Abstract

Background: Ischaemic heart disease with acute coronary syndrome is a serious public health concern which affects globally with increased morbidity and mortality. Anaemia is a common health concern and is common among patients with acute coronary syndrome, with a significant clinical impact on prognosis, increasing the risk of major adverse cardiovascular events. Even though the association between anaemia and acute coronary syndrome is well established in many countries, it is often unrecognised, undiagnosed and untreated in the local setup, posing an increased burden on the health care system. The main objective of this study was to assess the association and ramifications of anaemia among patients presenting with acute coronary syndrome to a tertiary care hospital in Sri Lanka, by assessing the prevalence, aetiological factors and the clinical impact of anaemia on these patients.

Methods: A descriptive, cross-sectional study was conducted among patients over 18-years-old admitted with acute coronary syndrome (ACS) to the cardiology and medical wards and the coronary care unit at National Hospital, Kandy, from April to October 2023. They were assessed using a pre-tested, interviewer-administered, structured questionnaire, employing a consecutive sampling method. Descriptive statistics, Chi-square test, Spearman's rank correlation and multivariable binary logistic regression were used in the analysis. The data was entered and analysed using Microsoft Excel and IBM SPSS software.

Results: A total of 400 patients with ACS were included in the study. Anaemia was prevalent among 62.8% of the participants, with 76.1% of female participants being anaemic, while it was detected only in 53.9% of male participants. Among anaemic patients, 33.1% had mild anaemia, 47.4% had moderate anaemia, and 19.5% had severe anaemia. Moderate and severe anaemia were more prevalent among patients with ST elevation myocardial infarction (STEMI), whereas mild anaemia was more prevalent among patients with unstable angina (UA). The age of patients with anaemia (mean: 64.8 years; 95% CI: 63.3 – 66.4; SD:12.3; $p < 0.001$) was more than that of non-anaemic patients (mean: 59.7 years; 95% CI: 58.8 – 60.7; SD:5.9; $p < 0.001$). Regression analysis showed that comorbidities such as diabetes mellitus (DM), chronic kidney disease (CKD), and prior history of ischaemic heart disease (IHD), dietary habits and dual antiplatelet use were strong risk factors ($OR > 2.87$; $p < 0.004$) for anaemia. In turn, anaemia or a decrease in haemoglobin level was a risk factor for ACS being complicated with heart failure and for prolonged hospital inpatient stay.

Conclusion: This study revealed a significant correlation between ACS and anaemia. During the study of aetiological factors, it was observed that older age, female gender, DM, CKD, prior history of IHD and dual antiplatelet use can act as independent predictors of anaemia. It also revealed that the under-treatment of anaemia could lead to major adverse cardiovascular events. Hence, it is of utmost importance to proactively investigate for anaemia and treat it vigilantly, potentially reducing the complications associated with anaemia and thereby increasing the quality of life for patients.

Keywords: Acute Coronary Syndrome, Ischaemic Heart Disease, Anaemia, Haemoglobin