiment was designed to explore the histological studies of testis in relation to age of rats.

The present study was conducted on 20 apparently healthy male Wistar rats procured from Indian Institute of Toxicological Research, Lucknow. These rats were divided into two groups (grower and adult) having 10 rats in each group. Representative samples of testis were collected from cranial, middle and caudal parts of the testis and fixed in 10% buffered formalin for 24-48 h. The thickness of capsule in cranial, middle and caudal parts of right and left testicles was significantly higher in adults than growers. The highest average values of thickness of capsule was recorded in middle part of left testis as 23.04±1.23 µ in growers, whereas 51.49±1.84 µ in adults.

In agreement with the findings of Humphreys (1977), the testicular parenchyma was occupied by sections of the seminiferous tubules of different shapes and sizes. The average diameter of seminiferous tubules in cranial, middle and caudal parts of right and left testicles was significantly higher in adults than growers. The highest mean diameter of seminiferous tubules was recorded in middle part of left testis as 187±3.79 µ in growers, and 357.81±6.05 µ in adults.

The seminiferous tubules were lined by germ cells in order from basal lamina to centre as spermatogonia, primary spermatocytes, secondary spermatocytes and spermatids (Fig. 2). The Sertoli cells were found throughout the entire thickness of the germinal epithelium from the basal lamina to the spermatids as observed earlier (Leblond and Clermont, 1952). The number of Sertoli cells per tubule in cranial, middle and caudal parts of right and left testicles was significantly higher in adults than growers. The highest average number of Sertoli cells was recorded in middle part of the left testis as 187±3.79 µ in growers, and 357.81±6.05 µ in adults.

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The interstitial tissue (Fig. 2) was consisted of sparse loose connective tissue. Capillaries, arterioles, venules, lymphatics, nerve-cells and Leydig cells were observed in the interstitial tissue. It corroborated the findings of Mori and Christensen (1980) and Huhtaniemi et al. (1984). The number of interstitial cells counted in cranial, middle and caudal parts of right and left testicles was significantly higher in growers than adults. It might be attributed to development of secondary sexual characters and aggressive behavioral characteristics of the growers. The highest average value for number of interstitial cells was recorded in middle part of the left testis in growers and adults as 13±0.95 and 08±0.61, respectively.

REFERENCES