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Original Article

The Time Frame for Coronary Angiography for Patients Admitted with Acute Coronary Syndrome at Sudan Heart Center During January and February 2021

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Abstract

Retrospective observational study evaluating 63 consecutive acute coronary syndrome patients undergoing coronary angiography at Sudan Heart Center (January–February 2021; mean age 61 years, M:F 2.9:1, hypertension 49%, diabetes 46%). Mean time to coronary angiography from symptom onset was 57.7 hours, with PCI performed in 27%, CABG in 26%, and medical therapy in 47%.

Background

Coronary artery disease (CAD) remains the major cause of mortality worldwide (1).

Besides medical therapy, coronary angiography (CAG) and percutaneous coronary intervention (PCI) to restore normal coronary flow are an integral part of the management of acute coronary syndromes. In this study, time to coronary angiography in patients with acute coronary syndrome (ACS) is studied in a major cardiac center in Khartoum, Sudan.

Objective:

To determine the time for conducting coronary angiography (CAG) for patients who presented with ACS to Sudan Heart Center.

Methods:

This is a retrospective cross-sectional hospital based observational study conducted at Sudan Heart Center, a major cardiac tertiary center located in the capital Khartoum with emergency, invasive cardiac and cardiac surgery services from January to February 2021.

All patients who presented with acute ACS and underwent coronary angiography were included. Patient age, gender, risk factors for coronary artery disease (CAD) , type of ACS, timing of CAG ,and treatment modality were collected. Data were entered and analyzed using SPSS (v. 24)

Results

The total number of patients studied was 63. The M:F ratio was 2.9:1.

The mean age was 61 years . Figure 1 shows the age distribution of the study group.

Figure 1: The frequency distribution of the participants according to their age group in years (n = 63 patients).

Hypertension and diabetes mellitus were present in 49% and 46% respectively. Figure 2 shows the distribution of CAD risk factors in the study population.

Fig (2). Distribution of CAD risk factors in study population (n=63) . CAD= coronary artery disease; DM = diabetes mellitus; HTN = hypertension.

The average time coronary angiography was 57.7 hours. Figure 3 shows distribution of patients according to time to CAG (coronary angiography)

Figure 3: The frequency distribution of participants according to the time of CAG (N = 63 patients); CAG= coronary angiography.

Of the 63 patients 34 were diagnosed with STE-ACS (ST elevation acute coronary syndrome) and 29 were labelled as NSTE-ACS (Non ST elevation acute coronary syndrome). Figure 4 summarizes the mode of presentation.

Figure 4: The frequency distribution of the participants according to the type of infarction (n = 63 patients).STE ACS = ST elevation acute coronary syndrome; NSTE ACS = non-ST elevation acute coronary syndrome)

Of the total cohort, 17 (27%) received PCI (percutaneous coronary intervention); CABG (coronary artery bypass graft) was performed in 16 patients (26%) and medical therapy in 30 patients (47%). Figure 5 summarizes final therapy received.

Figure 5: The frequency distribution of the participants according to the mode of treatment (n = 63 patients). PCI= percutaneous coronary intervention; CABG = coronary artery bypass graft.

Discussion

Age and gender distribution of our study population is consistent with other studies from LMICs (low and middle income countries) where ACS tend to occur a decade earlier than Western Europe and North America (2,3,4,5).

HTN is the most prevalent risk factor and this is consistent with data from the INTERHEART Africa which showed HTN is the major risk factor CAD (6). DM is in second place with alarmingly high proportion.

A mean delay of 57.7 hours from symptom onset reflects the many challenges facing timely performance of coronary angiography in patients with ACS. These delays are similarly seen in other LMICs (7). This reflets the need for better patient awareness, timely transport and access to medical care, and increased vigilance of medical personnel caring for ACS patients

