International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Study of Thyroid Hormone Profile in Acute Coronary Syndrome Patients in a Tertiary Care Hospital, Ahmedabad

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Abstract: ***This study investigates the prevalence and types of thyroid dysfunction in patients with acute coronary syndrome (ACS) at a tertiary care hospital in Ahmedabad. Among 150 patients enrolled between 2023–2024, 23.3% had thyroid dysfunction, including 10% with euthyroid sick syndrome. Thyroid dysfunction, especially low T3 syndrome, was significantly associated with higher mortality. Routine thyroid function testing in ACS patients may help in risk stratification and management.***

Keywords: Thyroid dysfunction, Acute coronary syndrome, Euthyroid sick syndrome, Mortality, Low T3 syndrome

1. Introduction

Thyroid hormones play a critical role in cardiovascular function by regulating heart rate, cardiac output, vascular resistance, and lipid metabolism. Both hypothyroidism and hyperthyroidism have been associated with increased cardiovascular morbidity and mortality. The prevalence of thyroid dysfunction in ACS patients, particularly in Indian populations, and its impact on outcomes requires further elucidation.

Purpose of the Study

To assess the prevalence and types of thyroid dysfunction in ACS patients and its association with clinical outcomes.

Significance of the Study

This study underscores the importance of identifying thyroid dysfunction in ACS patients to better understand its role in prognosis and guide treatment decisions.

Aims and Objectives

Cross-sectional observational study to determine the prevalence and types of thyroid dysfunction in ACS patients and analyze its association with mortality and other clinical parameters.

2. Materials and Methods

This prospective observational study was conducted at the coronary care unit of a tertiary care hospital in Ahmedabad from 2023–2024. 150 consecutive patients diagnosed with ACS (STEMI, NSTEMI, or unstable angina) were enrolled after informed consent. Patients on thyroid medications, steroids, or with systemic illnesses affecting thyroid function were excluded. Thyroid function tests (TSH, FT3, FT4) were done within 1–4 days of admission. Patients were categorized as euthyroid, hypothyroid, hyperthyroid, or having euthyroid sick syndrome based on standard criteria.

3. Results

Of the 150 patients, mean age was 60 ± 11 years, with 61.3% males. Hypertension and diabetes were present in 58% and 56.7% respectively. 115 (76.7%) patients were euthyroid, while thyroid dysfunction was seen in 23.3%. The most common abnormality was euthyroid sick syndrome (10%), followed by overt hypothyroidism (8%). Mortality was 10%, all occurring in patients with euthyroid sick syndrome ($P<0.001$).

Table 1: Baseline Characteristics of Patients

Characteristic	Value
Mean age (years)	60 ± 11
Male (%)	61.3%
Female (%)	38.7%
Hypertension (%)	58.0%
Diabetes mellitus (%)	56.7%
Coronary artery disease (%)	88.0%

Table 2: Thyroid Function Status

Thyroid Status	Number (%)
Euthyroid	115 (76.7%)
Overt hypothyroidism	12 (8.0%)
Subclinical hypothyroidism	4 (2.7%)
Overt hyperthyroidism	3 (2.0%)
Subclinical hyperthyroidism	1 (0.7%)
Euthyroid sick syndrome	15 (10.0%)

4. Discussion

The study showed that nearly a quarter of ACS patients had thyroid dysfunction, consistent with prior literature. Low T3 syndrome (euthyroid sick syndrome) was the most common abnormality and was strongly associated with mortality. These findings highlight the potential of thyroid hormones as prognostic markers in ACS.

5. Conclusion

Thyroid dysfunction, particularly euthyroid sick syndrome with low T3, is prevalent in ACS and correlates with higher mortality. Routine TFTs in ACS patients may help in identifying high-risk individuals and guide management.

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