

TO STUDY ECG FINDING IN PATIENTS OF ACS AGED \leq 45 YEARS ADMITTED IN CCU OF DEPARTMENT OF MEDICINE, I.G.MEDICAL COLLEGE, SHIMLA

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Abstract

Background: To study ECG finding of patients of ACS aged \leq 45 years admitted in CCU of Department of Medicine, I.G.Medical College, Shimla .

Methods: The hospital based observational study was carried out in patients of ACS aged \leq 45 years, admitted to Cardiac Care Unit (CCU) of Department of Medicine I.G. Medical College Shimla from 1st June 2013 to 31st May 2014.

Results: T wave inversion in most leads was commonest ECG finding present in 36(72%) of patients. ST depression was present in 32(64%) patients, ST elevation in 28(56%) patients and Q waves were seen in 11(22%) patients. Out of 50 patients, 39 had normal heart rate, 6 had bradycardia and 5 patients had tachycardia. Out of 6 patients with bradycardia 3 had STEMI, 1 had NSTEMI and 2 had USA. Out of 5 patients with tachycardia, 2 had STEMI and 3 had NSTEMI.

Conclusion: In ACS in young, T wave inversion was most common finding.

Keywords: ACS, LAD, ECG.

Introduction

ACS refers to a spectrum of clinical presentations including Unstable Angina (USA), Non ST Elevated Myocardial Infarction (NSTEMI) and ST Elevated Myocardial Infarction (STEMI). ACS patients with new evidence of ST-segment elevation should be considered for immediate reperfusion therapy by thrombolytics or percutaneous coronary intervention (PCI); those without ST-segment elevation but with evidence of myonecrosis are deemed to have a NSTEMI, and those without any evidence of myonecrosis are diagnosed as USA.^{1,2}

The underlying mechanism responsible for the ACS is usually the formation of an occlusive or sub-occlusive mural thrombus overlying an injured vessel wall or a ruptured atherosclerotic plaque. Plaque stabilization due to a decrease in the lipid content of the vulnerable lesions and improved endothelial function are two mechanisms that could partly account for the reduction in coronary events with cholesterol lowering therapy. Circulating platelets are implicated in mural thrombus formation at the site of a plaque rupture and platelets become hyper-reactive in the presence of hypercholesterolemia.³

Material and Methods

The hospital based observational study was carried out in patients of ACS aged \leq 45 years, admitted to Cardiac Care Unit (CCU) of Department of Medicine I.G. Medical College Shimla from 1st June 2013 to 31st May 2014. Total of 50 cases (male= 44, female= 6) of young ACS were included in study. This study was approved by Institution

Ethics Committee. The Informed consent was taken from all patients.

Patient Selection

Inclusion Criteria:

- 1) Age of patient was 45 years or below.
- 2) Patients who fulfilled the criteria of Acute Coronary Syndrome were included
 - I. Acute, evolving, or recent MI defined as the typical rise and/or fall of biochemical markers of myocardial necrosis with at least one of the following:
 - a) Symptoms of ischemia.
 - b) Electrocardiographic changes indicative of ischemia and/or infarction.
 - c) Development of pathologic Q waves in the ECG.
 - d) Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality.
 - II. Unstable Angina (USA) was defined as angina pectoris (or equivalent type of ischemic discomfort) with at least one of three features:
 - a) Occurring at rest (or minimal exertion) and usually lasting >10 minutes.
 - b) Being severe and of new onset (i.e. within the prior 4-6 wks).
 - c) Occurring with a crescendo pattern (i.e., pain that

awakens the patient from sleep or that is more severe, prolonged, or frequent than previously).

III. NSTEMI- If a patient with USA develops evidence of myocardial necrosis, as reflected in elevated cardiac biomarkers.

Exclusion Criteria

Patients not giving informed consent.

Patients with advanced co morbid conditions, including malignancies, advanced heart failure or valvular heart diseases.

Patients already on statins.

Patients with secondary causes of cardiovascular diseases

like thyroid disorder, renal disorders, liver disorders, Cushing's syndrome, on estrogen administration which affect lipid metabolism.

Patients with expected transfer to another hospital within 48 hours or if followup not possible.

Statistical analysis

Data collected was managed on a Microsoft Excel spreadsheet. All analysis was performed with the SPSS 10 version. Data were expressed using mean± standard deviation for continuous variables and frequency (percentage) was used to describe distribution of categorical variables. Association of risk factors of disease was carried by using Chi- Square Test.

Results

Table 1: distribution of patients according to ECG findings

| ECG FINDINGS | NO. OF PATIENTS | PERCENTAGE |
|------------------|-----------------|------------|
| T wave inversion | 36 | 72% |
| ST depression | 32 | 64% |
| ST elevation | 28 | 56% |
| Q waves | 11 | 22% |

T wave inversion in most leads was commonest ECG finding present in 36(72%) of patients. ST depression was present in 32(64%) patients, ST elevation in 28(56%) patients and Q waves were seen in 11(22%) patients. Out of 50 patients, 39 had normal heart rate, 6 had bradycardia and 5 patients had tachycardia. Out of 6 patients with bradycardia 3 had STEMI, 1 had NSTEMI and 2 had USA. Out of 5 patients with tachycardia, 2 had STEMI and 3 had NSTEMI.

Discussion

ECG was abnormal in 44 (88%) patients. Twenty eight (56%) patients were having ST elevation in ECG, 32(64%) ST depression, 36(72%) T wave inversion and 11 (22%) Q waves were other ECG changes noted. As most of the patients had overlapping changes in ECG 23(46%) were diagnosed ST elevated MI, 14(28%) NSTEMI and 13(26%) USA. ECG changes in MI patients further divided into subgroups STEMI, NSTEMI and USA. ECG was normal in 6(12%) patients of USA and ST depression alone was present in 9 patients of NSTEMI. T wave inversion alone is found in 3 patients of NSTEMI and 3 patients of USA. Q waves alone were found in 1 patient. ST elevation and ST depression was found in 7 patients of STEMI. ST depression and T wave inversion was found in 4 patients of NSTEMI. ST elevation and T wave inversion was found in 6 patients of STEMI. ST elevation, depression and T wave inversion was found in 2 patients of STEMI. T wave inversion and Q waves were found in 3 patients of NSTEMI. ST elevation, depression, T wave inversion and Q waves are found in 1 patient. ST depression, T wave

inversion and Q wave is found in 1 patient of NSTEMI. ST elevation with Q waves is found in 3 patients of STEMI. ECG was normal in 6(12%) patients. Similar ECG changes were seen in a study by Wang Y et al in a study on ECG changes in young patients of MI.⁴

Conclusion

In ACS in young, T wave inversion was most common finding.

References

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