

Importance Of Red Blood Cell Distribution Width In Indian Patients With Acute Coronary Syndrome

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Introduction

Even with all available techniques, ACS still carries high mortality and treatment strategies are evolving. So, we require additional parameters than established markers to stratify the risk in ACS like RDW which has been shown to be independently associated with an increased risk of major cardiovascular events.

Objectives

We wanted to see the correlation of RBC distribution width (RDW- coefficient of variation of RBC volume) at admission with major adverse cardiovascular events (MACE) in hospital and at 30 days in ACS patients.

Methods

Clinical profile, TIMI risk score, laboratory investigations including complete haemogram, Echo, ECG, CAG and the course of ACS patients in hospital were noted.

Results

Hundred ACS patients (age 55.9±9.31 yr) were included prospectively with M: F: 74:26. Hypertension, DM and smoking were present in 60, 41 and 40 patients respectively. UA, non-ST MI and ST MI were present in 20 (20%), 11(11%) and 69 (69%) patients respectively. Average Trop T and TIMI risk score were 3.59 ng/ml and 3.41±1.29. LV function was good in 38, and mild, moderate & severe LV dysfunctions were present in 27, 26 and 9 patients respectively. Events occurred in hospital were LVF in 34(34%), recurrent angina in 21(21%), CVA in 1(1%), hematuria in 2(2%) and death in 5(5%) patients. RDW is a good prognostic indicator for MACE at 30 days ($r=0.8$, p value = 0.003) but not for in hospital MACE. New indices which were able to detect the in hospital events are RDW × PCV, RDW × RBC count / Hb, RDW / MCH and RDW / MCHC and at 30 days are RDW, RDW × RBC count / Hb and RDW / MCH, which showed good correlations with the TIMI risk score ($r = 0.7$, $p = 0.001$), LV dysfunction ($r = 0.7$, $p = 0.001$) and event rates in hospital ($r = 0.5$, $p = 0.003$).

Conclusion

RDW is a prognostic indicator for 30 day MACE. Newer RDW based indices like RDW/MCH, RDW/MCHC and others are better prognostic indicators for in-hospital MACE.