

METHIMAZOLE-INDUCED HYPOTHYROIDISM IN RATS: EFFECT OF METHIMAZOLE-INDUCED CELLULAR DAMAGE ON HEART, LUNG AND OVARY

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ABSTRACT

Great efforts are ongoing in understanding and management of thyroids, the disease and disease related complications are increasingly unabated. It is known that thyroid hormones have an effect on tissue damage. The objective of this study was to determine hypothyroidism causes cellular damage in the heart, lung, thyroid gland and ovary. In the present investigation an attempt is made to study the cyto-morphological changes in the heart, lung, thyroid glands and ovary caused by methimazole (an antithyroid drug) or hypothyroidism. Twelve female Sprague Dawley rats were divided into 2 groups: euthyroid (control) and methimazole-induced hypothyroidism (20mg/kg body weight in 1ml water/day). At the end of the treatments (28 days for each group), the animals were sacrificed. The heart, lung, thyroid glands and ovary were removed and were processed for embedding in paraffin wax and also measure the serum concentrations of thyroid hormones. Coronal sections were stained with hematoxylin–eosin. At the end of treatment, animals with the methimazole hypothyroidism had a significant reduction of serum concentration of thyroid hormones. Only methimazole-induced hypothyroidism causes cellular disturbances in the lung, heart, thyroid glands and ovary. These results indicate that tissue damage found in hypothyroidism is caused by methimazole and thyroid hormones have an effect on cyto-morphological alteration of heart, lung, thyroid glands and ovary tissue.

KEYWORDS: Cyto-Morphological Changes, Hypothyroidism, Methimazole