

afirmam também que a correta aplicação da profilaxia com uso do anti-D é resolutive e com potencial para reduzir os casos de aloimunização. **Conclusão:** O correto seguimento dos protocolos de exames de pré-natal, aliados ao atendimento e reconhecimento da DHPN nas maternidades ou serviços de parto auxiliam a prevenção e manejo da afecção. A redução dos números de internamento, ano após ano, apontam para melhorias na condução do pré-natal, mas ainda há muito a ser feito para que fetos deixem de padecer desse problema, que, nos casos mais graves, podem evoluir para óbito.

<https://doi.org/10.1016/j.htct.2023.09.221>

COVID-19 - HEMATOLOGIA GERAL

FREQUENCY OF POLYMORPHISMS IN THE HFE GENE (H63D, C282Y E S65C) IN PATIENTS WITH COVID-19

TF Ribeiro, CRB Domingos, TDS Rodrigues, FH Borin

Universidade Estadual Paulista Júlio de Mesquita Filho (UNESP), Botucatu, Brazil

Objectives: Coronavirus disease 2019 (COVID-19) is caused by a novel beta-coronavirus (SARS-CoV-2) and is characterized by a diverse clinical severity. The infection process of SARS-CoV-2 leads to a substantial increase in pro-inflammatory cytokines, contributing to damage of lung epithelial cells. Hereditary hemochromatosis (HH) is a disease characterized by excessive iron in the blood, and individuals with polymorphisms in the HFE gene (H63D, C282Y e S65C) have alterations in iron metabolism, which further exacerbate the inflammatory process. This study aims to investigate the association between HFE gene inheritance and the severity of the disease in patients with COVID-19. **Methodology:** Blood samples were collected from 87 adults diagnosed with COVID-19 and categorized based on disease severity, mild, moderate and severe. Molecular analysis was conducted to confirm the presence of mutations in the HFE gene (H63D, C282Y e S65C) using the PCR-RFLP method. Statistical analyses were performed using IBM SPSS Statistics 20 software, with a significance level set at 0.05. Associations between COVID-19 severity and biological sex were assessed using Fisher's exact test. The associations between homozygous wild-type, heterozygous, and homozygous mutant genotypes for each polymorphism were tested using the Chi-square test. To investigate the relationship between sex and HFE gene mutations with the severity of COVID-19, ANOVA was performed. **Results:** The group comprised 53 women (60.9%) and 34 men (39.1%) with ages ranging from 18 to 61 years, and a mean and standard deviation of 30.4 ± 12.96 . Among these, the majority of mild COVID-19 cases were observed in females (49.4%), while most moderate cases were found in males. Severe cases were exclusively identified in males, indicating a significant association between COVID-19 severity and gender ($p < 0.05$). A total of 522 alleles were evaluated for the HFE gene mutations. For the H63D mutation, were found 22 wild-type homozygous

genotypes, 64 heterozygous and 1 mutant homozygous. For the C282Y, 78 wild-type homozygous, 7 heterozygous and 2 mutant homozygotes were found. For the S65C, 73 wild-type homozygous, 13 heterozygous and 1 mutant homozygous were found. Statistically significant differences were observed between genotypes for polymorphisms ($p < 0.05$). The covariate gender and the variables severity of the disease and presence or absence of HFE gene polymorphisms did not show significant differences. However, when comparing the severity of COVID with the H63D polymorphism, a statistically significant association was observed ($p < 0.01$). **Discussion:** The higher occurrence of moderate and severe COVID cases in males suggests a more severe disease course in this population group. The prevalence of the H63D mutation was more frequent in this group and associated with COVID-19 severity. The relatively low incidence of homozygous mutant alleles can be explained by the admixture of the Brazilian population. The C282Y and S65C genotypes exhibit low expressiveness, which is insufficient to establish a significant relationship. **Conclusion:** The H63D genotype exhibits a higher frequency of heterozygotes and is associated with increased clinical severity of COVID-19, especially in males. Further investigations are warranted to characterize the HFE gene and develop strategies for managing exacerbated COVID-19 symptoms.

