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Vitamin-A Induced Histopathological Changes In The Testis Of Swiss Albino Mice

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Abstract

The role of retinoid in mammalian spermatogenesis long been recognized. Workers reported that vitamin A interact with FSH to exert effects on spermatogenesis. Hypervitaminosis A is reported to inhibit the testicular development process via changes in the normal level of DNA, protein and glycoprotein synthesis. The present study aims to investigate the histopathological changes caused by different doses of vitamin A in testis of adult swiss albino mice.

KEY-WORDS : *Vitamin A, testis, necrosis, oedema*

Introduction

Vitamins are organic catalysts of exogenous origin which are effective in relatively minute amount and which are essential for maintenance of normal structure and functions of the cells, vitamin toxicity has been one of the most growing area of bio medical sciences. The toxic effects of hypervitaminosis A is a consequence of prolong treatment of skin disorders.

I is an established fact that gonads are extremely sensitive organs. There are innumerable routes through which mammalian testis are exposed to various nutrients.

Observation

Under the experimental conditions of hypervitaminosis A marked dose dependent histopathological changes are found . Lower doses i.e. 5,000 I.U.,10,000 I.U. Seems to stimulate spermatogenesis and higher doses inhibit the same. A significant change in body Weight ,testicular weight and tubular diameter was observed.

Alternation in the population dynamics of germinal epithelium was studied in both control and experimental groups.

At 5,000 I.U. dose level, external morphology of testes was severely affected with several histopathological lesions.

The somniferous tubules experienced mild shrinkage and inter tubular edema leading to a reduced spermatogenic population. Many tubules shows the lumen filled with cytoplasm debris. The characteristic adhesion amongst the tubules, exfoliation and abnormal giant cells formation has also been observed.

At 10,000 I.U. dose administration tubules shows exfoliation in the lumen. Destruction and disappearance of spermatogonia were also noticed. Another type of damage was in the form of necrosis and pycnosis. Multinucleated giant cells were observed in the lumen.

At 15,000 I.U. dose administration leads to severe damage to the tubules and destruction of germ cells. The sections showed pronounced inter tubular oedema and hyperameia. Numerous necrotic cells consisting of primary spermatocytes were observed almost in all the tubules.

Discussion :-

The present study reveal that the histopathological effect pronounced by all the doses but with higher doses the lesions are more pronounced. At 15,000 I.U. dose level, All types of germ cells are sloughed off from the tubules and abnormal giant cells occupy most of the area. Thus it is good agreement with the generalization that higher dose administration results into greater damage.

Hypervitaminosis A causes various morphological lesions in testis including necrosis of cells also reported by various authors. A review of the forgoing evidence suggests that at least some of the toxic effects of vitamin A are like those caused by an over emphisis

Conclusions :-

In conclusion Althrough vitamin A is required for controlled division and differentiation of epithelial cells. But excess vitamin A causes conversion of some normally Keratinizing Epithelia to the columunar secretary type. Spermatogonia A is the most sensitive to vitamin A toxicity. At higher doses, fibrotic activity is commonly observed with frequent hemorrage. In the present study an attempt has been made to study the effect of vitamin A on post natal development.

Thus vitamin A has a paramount role in spermatogenesis in the testis development and any change in its amount would lead to the functional and structural changes.

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