



Impact of TSH in major cardiovascular event (MACE) among Cardiac patients admitted at selected Hospitals in Indore

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Introduction

Coronary artery disease (CAD), one of the most common kinds of CVD, is often defined as ischemic symptoms associated with evidence of 50% or more blockage in at least one major coronary artery by coronary angiography (CAG), past hospitalisation for a myocardial infarction (MI), or angina. CVDs were the biggest cause of mortality among noncommunicable diseases in 2012, accounting for more than one-third of all fatalities worldwide, according to World Health Organization reports (17.5 million deaths). CAD and depression are two major public health issues that must be addressed globally, especially in developed and developing countries. Depression was found in 34.6% to 45.8% of community-dwelling CAD patients in India, with hospitalised patients having a comorbidity of depression and CAD reaching 51%.

Thyroid-stimulating hormone (TSH) levels have previously been associated to endothelial dysfunction, high systolic and diastolic blood pressure, arterial stiffness⁷, and coronary atherosclerosis, as well as reduced cholesterol levels and myocardial infarction. Moreover, higher levels of TSH were linked to the incidence, severity, and prognosis of CAD in CAD patients. TSH is also supposed to be associated with depression, however this is controversial. TSH has a detrimental relationship with depression, according to various studies. Numerous research support the concept that they are positively related.

Individuals with CAD who are also depressed have a poor prognosis. The hypothalamic-pituitary-thyroid axis, as an important component of the neuroendocrine system, plays a critical role in the comorbidity of CAD and depression. TSH is the most sensitive thyroid function indicator and has been associated to both CAD and depression. TSH and prognostic value in CAD patients with depression are unknown. The goal of this study was to examine at TSH levels' predictive potential for major cardiovascular events (MACE) in these people.

Methodology

An investigation of the potential predictive value of TSH in cardiac patients was carried out using a prospective observational research design. A total of three hundred cardiac patients are chosen for the study based on the inclusion criteria. The selection of the sample was accomplished by the use of a straightforward random sampling method. The demographic data such as age, gender, height, weight, body mass index (BMI), and blood pressure were employed as the instruments. With the use of the direct chemical illumination technique, measurements were taken of the following: pulse, oxygen saturation, duration of sickness, duration of cardiac medication, thyroid function, including TSH, free triiodothyronine (FT3), and free tetraiodothyronine (FT4). The data were evaluated using the chi-squared statistic tests, Fisher's exact tests, independent sample t-tests, the one-way analysis of variance test, or the Kruskal-Wallis test, depending on the circumstance.

Results

Three hundred people fulfilled the inclusion criteria, which required CAG evidence of at least one epicardial coronary artery stenosis 50% and satisfying the criteria for moderate depression or higher. We have 90 patients with unstable angina, 110 with stable angina pectoris, and 100 with acute myocardial infarction. Sixty-five percent of the 300 CAD patients with depression were male, whereas only 35 percent were female. Patients averaged 66 years old, with hypertension found in 66.1% and diabetes in 82.0%. By comparing the starting points of the two groups, no discernible difference was found. All patients were followed up with for an average of 48 months. The area under the ROC curves (AUC) shows that TSH levels have strong discriminatory power for the presence of major cardiovascular event (MACE). In the KM survival analysis, those with high TSH levels were at a higher risk of MACE than those with low TSH levels ($P = 0.37$). After accounting for age, gender, and the degree of coronary artery stenosis, the high TSH group still had a higher risk of MACE.

Discussion

This is the first research investigating the predictive significance of TSH in patients with CAD. With or without controlling for confounding factors, we discovered that patients with greater TSH (TSH 1.395) had a higher risk of developing major cardiovascular event (MACE.) Further studies are needed to verify this link and determine whether lowering TSH due to medication has the potential to lessen the likelihood of side effects.

Reference

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