progression to acute myeloid leukemia (AML). Next-generation sequencing (NGS) has contributed to elucidating the pathogenesis of MDS through the identification of molecular drivers and secondary genetic events. While approximately 50% of MDS patients present chromosomal alterations, over 90% have somatic mutations detected. Several studies have shown that somatic mutations are important prognostic biomarkers. The Revised International Scoring System (IPSS-R) is the most used tool for risk stratification in MDS. The treatment of MDS is based on stratifying patients into low-risk (IPSS-R ≤ 3.5, i.e., very low, low, or intermediate) versus high-risk MDS (IPSS-R ≥ 4.0, i.e., intermediate, high, or very high risk). The IPSS-R is based on hematological and cytogenetic features but does not include molecular data. In 2022, the Molecular IPSS (IPSS-M) was developed, considering hematological, cytogenetic, and somatic mutations parameters in 31 genes. In this context, this study compared the risk stratification results in 13 MDS patients using the IPSS-R and IPSS-M tools. All patients had karyotype and NGS (panel of 40 genes) results performed on bone marrow samples. The average age of the patients was 69 years, and the median survival was 18 months. Eight (61.5%) patients had a normal karyotype. The detected cytogenetic alterations were: complex karyotype, del (9q), and -Y. In 10 patients (76.9%), between 1 to 5 mutations (average of 2.1 mutations) in 12 genes were detected, with *TP53* and *TET2* genes being the most frequently mutated. The VAF (variant allele frequency) of the identified mutations was >5%. The IPSS-R classified eight patients (61.5%) as low risk (IPSS-R < 3.5), with three patients (37.5%) being reclassified by IPSS-M. In these cases, mutations were identified in at least two genes, with *ASXL1*, *BCOR*, and *IDH2* being prominent, which are associated with a worse prognosis. In one of these cases, an *SF3B1* mutation, associated with a good prognosis, was also identified but was co-occurring with *DNMT3A* and *JAK2* mutations. Five patients (38.5%) were classified as high risk by IPSS-R (IPSS-R > 4.0), and IPSS-M reclassified one high-risk patient to very high risk and one intermediate-risk patient to very high risk. In these cases, mutations were also identified in genes associated with adverse prognosis, such as *ASXL1*, *BCOR*, *RUNX1*, *STAG2*, and *U2AF1*. It should be emphasized that in cases reclassified by IPSS-M, mutations in genes frequently mutated in MDS were identified. The investigation of gene mutations is important in identifying patients at high risk of progression to AML, allowing for early aggressive therapy. Genomic tests are still costly tools and, therefore, limited to a small portion of MDS patients, limiting the applicability of IPSS-M.

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MYELODYSPLASTIC SYNDROME AFTER CHEMOTHERAPY FOR SOLID TUMOR: RISK FACTORS

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Introduction: Chemotherapy was one of the biggest life changing discoveries. It has prolonged the life expectancy of cancer patients. However, one of its complications is related to secondary neoplasm such as myelodysplastic syndrome (MDS). **Objective:** This review's objective is to inform the health professionals the risk factors of one complication of the chemotherapy: secondary MSD. Condition that, even being rare, must be emphasized for having a great impact on life expectancy. **Methods:** Literature revision. The databases used were PubMed, SciELO and Google Scholar. The terms used in the search were: "myelodysplastic syndrome", "solid tumor", "chemotherapy". **Results:** Chemotherapy is related to therapy acute myeloid leukemia (tAML) and therapy related myelodysplastic syndrome (tMDS), which form a concept called therapy related myeloid neoplasm (t-MN). The prognosis of t-MN has an overall survival from 8 to 10 months. The t-MDS has been described in 0,08-0,83% of adverse events of chemotherapy depending on the solid tumor type. Approximately three-quarters of the cases happen in the first 5 years after the chemotherapy. Anticancer agents associated with the disease are alkylating agents and topoisomerase inhibitors (TI), agents used in 21% and 12 % of initial cancer therapy, respectively. Patients who receive alkylating agents can present with t-MDS, which often progresses rapidly to t-AML, but patients who receive TI usually present directly with t-AML. The risk of t-MN is associated with the drug doses, for example the incidence of t-MN in breast cancer patients in protocols of intensified and standard doses of cyclophosphamide was 1.01% and 0.21 %, respectively. The prevalence of t-MN is higher in young people. Furthermore, a population-based cohort study indicated elevated risk of t-MN after chemotherapy in 22 of the 23 solid tumors, colon being the exception. The site of the tumors that have more risks are bone/soft tissue, testicular and ovarian. **Conclusion:** The risk factors of developing a tMDS must be evaluated after the treatment of a solid tumor. This information helps the physician to be more aware of some patients that have associated risk factors, like anticancer agents, chemotherapy doses, age and tumor site. In any patient postchemotherapy, it is needed to investigate when there is a clinical presentation of fatigue, infections, bruising or in the case of cytopenias, even in asymptomatic patients, a possible presentation of tMDS.

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MYELODYSPLASIA/MYELOPROLIFERATIVE WITH RING SIDEROBLAST AND THROMBOCYTOSIS OR UNCLASSIFIABLE (MDS/MPNI)

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