

Red Cell Distribution Width (RDW) as a Prognostic Marker in Cardiovascular Diseases

Vivek Keshav Gharat

Lokmanya Tilak Municipal & General Hospital, Sion, Mumbai

Abstract: Red cell distribution width (RDW) is a routinely reported hematological parameter that reflects the degree of variability in the size of circulating erythrocytes, known as anisocytosis. Historically, RDW has been utilized primarily as a supporting index in the differential diagnosis of anemias; however, emerging evidence over the last two decades has established its strong association with inflammation, oxidative stress, nutritional deficiencies, and systemic disease burden. Among non-communicable disorders, cardiovascular diseases (CVDs) have been prominently linked with elevated RDW, suggesting its significant utility as a cost-effective and widely accessible prognostic biomarker. Numerous clinical and epidemiological studies have demonstrated that increased RDW values correlate with higher mortality and adverse clinical outcomes in acute and chronic heart failure, coronary artery disease, myocardial infarction, peripheral arterial disease, hypertension, and atrial fibrillation. Although RDW is not disease-specific, its prognostic value is gaining recognition because of its pathophysiological links to key mechanisms implicated in cardiovascular injury, including impaired erythropoiesis, chronic low-grade inflammation, reduced iron mobilization, malnutrition, renal impairment, and systemic oxidative stress. As a component of a standard complete blood count (CBC), RDW possesses substantial clinical relevance due to its accessibility, affordability, and applicability in primary healthcare, emergency settings, and tertiary cardiovascular care. This review aims to explore the prognostic significance of RDW in major cardiovascular conditions, summarize current evidence regarding its pathophysiological interplay with CVD, and discuss its limitations and future role in clinical risk stratification and precision cardiology.

Keywords: Red cell distribution width; RDW-CV; RDW-SD; anisocytosis; cardiovascular diseases; inflammation; oxidative stress; coronary artery disease; myocardial infarction; heart failure; atrial fibrillation; prognostic biomarker