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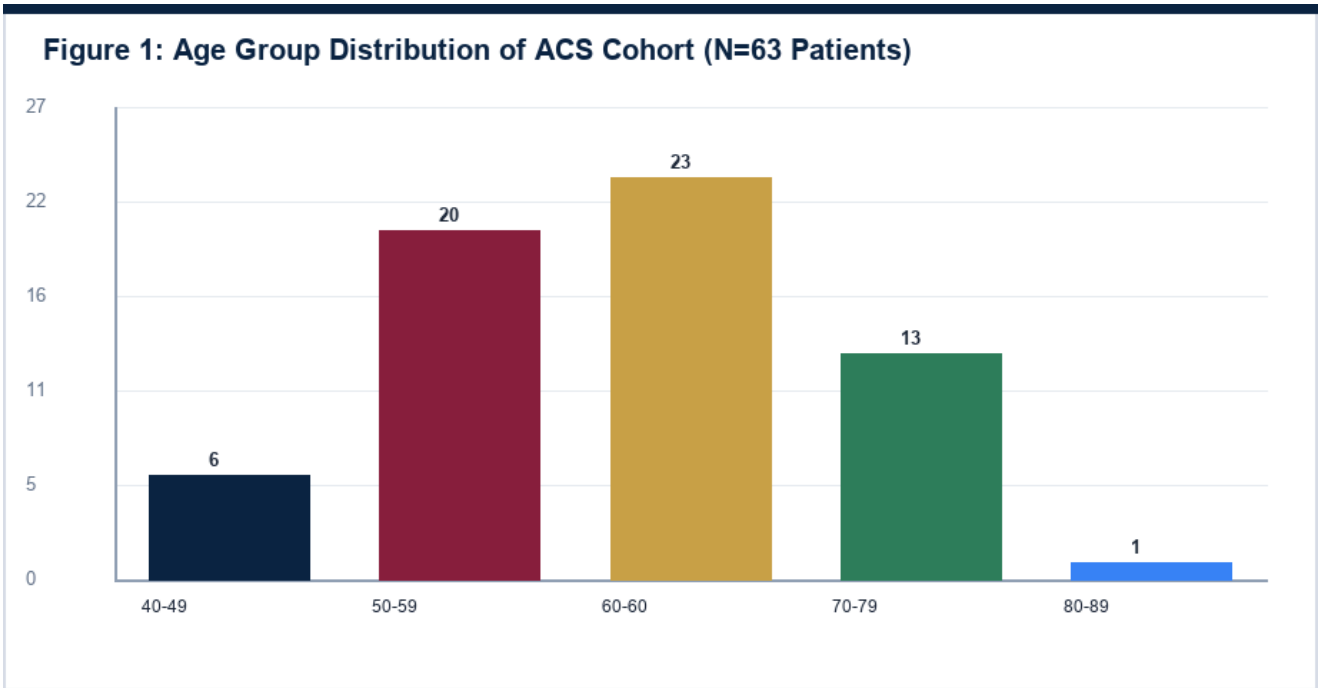

Figure 1: Age Group Distribution of ACS Cohort (N=63 Patients)

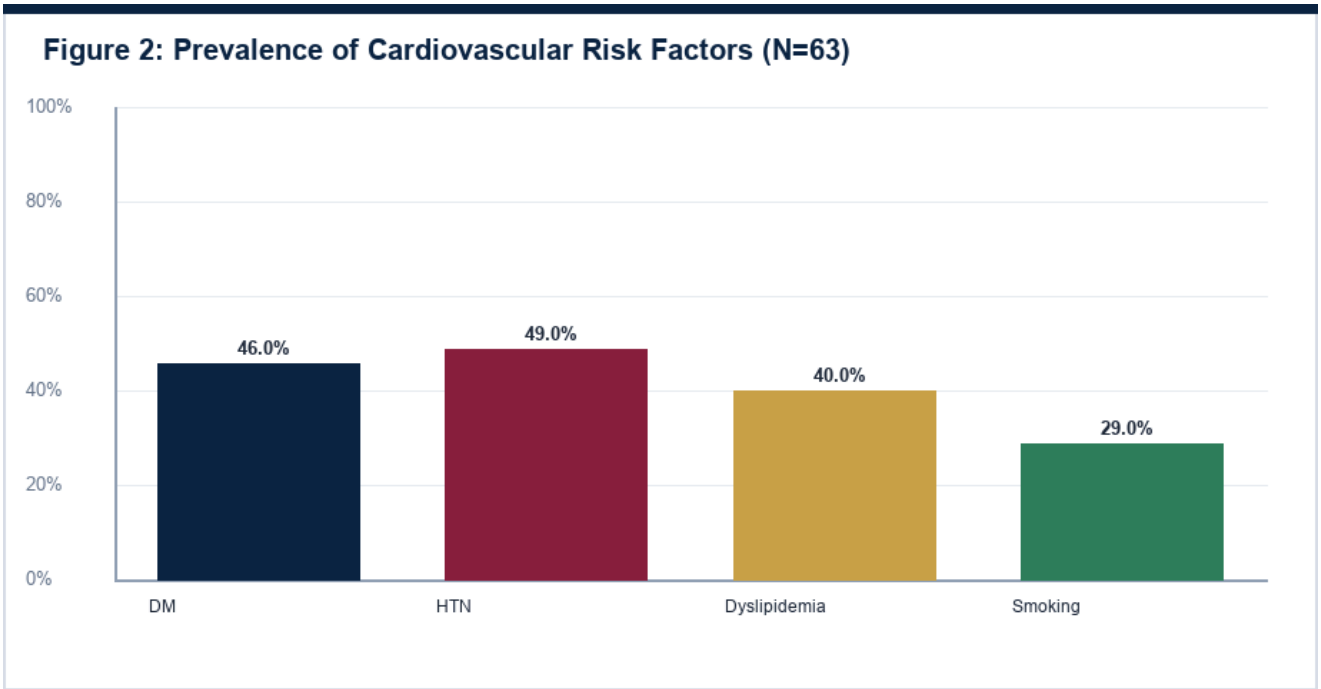

Figure 2: Prevalence of Cardiovascular Risk Factors (N=63)

