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ANTICORPOS ANTI-A E ANTI-B COMO MARCADORES DE PROTEÇÃO À COVID-19 – REVISÃO SISTEMÁTICA

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Introdução: Os antígenos e anticorpos dos grupos sanguíneos vêm ganhando crescente relevância em estudos referentes à suscetibilidade e gravidade de doenças e infecções. No sistema ABO, os anticorpos naturais anti-A e anti-B têm sido investigados por seu possível papel na infecção pelo vírus SARS-CoV-2, agente causador da Covid-19. Evidências emergentes sugerem que esses anticorpos podem influenciar a resposta imune do hospedeiro, afetando tanto o risco de infecção quanto a progressão da doença. **Objetivo:** Este estudo teve como objetivo realizar uma revisão sistemática da literatura acerca da influência dos anticorpos anti-A e anti-B na Covid-19, bem como identificar possíveis fatores envolvidos nessa associação. **Material e método:** Foi realizada uma revisão sistemática seguindo o protocolo PRISMA. As bases PubMed, EMBASE e Scopus foram consultadas com os seguintes descritores: ("COVID" OR "COVID-19" OR "SARS-CoV-2" OR "SARS-CoV" OR "Coronavirus" OR "2019-nCoV" OR "COVID-19 Virus" OR "COVID-19 pandemic") AND ("ABO antibodies" OR "Anti-A" OR "Anti-B" OR "Blood Group Antibodies"). A busca, sem restrição de data, foi finalizada em junho de 2025. Foram considerados elegíveis estudos primários publicados em inglês, com acesso ao texto completo, conduzidos em humanos e que relacionassem o sistema ABO à infecção por SARS-CoV-2 ou aos desfechos clínicos da Covid-19. A triagem foi feita por dois revisores independentes, utilizando o software Rayyan, em duas etapas: análise de títulos/resumos e leitura completa dos artigos. **Discussão e conclusão:** Foram identificados 352 artigos (PubMed = 76; EMBASE = 168; Scopus = 108). Após a exclusão de 166 duplicatas, 186 artigos foram triados por título e resumo e 119 foram excluídos por não atenderem aos critérios de inclusão. Restaram 67 artigos para leitura completa, dos quais 45 foram excluídos, resultando em 22 estudos incluídos na revisão final. Todos os 22 estudos identificaram associação entre o sistema ABO e a infecção por SARS-CoV-2 e/ou os desfechos clínicos da Covid-19. Desses, 19 relacionaram o grupo sanguíneo O com menor risco de infecção e/ou de evolução desfavorável. Apenas cinco estudos realizaram análise quantitativa dos anticorpos ABO: dois avaliaram apenas IgM (Bélgica e Turquia) e três avaliaram pelo menos IgM e IgG (Áustria, Dinamarca e Bangladesh). Todos apontaram para um efeito protetor de altos títulos de anti-A e/ou anti-B. Os três estudos que analisaram IgG relataram efeito protetor dos anticorpos anti-A da classe IgG. Um dos estudos com IgM não encontrou associação protetora. Indivíduos dos grupos A e B produzem majoritariamente IgM, enquanto os do grupo O produzem anticorpos naturais das classes IgM e IgG, frequentemente em altos títulos, o que pode explicar o efeito protetor observado. Um viés potencial foi identificado: a não recuperação de estudos que avaliaram anticorpos ABO, mas não mencionaram isso no título ou resumo, dificultando sua detecção. A quantidade reduzida de estudos quantitativos (n = 5), a escassez de análises sobre a classe dos anticorpos (n = 3), a heterogeneidade metodológica e a ausência de pesquisas em regiões populosas como Américas, África e Ásia Oriental reforçam a necessidade de novos estudos para consolidar esse conhecimento. **Apoio financeiro:** Fapemig; Faculdade de Farmácia da Universidade Federal de Minas Gerais; Universidade Federal de Minas Gerais (UFMG), Programa de Pós-graduação em Análises Clínicas e Toxicológicas da UFMG e Fundação Hemominas.

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ANTINEOPLASTIC ACTIVITY OF PIPER NIGRUM OILS IN ACUTE LYMPHOBLASTIC LEUKEMIA CELL LINE

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Introduction: Globally, leukemia ranks as the 13th most common cancer and represents the 10th leading cause of cancer-related death, accounting for approximately 500 thousand new cases and around 300 thousand deaths, according to 2022 estimates by the Global Cancer Observatory (GLOBOCAN). Among its subtypes, acute lymphoblastic leukemia (ALL) is characterized by its aggressive clinical progression, high prevalence of high risk cytogenetic alterations associated with chemotherapy resistance and elevated relapse rates. Additionally, patients are also more susceptible to treatment-related toxicity and long-term side effects. In this context, the development of innovative therapeutic strategies is of particular importance. In light of this, the evaluation of the cytotoxic activity of natural products, such as *Piper nigrum* (black pepper), is shown to be relevant, considering its recognized anti inflammatory and anti neoplastic properties, thus revealing itself as a promising approach in oncological research. **Aim:** To evaluate the in vitro cytotoxicity of oils derived from *Piper nigrum* (oil I, II and III) in an ALL cell line. **Material and methods:** This study employed the NALM-6 cell line (acute lymphoblastic leukemia) and the non-neoplastic embryonic kidney cell line HEK-293. The cells were cultured in flasks containing RPMI High Glucose medium supplemented with 10% fetal bovine serum and 1% penicillin-streptomycin, and maintained at 37°C in a humidified atmosphere with 5% CO_2. Cell viability was assessed using the MTT assay. For that purpose, cells were seeded in 96-well plates at a density of 30,000 cells/well and treated with oils I, II and III, previously dissolved in dimethyl sulfoxide (DMSO) to obtain initial concentrations of 16.5; 18, and 15 mg/mL, respectively. The dose-response curve was generated using concentrations

