Clinical Prospective Cross Sectional Study to Explore the Relationship between Hypothyroidism and Hormone Therapy with respect to Chronic Inflammation

Abstract

Background:

Hypothyroidism is a common condition and harmful effects are caused on cardiovascular system both by overt and subclinical hypothyroidism. This is caused by several mechanisms which cause increased risks of atherosclerosis and coronary heart disease. A number of inflammatory biomarkers in circulation are related with increased risk of acute coronary syndrome. This study was done to compare the status of inflammatory markers like secretory phospholipase A2 group 2A (PLA2G2A) and Adiponectin (ADP) in hypothyroidism.

Objectives:

This study was done to identify the possible relationship between hormone treatment and the risk of atherosclerosis in hypothyroid patients and to explore the status of inflammation with respect to PLA2G2A and Adiponectin in hypothyroid patients.

Methodology:

This study was done as cross sectional study in 60 hypothyroid patients. Their blood samples were taken and analysed for PLA2G2A and Adiponectin using ELISA kit.
**Results:**

In this study most of them were in the age group of 21 to 40 years and majority of them were females. When the duration of disease is increasing, there was a rise in PLA2G2A and fall in ADP with no statistical significance. Also thyroxine dose was compared with these markers and the mean value of PLA2G2A was high in patients with low dose thyroxine (8.79 ±3.98) followed by high dose thyroxine (8.08± 4.28) and then by patients not on drug (7.12 ± 4.22).Whereas ADP value was high in patients with high dose thyroxine (4.72±3.24) compared to low dose thyroxine (3.64±1.97) and patients not on thyroxine group (3.65±1.98).

**Conclusion:**

This study revealed that when the duration of hypothyroidism increased, there was a rise in level of PLA2G2A and fall in level of Adiponectin suggesting a relationship between hypothyroidism and chronic inflammation. Patients on inadequate dose of thyroxine had higher chance of developing atherosclerosis than compared to patients on adequate or higher dose of thyroxine explaining the need for adequate dose as prescribed in the patient diagnosed with hypothyroidism as replacement therapy based on their body weight.

**Key words:** Hypothyroidism, PLA2G2A, Adiponectin, Thyroxine