



ORIGINAL ARTICLE

Can Red Cell Distribution Width Be Used as a Marker of Crohn's Disease Activity?



Ana Maria Oliveira*, Filipe Sousa Cardoso, Catarina Graça Rodrigues, Liliana Santos, Alexandra Martins, João Ramos de Deus, Jorge Reis

Gastroenterology Department, Hospital Prof. Doutor Fernando Fonseca, Amadora, Portugal

Received 7 August 2015; accepted 11 October 2015

Available online 24 November 2015

KEYWORDS

Crohn Disease;
Erythrocyte Indices

Abstract

Introduction: Recently, it has been suggested an association between red cell distribution width (RDW) and Crohn's disease activity index (CDAI), but its use is not yet performed in daily clinical practice.

Objectives: To determine whether RDW can be used as a marker of Crohn's disease (CD) activity.
Methods: This was a cross-sectional study including patients with CD, observed consecutively in an outpatient setting between January 1st and September 30th 2013. Blood cell indices, erythrocyte sedimentation rate (ESR), and C-reactive protein were measured. CD activity was determined by CDAI (active disease if $\text{CDAI} \geq 150$). Associations were analyzed using logistic regression (SPSS version 20).

Results: 119 patients (56% female) were included in the study with a mean age of 47 years (SD 15.2). Twenty patients (17%) had active disease. The median RDW was 14.0 (13–15). There was an association between RDW and disease activity ($p = 0.044$). After adjustment for age and gender, this association remained consistent (OR 1.20, 95% CI 1.03–1.39, $p = 0.016$). It was also found that the association between RDW and disease activity was independent of hemoglobin and ESR (OR 1.36, 95% CI 1.08–1.72, $p = 0.01$) and of biologic therapy (OR 1.19, 95% CI 1.03–1.37, $p = 0.017$). A RDW cutoff of 16% had a specificity and negative predictive value for $\text{CDAI} \geq 150$ of 88% and 86%, respectively.

* Corresponding author.

E-mail address: anaoliveira.fml@gmail.com (A.M. Oliveira).

PALAVRAS-CHAVEDoença de Crohn;
Índices de Eritrócitos

Conclusion: In this study, RDW proved to be an independent and relatively specific marker of CD activity. These results may contribute to the implementation of this simple parameter, in clinical practice, aiming to help therapeutic decisions.

© 2015 Sociedade Portuguesa de Gastreenterologia. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A Amplitude de Distribuição dos Glóbulos Vermelhos (RDW) Pode Ser Considerado Como um Marcador da Atividade da Doença de Crohn?

Resumo

Introdução: Recentemente, tem vindo a ser sugerida uma associação entre o valor de RDW e a atividade da doença de Crohn (DC), mas a sua utilização não está ainda implementada na prática clínica diária.

Objetivos: Determinar se o RDW pode ser utilizado como marcador de atividade da DC.

Métodos: Estudo transversal, em doentes com DC, observados consecutivamente em consulta de Doença Inflamatória Intestinal, entre 1 de janeiro e 30 de setembro de 2013. Analisaram-se índices do hemograma, proteína C reativa e velocidade de sedimentação. A gravidade da doença foi avaliada pelo *Crohn's disease activity index* (doença ativa se CDAI \geq 150). As associações foram estudadas usando a regressão logística (SPSS Statistics V20).

Resultados: Incluídos 119 doentes (56% do sexo feminino), com idade média de 47 anos (DP 15,2 anos). Vinte doentes (17%) tinham doença ativa. O valor do RDW mediano foi 14,0% (13-15). Verificou-se uma associação entre RDW e atividade da doença ($p=0,044$). Após ajuste para a idade e o sexo, esta associação manteve-se consistente (OR 1,20; 95% CI 1,03-1,39; $p=0,016$). Verificou-se ainda que a associação do valor do RDW com a atividade da doença foi independente do valor da hemoglobina e da velocidade de sedimentação (OR 1,36; 95% CI 1,08-1,72; $p=0,01$) e da terapêutica biológica (OR 1,19; 95% CI 1,03-1,37; $p=0,017$). Para um valor de corte de RDW de 16%, a especificidade e o valor preditivo negativo de CDAI \geq 150 foram de 88% e 86%, respetivamente.

Conclusão: Neste estudo, o valor do RDW demonstrou ser um marcador independente e relativamente específico da atividade da doença de Crohn. Estes resultados poderão contribuir para a aplicação deste parâmetro simples, na prática clínica diária, visando auxiliar decisões terapêuticas.

© 2015 Sociedade Portuguesa de Gastreenterologia. Publicado por Elsevier España, S.L.U. Este é um artigo Open Access sob a licença de CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Crohn's disease (CD) is a chronic inflammatory bowel disease (IBD) characterized by a relapsing-remitting clinical behavior.¹ For this reason, the assessment of the severity of IBD and the monitoring of disease activity are important issues.²

Currently, endoscopy with biopsy is considered the gold standard for the evaluation of mucosal inflammation.^{2,4} However, endoscopy is invasive and requires good bowel cleansing, a procedure that is poorly accepted by patients and potentially harmful.^{1,2} Therefore, CD activity index (CAI) is still accepted to grade CD activity by international guidelines, namely European Crohn's and Colitis Organization (ECCO). Despite being based mainly in clinical parameters, it remains the principal index for evaluating CD patients' outcomes in clinical studies. Clinical remission is accepted as a CAI of <150.³

To improve non-invasive monitoring of CD activity, numerous biomarkers (e.g. C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), leukocyte and platelet counts, albumin, fecal calprotectin and lactoferrin)⁵ have been proposed but few have proven to be clinically useful in IBD.^{1,6} Nevertheless, CRP has been included as an ancillary test to monitor CD activity by ECCO guidelines.³

Red cell distribution width (RDW) is a quantitative measure of variability in the size of circulating erythrocytes.^{7,8} It is routinely measured by automated hematology analyzers and is usually reported as a component of the complete blood count (CBC),⁹ thus not implying additional costs.^{10,11} Until recently, it was used mainly to differentiate iron deficiency anemia from thalassemia trait.^{11,12} However, in the last years, numerous studies have shown that a higher RDW is associated with several pathologic conditions, including heart failure,⁹ acute coronary syndrome,¹³ atherosclerosis,¹⁴ pulmonary impairment,¹⁵ and

Download English Version:

<https://daneshyari.com/en/article/3311294>

Download Persian Version:

<https://daneshyari.com/article/3311294>

[Daneshyari.com](https://daneshyari.com)