

ASSESSMENT OF VARIATION IN BIOCHEMICAL MARKERS OF RENAL FUNCTION IN THYROID DISORDERS

GULAB KANWAR¹ & MONIKA SHEKHAWAT²

¹Professor and Head, Department of Biochemistry, Government Medical College, Kota, Rajasthan, India

²nd Year Resident, Department of Biochemistry, Government Medical College, Kota, Rajasthan, India

ABSTRACT

Background

Thyroid disorders are one of the most common endocrine diseases which affect the physiological functioning of the body, mainly affecting the cardiovascular and the renal system. Hypothyroidism influences the metabolic pathways, RAS system and causes hemodynamic changes leading to reduced renal plasma flow and glomerular filtration rate. Hyperthyroidism increases purine turnover. Consequently, there occurs a rise in Serum urea, creatinine and uric acid levels. The study was conducted in Department of Biochemistry, Govt. Medical College, and Kota and attached group of hospitals. The duration of the study was January 2015 to October 2015. Levels of Serum TSH, Urea, Creatinine and Uric acid were measured. A total of 180 patients of ages between 25 – 60 years were included in the study.

Method

The estimation of TSH was done by chemiluminescence in Hormonal Assay Lab, and levels of serum urea, creatinine and uric acid were measured by fully auto analyzer EM360 in Biochemistry Lab, Department of Biochemistry, Govt. Medical College, and Kota. Among the total of 180 cases, 60 were hypothyroid (>10mU/L), 60 were hyperthyroid (< 0.05mU/L) and 60 were euthyroid (0.3-4.5mU/L).

Results

Analysis was done by Microsoft Excel. Mean \pm SD of TSH, Serum Urea, Creatinine and Uric acid were calculated in all cases. The results were compared by one - way ANOVA between hypothyroid, hyperthyroid, and euthyroid cases. P value was found to be < 0.05, which is highly significant.

Conclusions

Our study shows that disturbance of thyroid hormones is a risk factor for development of renal impairment, gout and renal stones. A significant increase in levels of serum urea, creatinine and uric acid is seen both in hypothyroidism and hyperthyroidism.

KEYWORDS: Creatinine, Glomerular Filtration Rate (GFR), Hyperthyroidism, Hypothyroidism, Renin-Angiotensin System (RAS), Thyroid Stimulating Hormone (TSH), Urea, Uric Acid