Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com/journal/sjams/home

OPEN ACCESS

Cardiology

To Study High-sensitivity C-Reactive Protein absorption in Patients with Acute Coronary Syndrome at M.Y. Hospital, Indore

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| **Received:** 10.01.2019 | **Accepted:** 20.01.2019 | **Published:** 30.01.2019
DOI: 10.36347/sjams.2019.v07i01.037

Abstract | **Original Research Article**

Background: To Study High-sensitivity C-Reactive Protein absorption in Patients with Acute Coronary Syndrome. ***Result:*** The mean serum hs-CRP in different risk subgroups was similar in patients with and without many of the study risk factors/profiles (gender; p=0.719, and hypertension; p=0.561), while it was significantly higher in those with hyperlipidaemia (p=0.028), With diabetes (p=0.047) with a family history of CAD/CV death (p=0.033), history of smoking (p=0.029). ***Conclusion:*** This study was conducted after an ACS, a fact that might have contributed to lower lipid levels and blood pressure than in stable clinical conditions before the ACS. In addition, at this time, high fasting glucose levels could be related to stress-induced. Our study showed that CRP levels were raised in patients with ACS at time of admission, and further increased with the passage of time during hospital stay.
Keywords: High-Sensitivity, C-Rection Protein & ACS.
Study Designed: Observational Study

INTRODUCTION

Over the past decade, identification of novel risk factors and predictors for CVD has been an area of major interest in preventive cardiology. Serum high sensitivity C- reactive protein (hs-CRP), a biomarker of inflammation, has been shown to effectively predict the risk of adverse cardiovascular (CV) events consistently. Serum hs-CRP levels may aid in identifying patients at high risk for a first CV event who might otherwise be missed by screening for lipids and other conventional risk factors alone[1].

Coronary heart disease (CHD) incidence is increasing in the developing countries [2]. A number of predisposing factors affect the development of ischemic heart disease (IHD) and to date, more than 246 risk factors, including dyslipidemia and atherosclerosis (AS), have been identified. In patients with CHD, risk stratification is important, as information about probability of cardiovascular events in future can help target therapy [3]. Several plasma markers of inflammation have been evaluated as potential tools for the prediction of the coronary events. These include, among others, serum amyloid A, IL-6, fibrinogen, homocysteine, apolipoprotein-A, apolipoprotein B-100 and C-reactive protein [4].

MATERIALS & METHODS

The Study was conducted at MGM, Medical College, and Indore during the period February 2017 to February 2018, total 200 patients with the clinical diagnosis of acute coronary syndrome, who were fulfill the following criteria, included in the study.

Inclusion Criteria

- Patients with acute coronary syndrome irrespective of risk factors.
- Patient/party willing to give informed consent for active participation in the study.

Exclusion Criteria

- Patients on statins for more than one month,
- Patients with any systemic infection,
- Patients with malignancies,
- Patients with rheumatologic/autoimmune diseases,
- Patients with chronic inflammatory disorders,
- Patients with renal/hepatic compromise,
- Patients with recent trauma.
- Patients' refusal to give consent.
- Patients with psychiatric illness and those under legal custody.

It was a hospital based non-comparative

prospective cross-sectional study. Serum hs-CRP assessment was performed using the IMMULITE method containing one monoclonal and one polyclonal anti-CRP antibodies. This method provides a measurement range from 0.1 to 500 mg/L.

Patients were divided into three risk groups according to serum hs-CRP levels.

- < 1 mg/L - low risk,
- 1-3 mg/L - average risk
- >3 mg/L- high risk.

RESULTS

Table-1: Levels of serum hS-CRP and Type of Presentation

Serum hs-CRP level (mg/l)	UA	NSTEMI	STEMI
<1 mg/l	10	2	4
1-3 mg/l	24	10	24
>3 mg/l	30	20	76
Total	64	32	104
Mean serum hs-CRP levels	2.51±1.39	3.24±2.68	5.29±3.17

Table-2: Serum hs-CRP level in different risk factors subgroups*

Characteristic	Sr. hS-CRP
Male	4.23±3.29
Female	3.19±3.12
P value	0.719
With diabetes	5.47±4.30
Without diabetes	3.36±2.79
P value	0.047
With systemic hypertension	3.67±2.14
Without systemic hypertension	4.32±3.17
P value	0.561
With dyslipidemia	5.96±3.49
Without dyslipidemia	2.47±1.62
P value	0.028
With a family history of CAD/CVdeath	5.61±4.81
Without a family history of CAD/CVdeath	3.94±2.26
P value	0.033
With history of smoking	4.23±3.14
Without history of smoking	2.56±2.94
P value	0.029

*Data are presented as mean ± standard deviation; data were analyzed by *t* tests

Serum HS-CRP level in different subgroups

The mean serum hs-CRP in different risk subgroups was similar in patients with and without many of the study risk factors/profiles (gender; p=0.719, and hypertension; p=0.561), while it was significantly higher in those with hyperlipidaemia (p=0.028), with diabetes (p=0.047) with a family history of CAD/CV death (p=0.033), history of smoking (p=0.029).

DISCUSSION

In our study we showed, the mean value of the serum hs-CRP levels in Indian subjects were 4.18±3.30 mg/L, which is higher to those reported in other ethnic groups, and is much higher than that reported in Japanese subjects[5] consistent with studies to suggest that the concentration of serum hs-CRP is high in Indians[6,7].

The study showed that the plasma CRP levels were significantly increased in patients of ACS at time of admission as compared to controls. These results are consistent with Tomado *et al*. [8] and Gavusoglu *et al*. [9] who demonstrated increased CRP levels in patients with ACS within 6 hours of admission. Our results showed a significant difference of mean CRP levels in patients of NSTEMI, STEMI as compared to UA patients and are in consistence with and Kazmierezak *et al*. [10] who identified increase in the CRP levels in patients of STEMI and NSTEMI versus UA, mainly due to myocardial necrosis and release of cytokines mediated CRP response. A limited increase in the CRP levels in patients with UA could be due to low grade myocardial necrosis by ischemia, which is, however, not confirmed in this study.

CONCLUSION

This study was conducted after an ACS, a fact that might have contributed to lower lipid levels and

blood pressure than in stable clinical conditions before the ACS. In addition, at this time, high fasting glucose levels could be related to stress-induced.

Our study showed that CRP levels were raised in patients with ACS at time of admission, and further increased with the passage of time during hospital stay.

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