

## Correlation of WBC Count and Clinical outcome in Acute Myocardial Infarction

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**Abstract:** WBC counts increases in significant number of patients with acute myocardial infarction. Widely available WBC count test can be used as prognostic marker in acute myocardial infarction. To study correlation between complications of acute myocardial infarction and WBC count. Total 50 diagnosed cases of acute Anterior Wall MI were studied. Complications after acute myocardial infarction were more in elevated WBC count. Elevated WBC count within 24 hours was associated with high rate of complications after acute myocardial infarction; however to established association between complications of acute myocardial infarction and WBC count we need further larger study.

**Keywords:** WBC counts, myocardial infarction, prognostic marker.

**INTRODUCTION**

Markers of inflammation, including high-sensitivity C-reactive protein, are powerful indicators of the development of myocardial infarction and other acute coronary events, and valuable predictors of adverse prognosis in patients with unstable angina. The white blood cell (WBC) count is a simpler and more readily available marker of inflammation. Patients with acute myocardial infarction who have elevated WBC counts appear to be at higher risk of mortality and recurrent acute myocardial infarction (AMI).

Various publications have shown that increased white blood cell count (WBC) is associated with a higher incidence of cardiovascular disease and all-cause mortality in the general population[1-7]. Recent studies have supported the prognostic value of the WBC as a predictor of the development of heart failure and death in both the short term and long term following ACS, particularly following acute myocardial infarction (AMI).<sup>8-17</sup> However, less data is available in the literature concerning unselected populations in which the new definition of AMI is applied and long-term follow-up performed[18].

**AIMS AND OBJECTIVES**

To study correlation of WBC count and complications of acute myocardial infarction

**MATERIALS AND METHODS**

It was a retrospective study. We studied 50 case files of acute myocardial infarction patients who admitted in Cardiology Department, G.R. Medical College, Gwalior (M.P.). Case record was studied in details.

**Inclusion criteria**

- Acute myocardial infarction
- Age > 50 years

**Exclusion criteria**

- Previous MI

**RESULTS**

**Complications of acute myocardial infarction**

Complications	Total	WBC count < 11 thousand	WBC count > 11 thousand
LV dysfunction	13	5	8
Cardiogenic shock	6	3	6
In hospital mortality	4	1	3
Long hospital stay (> 6 days)	19	7	12

Out of 50 patients 13 had LV dysfunction, among these 13 patients 8 were having elevated WBC count and 5 had normal WBC count.

Among 50 patients 9 had cardiogenic shock, among these 9 patients 6 had elevated WBC count and 3 had normal WBC count.

Among 50 patients 4 patients died, among these 4 patients 3 patients had WBC count and 1 patient had normal WBC count.

Total 19 patients admitted for more than 6 days, among these patients 12 had elevated WBC count and 7 had normal WBC count.

## DISCUSSION

The leukocyte response that occurs following AMI is a central part of the inflammatory reparative response that is initiated to replace the necrotic tissue with scar tissue. This may suggest that the greater the amount of necrosis, the larger the leukocyte response, an assertion based on experimental studies that show a direct relationship between the extent of necrosis and the level of both the local and the systemic leukocyte response [19, 20].

In our study, we found that 48% patients were having high WBC count (> 11000). Association between WBC count and acute CS first described by Friedman *et al.* [21] in 1974

In our study we found that high WBC count was associated with more complications like LV dysfunction, cardiogenic shock, long hospital stay, in hospital mortality after myocardial infarction. Same results were found by Furman *et al.* [22].

WBC can be a useful biochemical tool for risk stratification of acute myocardial infarction. It is readily available and rather a cheaper investigation.

## CONCLUSION

Elevated WBC count within 24 hours was associated with high rate of complications after acute myocardial infarction; however to established association between complications of acute myocardial infarction and WBC count we need further larger study.

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