



Research Article

A study to evaluate the short term prognostic significance of HsCRP in acute coronary syndrome during hospital stay

Authors

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Abstract

Introduction: *The present study was designed to evaluate the serum concentration of HsCRP in acute coronary syndrome, its association with subsequent consequences to assess the short term prognostic significance.*

Objective: *To evaluate the short term prognostic significance of HsCRP in acute coronary syndrome during hospital stay.*

Methodology: *Study Design: Case Control Observational Study.*

Study Duration: *21 July 2017 to 21 March 2018.*

Results: *The prognosis of the patient with acute coronary syndrome depends upon the elevated value of HsCRP.*

Conclusion: *Very high HsCRP level, a potent independent predictor of poor prognosis in patients with acute myocardial infarction.*

Introduction

Ischemic heart disease (IHD) causes more deaths and disabilities and incurs greater economic burden than any other illness the world over. WHO has declared coronary artery disease (CAD) as a “Modern Epidemic”. With rapid urbanization and sedentary life styles the incidence of IHD is on an rise in India, and by 2020 IHD is going to be the most common cause of death the world over, despite progressive research in diagnosis and management over the last three decades.¹ This burden compels us to evolve accurate parameters to determine the risk and pathophysiology of IHD.² Due to the irreversibility of most acute cardiac events there is always an interest in searching for simple tests to single out patients with bad

prognosis, so that timely revascularization is planned or they are put on intensive conservative regimens.³

With this background, the present study was designed to evaluate the serum concentration of HsCRP in acute coronary syndrome, its association with subsequent consequences to assess the short term prognostic significance.

Aims and Objectives

To evaluate the short term prognostic significance of HsCRP in acute coronary syndrome during hospital stay.

Methodology

Study Design: Case Control Observational Study.

Study Duration: 20 July 2017 to 20 March 2018.

Those patients who were having either one or more of the above mentioned exclusion criteria, were excluded from the study and out of these remaining cases of acute coronary syndrome, 35 cases who were having acute myocardial infarction were included in Group A and 35 cases who had unstable angina were included Group B. 30 healthy age and sex matched controls were included in Group C.

Inclusion Criteria

Patients of acute coronary syndrome, (presenting within 6 hours of onset of symptoms), admitted to intensive cardiac care unit (I.C.C.U) from emergency and O.P.D of Department of Medicine, in tertiary care teaching institute of North India.

Patients with Myocardial infarction were diagnosed based on WHO (2000) criteria, (atleast two criteria must be present):

1. Typical (ischemic) symptoms of prolonged (>20 minutes) chest pain
2. Serial ECG changes
 - a) Progression from no Q wave to a definite Q wave
 - b) A Q wave progression combined with progressive ST-segment depression, developing ST-segment elevation, or progressive T-wave inversion
 - c) Persistent ST-segment elevation with progressive T-wave inversion in sequential ECGs
3. Rise and fall of serum cardiac enzyme levels (Creatine kinase- MB, Troponin) twice the limit of normal (with reference to the upper limit of normal values).¹⁶³

In healthy persons normal range of HsCRP is about 0.1mg/dl.

Table-1

GROUPS	NO. of Deaths	HsCRP RISK CATEGORIES		
		Low Risk	AVG RISK	HIGH RISK
GROUP A	4	0	0	4
GROUP B	1	0	0	1
Total	5	0	0	5

Comments: The overall mortality in the present study was 7.14 % (5.71% in Group A and 1.42%

Exclusion criteria

- 1) Stable Angina
- 2) Recent surgical intervention
- 3) Collagen vascular diseases
- 4) Rheumatoid arthritis
- 5) Patients on drugs e.g. NSAIDS, statins, hormone replacement therapy
- 6) Subjects who had liver disorders, hepatitis, cirrhosis, renal failure, inflammatory disorders or malignancy.

All study patients were subjected to detailed history, thorough clinical examination and investigations like ECG, cardiac enzymes, lipid profile, echocardiography, and HsCRP to establish the diagnosis of either unstable angina or myocardial infarction

Data collection & Statistical analysis

The data regarding history, clinical examination, routine and special investigations of all three groups A, B and C were entered in the pretested proforma and the observations were tabulated.

Statistical software namely SPSS 17.0 was used for the analysis of the data and Microsoft Word and Excel have been used to generate tables and descriptive statistics.

As per AHA/CDC Scientific statement on markers of inflammation and cardiovascular disease. Circulation 2003;107;499-511

HsCRP level and risk of CVD were classified-

HsCRP Level(mg/dl)	Risk of CVD
<0.1	Low
0.1-0.3	Average
>0.3	High

(CVD-Cardiovascular disease)

in Group B) and all of them were having high risk HsCRP (>0.3 mg/dl).

Discussion

The present study comprised of 35 cases of acute myocardial infarction, 35 cases of unstable angina and 30 controls.

Liuzzo G et al (1994)⁴ studied 60 patients, out of which 29 were of myocardial infarction, 31 of Unstable angina. Similarly, present study also consists of 35 patients of myocardial infarction and 35 patients of unstable angina. Some authors have studied either myocardial infarction or unstable angina.

Prognosis

In the present study it was observed that the prognosis of the patient with acute coronary syndrome depends upon the elevated value of HsCRP. Depending upon the value of HsCRP those who were having low and average risk had fair prognosis while those having high risk HsCRP value, the prognosis was poor.

There was a total mortality of five (7.14 %) patients, four (5.71%) in myocardial infarction group in the present study.

Similarly, De Beer et al⁴ & Vulgari et al⁵ (1982) showed that individuals with MI have elevated HsCRP levels and there was a significant correlation between peak HsCRP and CKMB values. In complicated cases, HsCRP levels remained elevated.

The FRISC study in 2000 also reported that the risk associated with elevated CRP levels have prognostic value among patients and is predictive of future adverse events⁶.

Ramon & co-investigators⁷ (2004) and Benjamin M Scirica⁸ et al (2007) also studied 805 Unstable Angina patients. HsCRP was found significantly elevated in patients with unstable angina. They also showed that increased HsCRP levels is associated with adverse cardiovascular outcomes in Unstable Angina.

In the present study, all four patients who died had high risk HsCRP value.

Conclusion

Very high HsCRP level, a potent independent

predictor of poor prognosis in patients with acute myocardial infarction.

Funding: None

Conflict of Interest: No conflict of interest.

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