RETICULOCYTE COUNTS AS A BIOMARKER FOR PAIN CRISES IN SICKLE CELL ANEMIA

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Sickle cell anemia (SCA) is a hemolytic disorder characterized by reduced red blood cell lifespan due to repeated sickling processes. Patients have complications as a consequence of hemolysis, vaso-occlusion, inflammation, and endothelial dysfunction. Disease management consists of laboratory monitoring of biomarkers and further medical assistance for clinical manifestations. We aimed to investigate laboratory parameters associated with pain crises in SCA patients. In this cross-sectional analysis, we included 63 SCA patients, of whom 27 were female, with a mean age of 14.6 ±3.6 (median: 15) years. Eleven patients received blood transfusions, none were taking hydroxyurea, and all were in steady state. Laboratory investigation was carried out, and clinical data was assessed using a standardized and confidential questionnaire and confirmed by the medical records. All patients were followed at the Bahia Hemotherapy and Hematology Foundation (Hemoba). This study received approval from the Institutional Research Board (protocol number 1400535) and was conducted in compliance with the ethical principles established by the revised Declaration of Helsinki. We grouped the patients into pain crisis + (patients who experienced at least 1 pain crisis in the past six months) and pain crisis – (patients who did not experience at least 1 pain crisis in the past six months) to perform the analysis. We found that 38 patients experienced painful crises in the last six months (pain crisis +), while 25 did not experience (pain crisis -). Regarding laboratory parameters, pain crisis patients + presented increased red blood cells, monocytes, and absolute reticulocyte counts, as well as increased HDL-C and decreased NOm levels. We drew a receiver operating characteristic (ROC) curve to test whether these parameters helped distinguish the patient groups. All the ROC curves were statistically significant (red blood cell counts: AUC = 0.647, p = 0.05; monocyte counts: AUC = 0.657, p = 0.036; absolute reticulocyte counts: AUC = 0.708, p = 0.006; HDL-C: AUC = 0.648, p = 0.015; NOm: AUC = 0.687, p = 0.012). We classified the laboratory parameters according to the median value of each variable and performed a Fisher's Exact Test (χ^2). We found no statistical significance for red blood cell and monocyte counts or HDL-C levels. In contrast, pain crisis patients + had increased reticulocyte counts (p = 0.019) and decreased NOm levels (p = 0.008). Finally, we designed a multivariate linear regression model with pain crisis as a dependent variable. Our model was statistically significant (p = 0.006), and absolute reticulocyte counts were independently associated with pain crises in SCA (p = 0.039, $\beta = 0.261$, $R^2 = 0.248$). Increased reticulocyte counts in SCA are a common finding associated with hemolysis, stress-induced erythropoiesis, bone marrow response, and red blood cell turnover. A pain crisis in SCA may start due to a vaso-occlusive episode, which is a hallmark of the disease. Therefore, the identification of accessible laboratory biomarkers is helpful in clinical management. Due to the small sample size and cross-sectional design, our results should be interpreted cautiously. However, our findings may guide further studies in which reticulocyte counts are an essential endpoint for SCA. Our results suggest that absolute reticulocyte counts are an important biomarker for pain crisis in SCA.

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ANÁLISE DE SOBREVIDA DE PACIENTES PEDIÁTRICOS DIAGNOSTICADOS COM LEUCEMIA MIELOIDE AGUDA – UMA EXPERIÊNCIA DE 20 ANOS DO HOSPITAL INFANTOJUVENIL DE BARRETOS DO HOSPITAL DE AMOR

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A Leucemia Mieloide Aguda (LMA) corresponde a até 50% das mortes relacionadas à leucemia. Embora nas últimas décadas tenha sido observada significativa melhora no prognóstico com avanços no diagnóstico e terapias propostas, em países de renda média a baixa como Brasil a sobrevida de pacientes pediátricos com LMA ainda é de 30-40%. Objetivos: Descrever a sobrevida global e livre de eventos dos pacientes pediátricos diagnosticados com LMA no Hospital Infantojuvenil de Barretos, no período de janeiro de 2002 a junho de 2022. Materiais e métodos: Foi realizado um estudo de coorte retrospectivo. A análise de sobrevida foi estratificada em dois períodos distintos: Entre janeiro/2002 a maio/2013 (tratamento realizado na unidade de adultos do Hospital de Câncer de Barretos); e junho/2013 a junho/2022 (tratamento e suporte realizados na unidade infantil do Hospital). As sobrevidas global (SG) e livre de eventos (SLE) foram avaliadas considerando todos os pacientes LMA, LMA exceto leucemia promielocítica aguda (LPA) e, também, considerando apenas as LPA. Resultados: Foram incluídos 83 pacientes, sendo 25 no primeiro período e 58 no segundo período. Analisando o período de 20 anos, incluindo todos os pacientes pediátricos com LMA, encontrou-se SG de 37,7% e SLE de 35,8%. Excluindo LPA, a SG foi de 31,9% e a SLE foi de 31,2%. Já dentre os pacientes com LPA, a SG foi 64,3%. Ao avaliar a sobrevida nos dois períodos separadamente, a sobrevida global foi de 28% no primeiro período e 41,4% no segundo período. O óbito durante fase de indução chegou a 52,6% no primeiro período, e quase 50% dos pacientes tinham hiperleucocitose; a maioria dos pacientes desse período analisado foram tratados segundo protocolo