ranging from 100 to 1.56 μg/mL. After 72h of incubation, the supernatant was discarded, and MTT solution (0.5 mg/mL) was added and incubated for 3h. Subsequently, the solution was discarded and DMSO was added to completely dissolve the formazan crystals. Data analysis was performed using GraphPad Prism 8.0 software and all experiments were conducted in triplicate. **Results:** The main findings were derived from the evaluation of mean concentrations of Piper nigrum oils required to achieve 50% of the maximum inhibitory effect (IC50) in cell growth. Oil I exhibited an IC50 of 23.6 μg/mL, while oil II showed an IC50 of 20.6 μg/mL. Oil III displayed the best results with a lower IC50 at 13.5 μg/mL. This analysis suggests that the oils possess distinct chemical compositions, leading to variations in their cytotoxic activity. **Discussion and conclusion:** Cell viability assays demonstrated the significant antineoplastic activity of the oils. There was variation in the cytotoxic potential between oils, oil I being the least effective while oil III showed the most cytotoxic effect. This research is pioneering in employing oils derived from Piper nigrum in the context of ALL, supporting previous evidence about their antineoplastic properties. In light of these findings, further biological analyses are warranted, comparing the activity of the oils in multiple cell lines.

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ANTIPLATELET ANTIBODIES RESULTING FROM DENGUE VIRUS INFECTION: A LITERATURE REVIEW

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Introduction: Dengue is an endemic and seasonal arboviral disease, predominantly affecting tropical and subtropical regions. Brazil stands out as the country with the highest number of cases, with over 6 million reported by the end of 2024. The disease is transmitted by the *Aedes aegypti* mosquito and is caused by four DENV serotypes (DENV-1, 2, 3, and 4). Clinically, dengue manifests as an acute febrile illness, with symptoms such as fever, headache, myalgia, and retro-orbital pain. The critical phase generally occurs between the 3rd and 7th day of illness and may progress to plasma leakage and hemorrhages, characterizing the hemorrhagic form. Clinical diagnosis can be challenging due to similarities with other viral infections, requiring specific laboratory tests for virus and/or antibody detection. From a hematological standpoint, changes in the complete blood count are relevant for clinical monitoring, including thrombocytopenia, leukopenia, lymphocyte atypia, and hematocrit alterations. Thrombocytopenia, in particular, is an important severity marker, observed in both mild and severe cases, including hemorrhagic dengue. **Aim:** This study aims to explore the role of antiplatelet antibodies and thrombocytopenia in dengue. **Material and methods:** This research was conducted through a literature review, based on articles from the PubMed and Scielo databases, from 2001 to 2025, using the descriptors: dengue, dengue and blood count, thrombocytopenia, and platelet antibodies. **Discussion and conclusion:** Thrombocytopenia is defined as a platelet count below 100,000/μL, and as severe when below 50,000/μL. Automated platelet counting methods include electrical impedance and fluorescence optical counting, the latter being more accurate as it avoids interference from cell fragments. Manual counting is often used as confirmation. The frequency of thrombocytopenia in dengue patients is high: approximately 50% present thrombocytopenia (< 100,000/μL), and around 24% develop severe thrombocytopenia (< 50,000/μL). The severity of thrombocytopenia is directly associated with increased risk of death. A study with over 4,000 patients showed little variation in platelet count between those with and without active bleeding, indicating that thrombocytopenia is not necessarily correlated with visible hemorrhage. The pathophysiological mechanisms of thrombocytopenia include destruction of bone marrow precursors and increased platelet adhesion to the endothelium due to virus-induced immune activation. Symptoms such as petechiae are common, and changes such as hemoconcentration, lymphocytosis, and leukopenia appear in different stages of infection. In severe cases, disseminated intravascular coagulation (DIC) may occur, consuming platelets and coagulation factors, thereby increasing the risk of fatal hemorrhage. In addition to the direct effects of the virus, antiplatelet antibodies—especially anti-NS1—play an important role in platelet destruction. They can activate the complement system, cause platelet lysis, or promote inappropriate platelet aggregation, impairing their hemostatic function. The NS1 antigen is detectable in the early days of infection, and the production of antibodies (IgM and IgG) varies according to the type of infection (primary or secondary), influencing the immune response and associated risks. This study concludes by highlighting the importance of early recognition of thrombocytopenia as a severity marker in dengue and suggests that antiplatelet antibodies may play a crucial role in its pathophysiology.

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ASSOCIAÇÃO ENTRE HIPERFERRITINEMIA SEM SOBRECARGA DE FERRO E A PREVALÊNCIA DE COMORBIDADES EM PACIENTES DO HOSPITAL DE CLÍNICAS DA UNIVERSIDADE FEDERAL DO TRIÂNGULO MINEIRO

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