<https://doi.org/10.1016/j.htct.2023.09.222>

MARCADORES INFLAMATÓRIOS ASSOCIADOS A SEQUELAS NA SÍNDROME PÓS-COVID-19 AGUDA: UMA REVISÃO DE SISTEMÁTICA

LSL Vieira, LFM Fontes, GLT Caneschi, AP Ferreira

Faculdade de Ciências Médicas e da Saúde de Juiz de Fora (SUPREMA), Juiz de Fora, MG, Brasil

Introdução: A Síndrome Pós-COVID-19 Aguda (PASC) está relacionada a sintomas que persistem por mais de 12 semanas. A fisiopatologia da PASC ainda é pouco elucidada em relação a marcadores hematológicos e inflamatórios. **Objetivos:** Avaliar pacientes que tiveram sequelas e correlacionar com marcadores inflamatórios, alterações hematológicas meses após a resolução da doença aguda do COVID-19 por meio de uma revisão sistemática. **Material e métodos:** Foram selecionados ensaios clínicos e estudos observacionais publicados em inglês, entre 2021 e 2023, tendo como referência as bases de dados MedLine, Web of Science, Embase e Scopus, com as seguintes palavras chaves e suas respectivas variações no DeCS/MeSH: *long-COVID; Post-Acute Sequelae of COVID; biomarkers; inflammatory, complications*. Foram incluídos estudos que continham exames laboratoriais e avaliaram pacientes que se recuperaram da COVID-19 com no mínimo três meses após a fase aguda. Foram encontrados 316 estudos e após aplicação dos critérios de inclusão e exclusão somente quatro foram selecionados. **Resultados:** Foram avaliados 252 pacientes. O D-dímero pode prever sequelas pulmonares ou associado a gravidade da doença ($p < 0,05$). Foram observados que a elevação de alguns biomarcadores durante a fase crítica

prediz maior predisposição a sequelas ($p < 0,05$) como a elevação de: IL-6 basal em até 12 meses; MMP-9 e Krebs von den Lungen-6 (KL-6) em até 3 meses. **Discussão:** Foi demonstrado correlação PCR, D-dímero, e KL-6 e sequelas. Ademais, os marcadores inflamatórios IL-6 e D-dímero são preditores desfavoráveis para a recuperação pulmonar. **Conclusão:** Em síntese, a presente revisão, corrobora alteração em alguns marcadores mesmo meses após a doença, os quais poderão ser utilizados para futuras pesquisas e elucidações sobre a fisiopatologia, também como alvos diagnósticos e terapêuticos na PASC.

