MM patients with osteolytic lesions at the time of diagnosis, compared to those without osteolyses.

Conclusion: We conclude that miR-221/222 cluster correlates with more favorable R-ISS stage, revealing a potential favorable prognostic value in MM patients. MiR-15a and miR-16 correlate with the presence of osteolytic disease in MM. The observed decreased expression of these two miRNAs in symptomatic MM patients with osteolytic lesions could constitute a possible biomarker for the occurrence of bone disease. Moreover, decreased expression of miR-16 and miR-155 in MM patients, compared to sMM patients may indicate a putative predictive biomarker able to distinguish symptomatic patients from sMM patients. This ongoing study will further reveal the possible prognostic significance of this 10 miRNAs signature studied, when response to therapy, progression-free and overall survival is available.

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OP 13

Peripheral blood immune profiling of multiple myeloma patients at diagnosis: correlations with circulating plasma cells

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Objective: Circulating Tumor Plasma Cells (CTPCs) detected in the peripheral blood (PB) of newly diagnosed Multiple Myeloma (MM) patients have been associated with adverse prognostic features and poor overall survival. The correlation of CTPCs with the immune profile in PB remains unknown. The aim of the present study was to evaluate the immune profile in the PB of patients with newly diagnosed MM and correlate the results with the presence of low or high number of CTPCs.

Methodology: We analyzed myeloid-derived suppressor cells (MDSCs) and major immune T cell subpopulations, including regulatory T cells (Tregs), in the PB of newly diagnosed MM patients. The percentages of MDCSs and Tregs were correlated with the concomitant presence of low (<0.003%) or high (>0.05%) CTPCs. PB samples of 26 newly diagnosed MM patients were analyzed with flow cytometry using the following panels: (a) the minimal residual disease EuroFlow-based next-generation flow cytometry (NGF) panel, for the detection and identification of PB CTPCs; (b) a panel comprising the surface markers CD15, HLA-DR, CD14, CD124, CD33, CD11b, and LinCD56-CD3-CD19, for the detection of polymorphonuclear MDSCs (PMN-MDSCs), monocytic MDSCs (M-MDSCs) and early-stage MDSCs (eMDSCs); and c) two panels comprising the surface and intra-cellular markers CD25, CD3, CD39, CTLA-4, CD4, CD8, CD45RO, CD45RA, HLA-DR, CD127, Ki67, and FoxP3, for the detection of CD4, CD8 T cells and Tregs. For the evaluation of (b) and (c), prior to staining, mononuclear cells (PBMCs) were isolated from PB using density-gradient centrifugation on Ficoll-paque.

Results: Using NGF, 12 MM patients had high and 14 low CTPCs in their PB. MDSCs averaged $5.42 \pm 5.9\%$ of PBMCs, whereas PMN-MDSCs were the most abundant subpopulation ($4.38 \pm 5.7\%$ of PBMCs) and displayed great heterogeneity between patients. Additionally, 22 distinct T subpopulations were phenotypically identified and analyzed, including CD4 and CD8 T cells, naive Tregs (CD45RA+), effector Tregs (CD45RO+), terminal effectors (HLADR+), CD39+ suppressor Tregs, CD8 Tregs and their proliferating (Ki67+) counterparts. Comparing the percentages of the immune populations among patients with high versus low CTPCs, M-MDSCs were significantly more abundant ($p < 0.05$) in patients with low CTPCs, whereas immune profiling of T cells revealed (although not reaching statistical significance) the presence of increased percentages of proliferating Tregs in those with low CTPCs and increased percentages of naïve CD4 T cells in patients with high CTPCs.

Conclusion: To our knowledge, this is the first study correlating the presence of high versus low CTPCs with the immune profile in PB of MM patients. Low CTPCs correlated with the presence of higher percentage of M-MDSCs. Since the latter has been associated with the CCR5-dependent recruitment of Tregs into the tumor site, our findings suggest that, in low CTPC MM patients, a more effective immune surveillance mechanism, mediated by the interaction of M-MDSCs – Tregs, likely controls CTPC expansion and may contribute to a more favorable prognosis. Analysis of more samples, which is ongoing, will validate our findings and provide more solid results.

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OTHER DISEASES

OP 14

COVID-19 infection in cancer patients: a systematic review and meta-analysis with emphasizing the risk and prognosis stratification

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Objective: Various cancer societies worldwide have released guidelines to care for cancer patients suffering from COVID-19. Given the findings from our meta-analysis, in the absence of prospective data, we recommend diligent preventive care measures, full supportive care for immunosuppressed patients to minimize the risk of infection, limiting patient's visits to the hospital when possible and using telecommunication technology. Future studies should focus on collecting all the baseline characteristics of cancer patients suffering from COVID-19, all cancer and chemotherapy or radiation-related variables as well as the detailed COVID-19 care protocol followed in these patients and the dynamic biochemical and inflammatory profile of these patients during the infection.