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## MATURATION PROFILE OF PLASMACYTOID DENDRITIC CELLS BY FLOW CYTOMETRY: COMPARATIVE ANALYSIS OF ACUTE MYELOID LEUKEMIA WITH AND WITHOUT PLASMACYTOID DENDRITIC CELL PROLIFERATION

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**Introduction:** About 4.9% of acute myeloid leukemias (AML) exhibit plasmacytoid dendritic cell (pDC) proliferation, commonly referred to as pDC-AML. This condition is associated with worse prognosis and treatment response when compared to AML without pDC proliferation. pDC from pDC-AML exhibit functional impairment and are present at different maturation stages, contrasting with other neoplasms that involve the proliferation of mature pDCs. In this context, understanding the immunophenotypic features unique to pDC-AML and those shared with other AML subtypes is important. **Objectives:** To classify and quantify the maturation stages of pDCs in AML patients with and without pDC proliferation. **Material and methods:** Analysis of flow cytometry immunophenotyping data from AML patients with detectable pDCs, evaluated at a specialized hematology laboratory in Porto Alegre, Brazil, between March 2024 and June 2025. pDCs were classified into three maturational stages, as described in the literature. Stage I (immature) was defined by the expression of markers associated with cellular immaturity in pDCs, such as CD33, CD34, CD117, and dim CD45, along with the absence of maturity-associated markers (CD4 and CD304). Stage III (mature) was characterized by the opposite profile, with the absence of immaturity markers and expression of maturity markers. Stage II represented an intermediate stage, characterized by increasing expression of maturity markers and loss of immaturity markers. **Results:** Twenty-one AML patients without pDC proliferation and eight pDC-AML patients were included. The analysis revealed a predominance of Stage II pDC in both groups (66.7% in AML without pDC proliferation and 62.5% in pDC-AML). Among patients without pDC proliferation, 33.3% showed predominance of Stage III pDC, and none had predominance of Stage I. In pDC-AML, 27.6% showed predominance of Stage III pDC and 6.9% had predominance of Stage I pDC. **Discussion and conclusion:** Although the literature often attributes immaturity to pDCs in pDC-AML, particularly due to the absence of co-stimulatory molecules CD80 and CD86, our findings demonstrate a maturation process in these cells, with a predominance of intermediate maturation stages. The distribution of pDC maturation stages observed in both groups (AML with and without pDC proliferation) differs significantly from the pattern described for healthy individuals. Although it is believed that cellular immaturity may contribute to the functional impairment of pDCs in pDC-AML, the similarity in the maturation pattern between AML with and without pDC proliferation may suggest that the immaturity of this cell population is not the main determinant of its functional impairment and pDC-AML pathogenesis. These findings contribute to the understanding of this clinical entity and provide support for future research.

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## RELATO DE CASO - GAMOPATIA MONOCLONAL DE SIGNIFICADO INCERTO EM PACIENTE COM LEUCEMIA MIELOIDE CRÔNICA

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**Introdução:** A Leucemia Mieloide Crônica (LMC) é uma neoplasia mieloproliferativa caracterizada pela translocação t (9;22)(q34;q11) que origina o gene de fusão BCR- ABL1, conhecido como cromossomo Philadelphia. Os inibidores de tirosina quinase (TKIs), como o imatinibe, mudaram o curso clínico da doença proporcionando altas taxas de resposta citogenética e molecular. Por outro lado, a gamopatia monoclonal de significado indeterminado (MGUS) representa um distúrbio plasmocitário pré-maligno, geralmente assintomático que pode preceder o desenvolvimento de mieloma múltiplo. A coexistência dessas duas condições hematológicas em um mesmo paciente é rara e pouco descrita na literatura. **Descrição do caso:** Relatamos o caso de um paciente do sexo masculino, 73 anos, com quadro clínico de astenia, perda ponderal, inapetência e sudorese noturna. O hemograma inicial evidenciou leucometria elevada, anemia e plaquetose. A imunofenotipagem de medula óssea mostrou 0,64% de blastos mieloides e predomínio de células da linhagem neutrofílica (92%) com expressão aberrante do marcador CD56. O mielograma demonstrou hipercelularidade medular, com predominância da série granulocítica em todas as fases de maturação, sem displasia evidente. A análise citogenética e molecular confirmou o diagnóstico de LMC (10/2020), cariótipo 46,XY,t(9;22)(q34;q11;2)[18] e relação BCR::ABL1/ABL1 de 47,37%. O paciente iniciou tratamento com Imatinibe 400 mg/dia, obtendo resposta molecular após seguimento clínico e laboratorial (remissão molecular: transcrito indetectável). Durante o acompanhamento, observou-se piora do quadro de anemia, nova imunofenotipagem medular revelou discreta assincronia de maturação em precursores mieloides e padrão anormal da linhagem eritroide. O achado recente e relevante foi a detecção por citometria de fluxo de 1,8% de células plasmáticas clonais e 0,18% de plasmócitos normais, configurando um padrão imunofenotípico sugestivo de Gamopatia Monoclonal de Significado Indeterminado (MGUS) (07/2025). O painel inicial LMA/SMD Euroflow foi ampliado para a pesquisa de Mieloma Múltiplo (www.euroflow.org). Positividade para: CD27-/+ (39,0%), CD38++, CD81+ (37,4%), CD117+/++, CD138+, Beta-2 Microglobulina+/++, cadeia leve Kappa+/++ (citoplasma) e negatividade para: CD19, CD28, CD45, CD56, CD81, cadeia leve Lambda (citoplasma). Discussão: A MGUS