

Association of red blood cell distribution width with stroke and 5-year cerebrovascular and cardiovascular mortality in young patients with diabetes

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Background: Red blood cell distribution width (RDW) is a measure of erythrocyte anisocytosis that has been recently associated with myocardial infarction, stroke and all-cause mortality. Nevertheless, no study has researched the association of RDW with stroke and cardiovascular mortality in young diabetic patients. Methods: All diabetic patients aged 16-55 years, presenting with an ischemic stroke at the University Hospital Centre "Mother Theresa", Tirana, during 2010-2011 were enrolled. Each patient was matched by age and gender with three stroke-free diabetic controls. Exclusion criteria were hematologic, infectious, inflammatory, autoimmune and malignant diseases. At baseline, the RDW cut-off value of 14% was used to discriminate between the two groups of stroke patients. After a 5-year long follow-up period, cerebrovascular mortality and cardiovascular mortality were assessed either physically or by phone interview in both groups. Results: In the final analysis were included 42 diabetic patients (83.3% males), mean age 47.2 years (SD 6.18) and 126 stroke-free diabetic controls. RDW was significantly higher in stroke patients ($14.27\% \pm 1.1\%$ vs $13.82\% \pm 1.1\%$, $p = 0.023$). During follow-up of stroke patients, higher cardiovascular and cerebrovascular mortality was registered in the higher RDW group ($\geq 14\%$) compared to the lower RDW group (14%), respectively 9 vs. 1 cerebrovascular deaths ($p=0.042$) and 6 vs. 2 cardiovascular deaths ($p=0.029$). Conclusions: RDW is associated with higher risk for ischemic stroke in young patients with diabetes. Moreover, higher RDW at baseline is associated with higher 5-year cerebrovascular and cardiovascular mortality.