<https://doi.org/10.1016/j.htct.2023.09.223>

NEUTROPHIL-TO-LYMPHOCYTE RATIO (NLR) IN COVID-19 PATIENTS

TF Ribeiro, CRB Domingos, TDS Rodrigues,
FH Borin

Universidade Estadual Paulista Júlio de Mesquita
Filho (UNESP), Botucatu, Brazil

Objectives: COVID-19, caused by the new coronavirus SARS-CoV-2, exhibits a broad spectrum of clinical manifestations. Various markers have been investigated to identify factors contributing to disease severity and prognosis. Among these, alterations in the neutrophil-to-lymphocyte ratio (NLR) have been considered crucial in the disease pathophysiology and studied as potential biomarkers for disease severity and prognosis. This study aimed to assess the NLR in patients with COVID-19 and its association with disease severity. **Methodology:** Blood samples were collected from 55 adults diagnosed with COVID-19. Statistical analyses were performed using IBM SPSS Statistics 20 software with a significance level set at 0.05. We utilized the Chi-Square test to examine associations between female and male biological sex and changes in neutrophil and lymphocyte values. The multinomial logistic regression test was applied to investigate associations between COVID-19 severity and neutrophil and lymphocyte values. Additionally, one-way ANOVA was conducted to assess the association between NLR means and COVID-19 severity. **Results:** The study group consisted of 41 women (74,5%) and 14 men (25,4%), aged between 18 and 61 years, with a mean age of 31,4. When comparing sex with NLR alterations, we found differences ($p < 0.01$). Neutropenia was observed in mild and moderate cases, with a higher prevalence in the latter (25,4%), and significant differences in cases of mild COVID-19 severity ($p < 0.05$) compared to the normal neutrophil count. Lymphocytopenia was identified in mild cases (7.3%), while lymphocytosis occurred in moderate cases (5.4%), with differences in lymphocytosis between mild cases of the disease ($p < 0.05$). The NLR was higher than 3.5 in mild cases and intermediate (between 2 and 3) in severe cases. The overall NLR mean was 1.5, with 3.3 for females and 2 for males. We found no differences in NLR means concerning disease severity ($p = 0.77$). However, NLR exhibited an association with males in moderate and severe cases, and with females in mild cases ($p < 0.05$). **Discussion:** The proportional increase in neutrophils according to COVID-19 severity suggests immune

system activation, possibly in response to cytokines that promote neutrophil migration to the infection site. The lymphocyte count shows an inverse relationship with disease severity, with higher counts in mild cases and lower counts in severe cases. The presence of neutropenia in mild and moderate cases may be attributed to the lack of hematological data in individuals with more severe disease. Reduced lymphocyte count may indicate immune system suppression, consistent with lymphopenia in mild cases. Studies have reported elevated NLR in severe cases, although most of our severe cases lacked hematological data for comparison. **Conclusion:** The study's findings strengthen the link between increased inflammation and the severity of COVID-19. The NLR proves to be a relevant indicator, as its elevation is associated with a higher risk of mortality in COVID-19 patients, making it essential for clinical management and prognosis assessment of disease severity.

<https://doi.org/10.1016/j.htct.2023.09.224>

RESISTÊNCIA /INTOLERÂNCIA A HIDROXIUREIA DOS PACIENTES COM POLICITEMIA VERA NO HEMORIO, UM ESTUDO RETROSPECTIVO

AMM Queiroz, LA Filho

Instituto Estadual de Hematologia Arthur de
Siqueira Cavalcanti (Hemorio), Rio de Janeiro, RJ,
Brasil

Introdução: Ainda não se sabe as causas para o surgimento da policitemia vera, mas cientistas já descobriram que 96% dos pacientes apresentam uma anormalidade no gene JAK2, dado muito importante no momento do diagnóstico. Intolerância ao uso de hidroxiureia ocorre em 15% a 24% nos pacientes com policitemia vera numa análise de 106 pacientes no Hospital Universitário de Leven, 16% foram intolerantes a hidroxiureia, e 4,7% são resistentes utilizando os critérios ELNo, resistência a hidroxiureia é associado a diminuição da expectativa de vida e a intolerância não tem valor prognóstico. Neste estudo faremos uma análise retrospectiva dos prontuários dos pacientes quanto à resistência e intolerância, a hidroxiureia na Policitemia Vera. **Objetivo:** Levantamento da resistência/intolerância ao uso da hidroxiureia na Policitemia Vera no Hemorio. **Metodologia:** Levantamento na documentação médica do Hemorio de todos os pacientes matriculados com Policitemia Vera, através da Tecnologia de Informação do Hospital, que forneceu o número dos prontuários, que foram analisados individualmente, seguindo os critérios abaixo de resistência e intolerância a hidroxiureia. 1 - A necessidade de flebotomia com hematócrito acima de 45%, utilizando 2 g de hidroxiureia no mínimo por dois meses; 2 - Mieloproliferação descontrolada com contagem de plaquetas acima de 400.000 e contagem de leucócitos acima de 10.000 em uso de 2 g de hidroxiureia por no mínimo 3 meses; 3 - Neutrofilo absoluto menor que 1000 contagem de plaquetas menor que 100.000 e hemoglobina menor que 10 com baixa dose de hidroxiureia; 4 - Presença de ulcera de perna, manifestações muco cutâneas sintomas