Effectiveness of Heart Score in Obstructive and Non-Obstructive Myocardial Infarction

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INTRODUCTION

Myocardial infarction (MI) is the ischemia of the heart muscles. Non-Obstructive MI is characterized by less than 50% stenosis on angiography. Its prevalence is 5-25%. It is important to identify high-risk patients in emergency departments and the HEART score is often used for this purpose. The HEART score consists of five parameters. These are anamnesis, ECG, age, risk factors, and troponin (Table 1). It is a six-week predictor of mortality where values of two, one, or zero are given for each criterion (low risk(0-3), medium risk(3-6), high risk(>6)).
In our study, we compared the HEART score of patients with and without the obstruction of more than 50% in CAG. We investigated the role of HEART scoring in determining the prognosis in patients presenting to the emergency department with chest pain.

RESULTS

326 patients were included in the study. Of these patients, 129 (39.5%) had Obstructive MI and 197 (60.4%) had Non-Obstructive MI. (Graphic 1). The mean age of the patients was 60.44±11.96. Of the patients, 83 (25.46%) were female and 243 (74.53%) were male. The median HEART score of the obstructive group was 6 (3-10), the median HEART score of the non-obstructive group was 6 (3-9), and there was no statistically significant difference (p=0.254). In the obstructive group, HEART scoring was low risk 1 (0.77%), medium risk 80 (62%), and high risk 48 (37.2%) patients; in the non-obstructive group HEART scoring was low risk 3 (1.52%), medium risk 119 (60.40%) and 75 (38.07%) high-risk patients (Graphic 2). The difference between the groups was not statistically significant (p=0.957).

History (Anamnesis)	Highly suspicious	2	
	Moderately suspicious	1	
	Slightly suspicious	0	
ECG	Significant ST-deviation	2	
	Non-specific repolarisation disturbance / LBBB / PM	1	
	Normal	0	
Age	≥ 65 years	2	
	45 – 65 years	1	
	≤ 45 years	0	
Risk factors	≥ 3 risk factors or history of atherosclerotic disease	2	
	1 or 2 risk factors	1	
	No risk factors known	0	
Troponin	≥ 3x normal limit	2	
	1-3x normal limit	1	
	≤ normal limit	0	
		Total	

Risk factors for atherosclerotic disease:

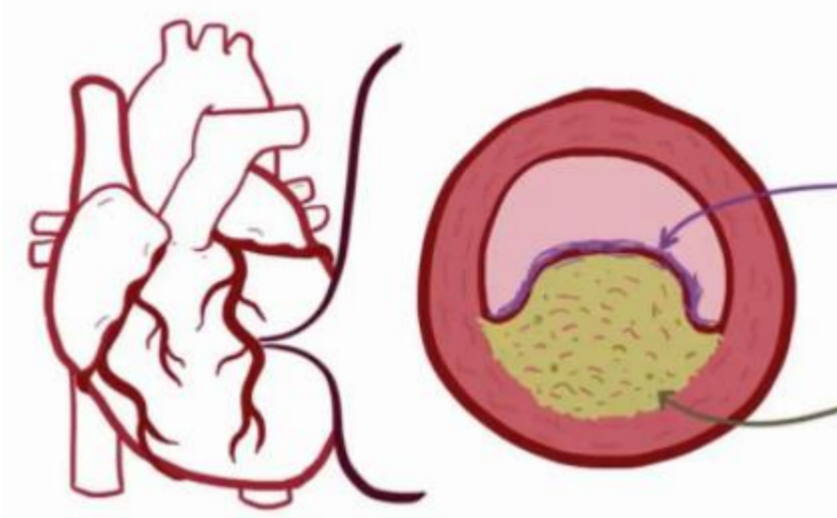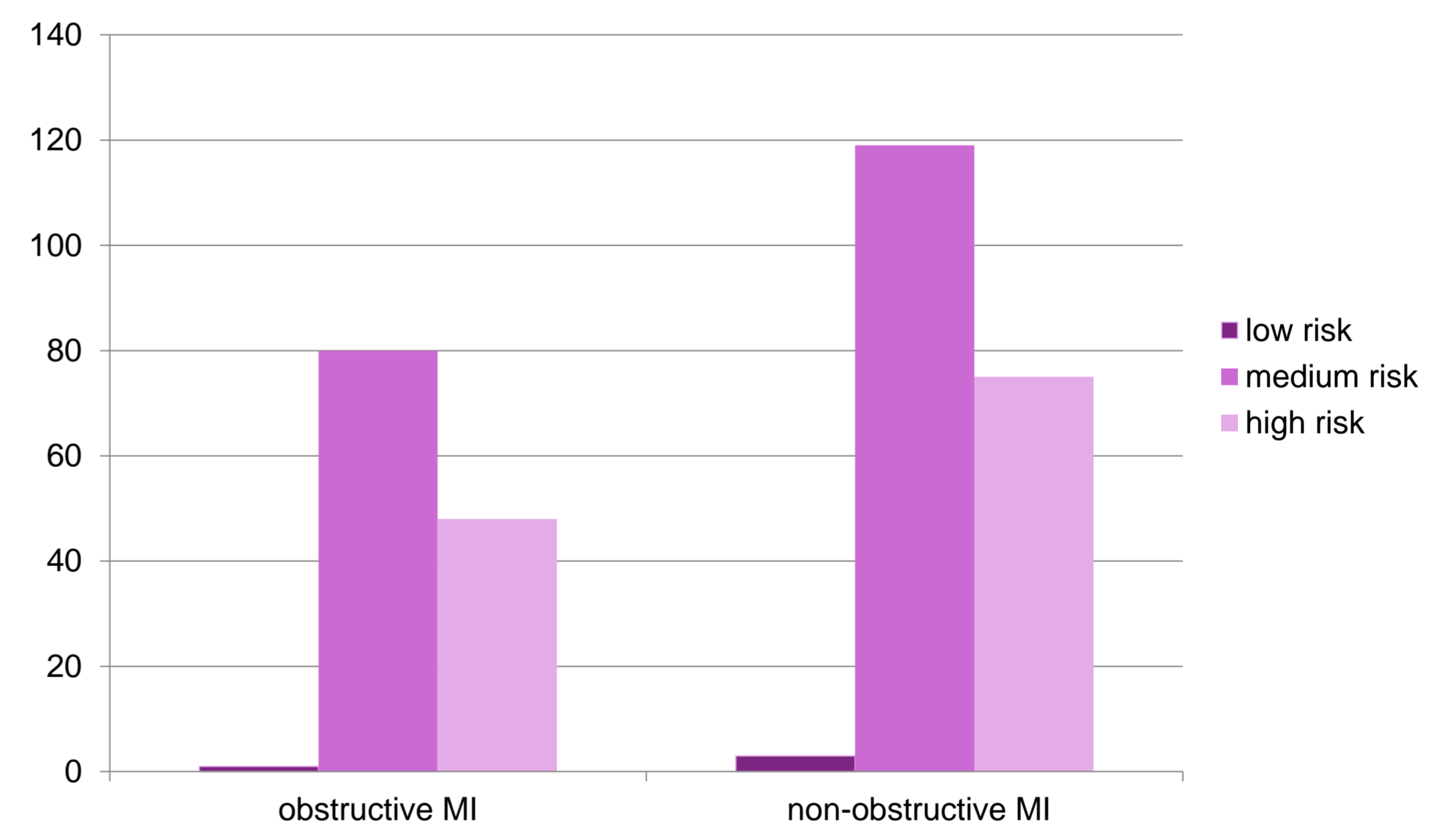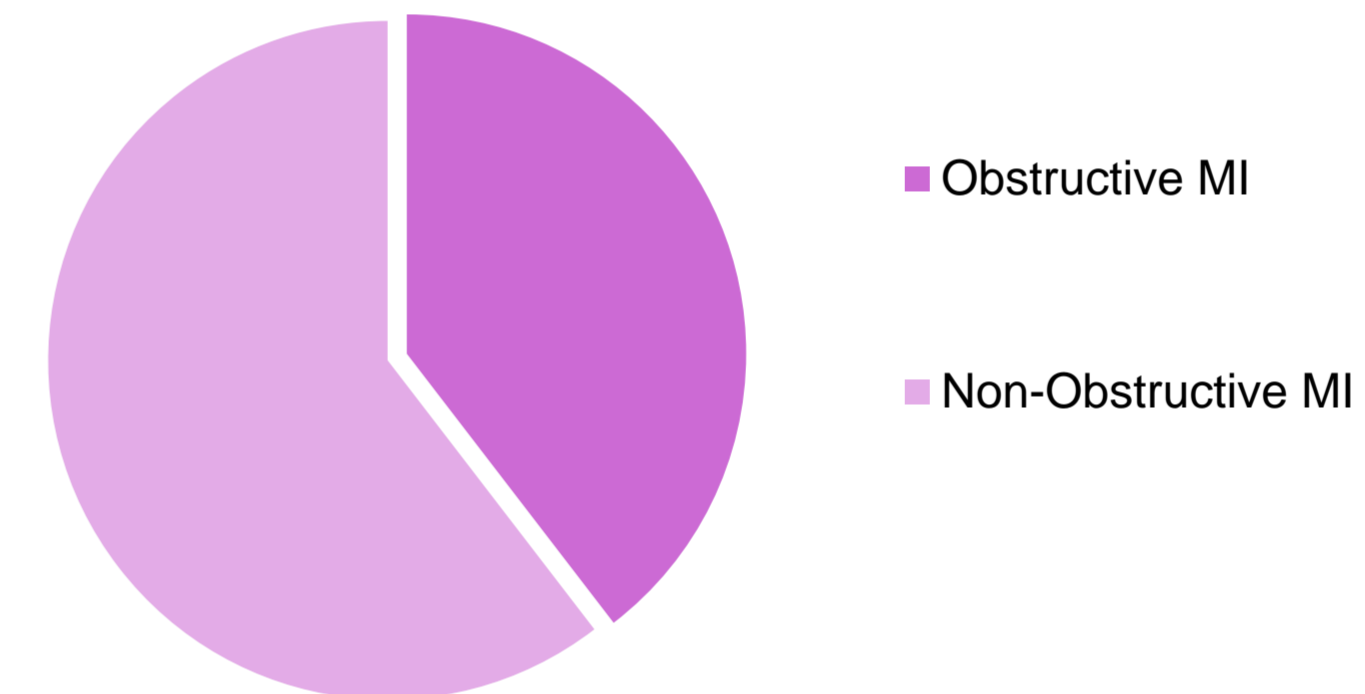|	
Hypercholesterolemia	Cigarette smoking
Hypertension	Positive family history
Diabetes Mellitus	Obesity (BMI>30)

Table 1: HEART score for chest pain patients

Figure 1: Plaque formation in the inner wall of the artery

Graphic 1: distribution of patient groups

- Obstructive MI
- Non-Obstructive MI

- low risk
- medium risk
- high risk

Graphic 2: Mann-Whitney U test

METHODS

Our study included patients diagnosed with acute coronary syndrome and underwent CAG in the emergency department between 01/01/2018-31/12/2019. As it is a retrospective study, the requirement for informed consent was waived. All patients with obstructive and non-obstructive MI and over 18 were included in the study. Trauma diseases, those with missing data, whose scores were not calculated, or who were referred from another hospital were excluded from the study. The patients were divided into two groups as Obstructive MI and Non-Obstructive MI. The collected variables were compared with these groups. Statistical Methods of the Study The Mann-Whitney U test was used to compare two independent groups. Fisher-Freeman-Halton Test was used to compare categorical data.The statistical significance level was taken as 0.05, and the SPSS (version 26) package program was used in the calculations.

CONCLUSION

In our study, we could not find a statistically significant difference in the HEART score comparison of the patients in the obstructive and non-obstructive groups. Thus, the HEART score can be used safely in patients admitted to the emergency department with chest pain and evaluated as obstructive and non-obstructive MI.

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