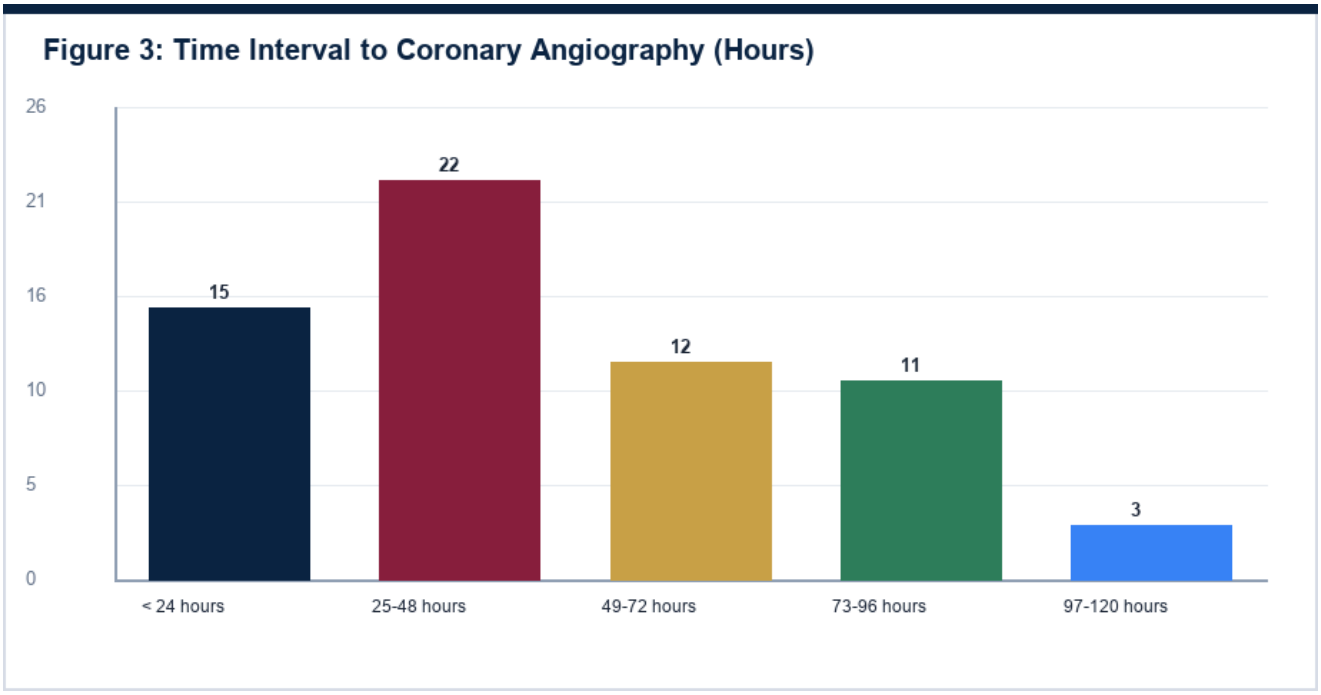

Figure 3: Time Interval to Coronary Angiography (Hours)

