

THE EVALUATION OF RED CELL DISTRIBUTION WIDTH IN CHRONIC HEMODIALYSIS PATIENTS

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OBJECTIVES

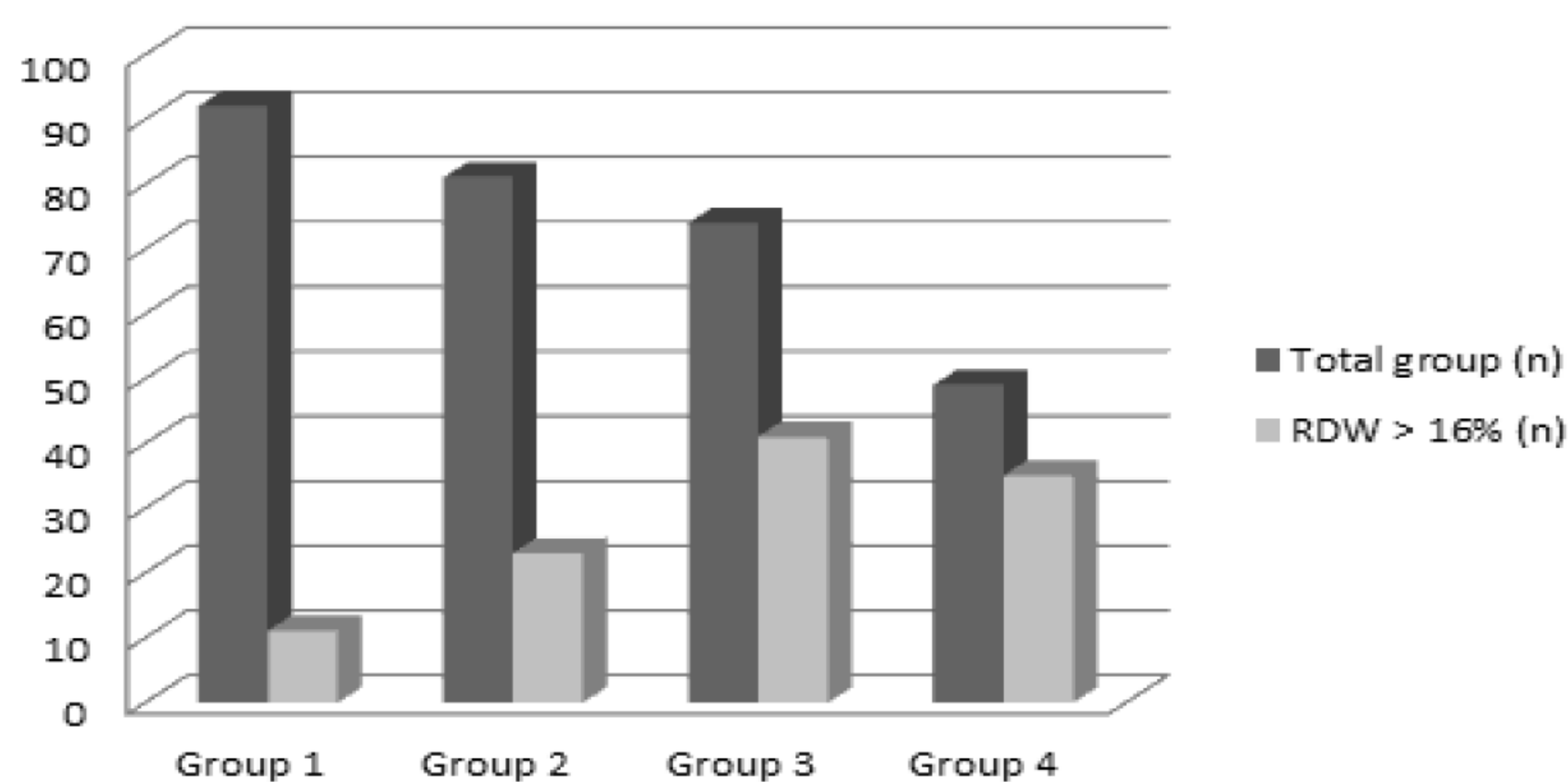
Red cell distribution width (RDW), a parameter of routine blood count tests, usually used for differential diagnosis of anemia. However, recent studies pointed that RDW should be an independent predictor of mortality in general population and in some certain conditions but, the underlying physiopathological mechanism remained unclear. There is no data in literature about RDW levels independent from anemia and volume status and its association with clinical parameters. Therefore, we aimed to study RDW levels in hemodialysis (HD) patients without anemia and with sufficient iron storage and also studied the association between RDW and inflammatory, nutritional and volume markers.

METHODS

We retrospectively analysed 514 patients who received HD treatment between 2008-2012. We included stable HD patients with sufficient iron storage and without anemia or hypervolemia. After exclusion of the patients 296 remained for statistical analyse as study population. We grouped patients into 4 groups according to clinical parameters, albumin and C-reactive protein (CRP): Group 1 (n=92), no malnutrition or inflammation (albumin>3.5 g/dL and CRP<5 mg/dL); group 2 (n=81), inflammation alone (albumin>3.5 gr/dL and CRP>5 mg/dL); group 3 (n=74) malnutrition alone (albumin<3.5 gr/dL and CRP<5 mg/dL) and group 4 (n=49), both malnutrition and inflammation (albumin<3.5 gr/dL and CRP>5 mg/dL).

RESULTS

Mean RDW of all study population was 17.2% (reference range: 12-16%). The lowest RDW levels were found in group 1 (13.2%). Although RDW of group 2 were higher than group 1, it was still in normal range (14.7% vs 12.4%, p<0.01). RDW levels of group 3 (17.8%) and 4 (18.5%) significantly higher than groups 1 and 2 and above normal range. RDW levels were not significantly different in patients with and without hepatitis B and C. (16.7%, 16.2%, and 17.1%, p>0.05; respectively). Correlation analyse revealed a positive correlation between RDW and HD duration, interdialytic weight gain, serum phosphate and CRP levels and a negative correlation with serum albumin. HD duration, CRP, interdialytic weight gain and serum albumin have been found as independent predictors of RDW elevation in multivariate analyses.



CONCLUSIONS

The results of present study reflects negative effects of inflammation, malnutrition and interdialytic excess weight gain on RDW elevation in a HD study cohort with sufficient iron storage and without anemia and hypervolemia.

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