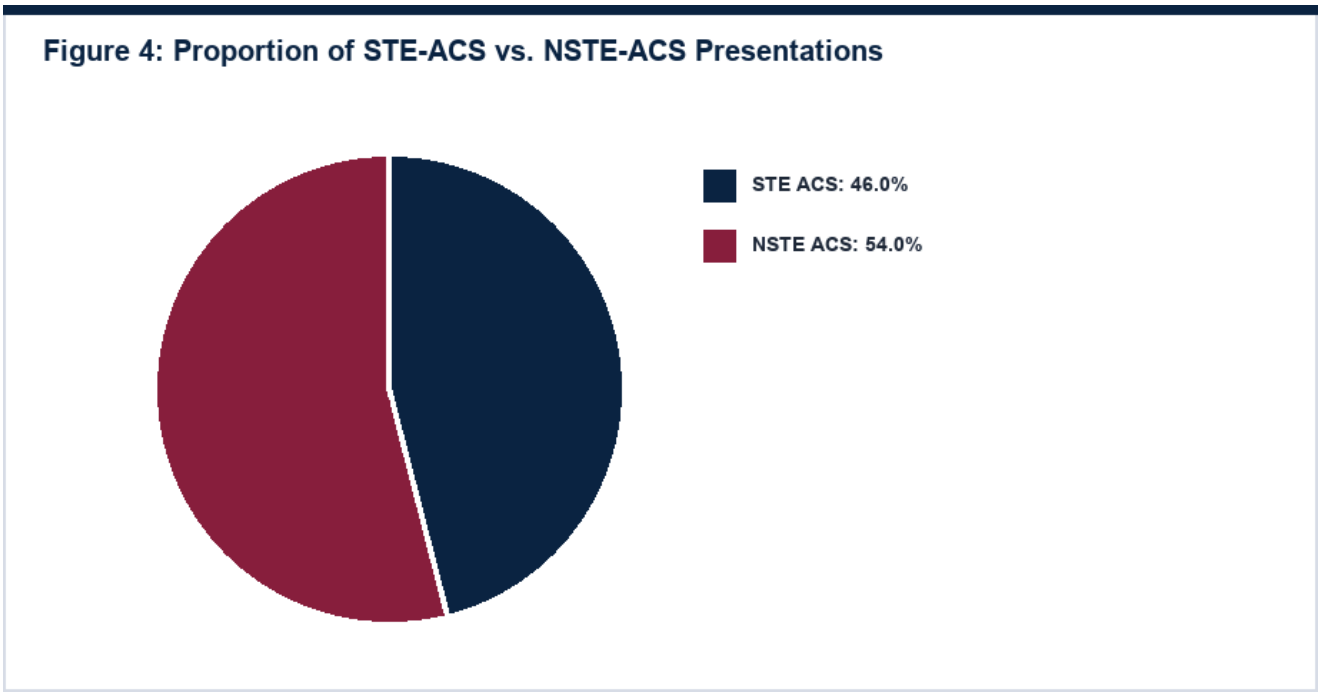

Figure 4: Proportion of STE-ACS vs. NSTE-ACS Presentations

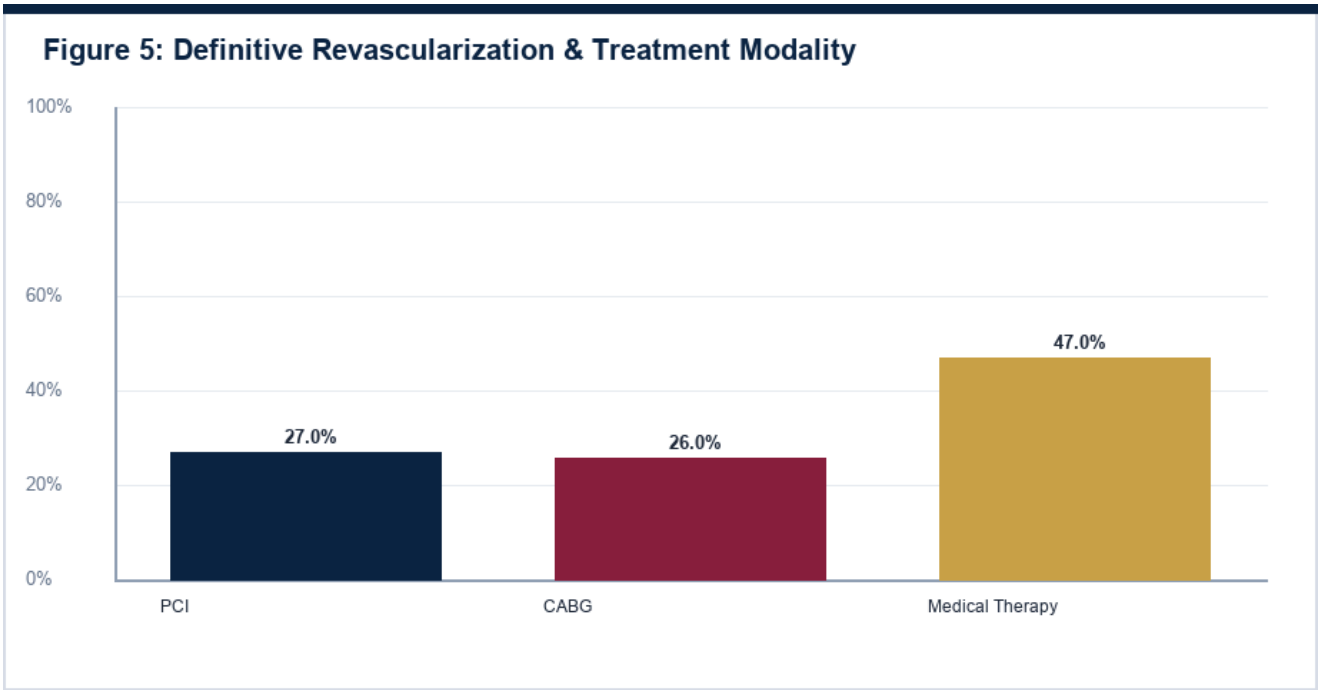

Figure 5: Definitive Revascularization & Treatment Modality