In autologous HSCT, stem cells are collected from the patient following prior exposure to chemotherapy. The standard mobilization approach is granulocyte colony-stimulating factor (G-CSF) alone or in combination with chemotherapy, such as cyclophosphamide. While chemotherapy-based mobilization may increase CD34+ yields and contribute to disease cytoreduction, it is associated with increased infectious and hematologic complications. Plerixafor, a CXCR4 antagonist, has emerged as a highly effective adjunct in patients with poor mobilization, particularly those heavily pretreated or with impaired marrow reserve. Predictors of mobilization failure include advanced age, extensive prior therapy, and low baseline blood counts. In allogeneic HSCT, stem cells are obtained from healthy donors. G-CSF administration for 4 −5 days remains the standard strategy, providing sufficient peripheral blood stem cell (PBSC) yields and enabling rapid hematopoietic recovery. Compared with bone marrow harvest, PBSC collection is less invasive and results in higher CD34+ cell counts, but is associated with an increased incidence of chronic graft-versus-host disease. Plerixafor has been investigated as an alternative or adjunct in specific donor populations with inadequate mobilization, though its use remains limited. Donor safety, tolerability of mobilization agents, and long-term health implications are major considerations in the allogeneic context. Despite distinct indications, both autologous and allogeneic mobilization share key challenges: ensuring adequate stem cell yield, minimizing toxicity, and reducing the need for multiple apheresis procedures. Recent advances have improved mobilization outcomes, yet the problem of poor mobilizers persists. Novel mobilizing agents, optimization of dosing schedules, and risk-adapted strategies are under evaluation to enhance efficiency and safety. Stem cell mobilization remains a critical determinant of HSCT success. Autologous mobilization is challenged by prior therapy and patient-related factors, whereas allogeneic mobilization prioritizes donor safety and graft quality. The incorporation of agents such as plerixafor has significantly expanded the mobilization armamentarium. Future directions include individualized mobilization protocols, novel pharmacologic combinations, and strategies aimed at improving long-term transplant outcomes.

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Abstract 025

LABORATORY EVALUATION IN MYELOMA: WHICH TESTS SHOULD BE PREFERRED DURING DIAGNOSIS AND FOLLOW-UP?

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Introduction: Multiple myeloma (MM) is a plasma cell malignancy characterized by clonal proliferation of abnormal plasma cells, production of monoclonal immunoglobulins, and organ dysfunction, often defined by the CRAB criteria (hypercalcemia, renal impairment, anemia, and bone disease). Laboratory testing is central to diagnosis, risk assessment, and monitoring during therapy and remission. **Baseline Evaluation at Diagnosis: Hematology and Biochemistry** - CBC with differential → detection of anemia, leukopenia, or thrombocytopenia. - Biochemistry panel → creatinine, urea, calcium, albumin, LDH. - β2-microglobulin and albumin → incorporated into the Revised International Staging System (R-ISS). - CRP may reflect disease activity (IL-6 driven). **Monoclonal Protein Studies:** - Serum protein electrophoresis (SPEP): quantifies the M-spike. - Urine protein electrophoresis (UPEP, 24 h): detects Bence Jones proteinuria. - Immunofixation (serum and urine): confirms the type of heavy and light chain. - Serum free light chain (sFLC) assay: critical for light-chain, non-secretory, and oligo-secretory myeloma. **Bone Marrow Examination** - Morphology: percentage of plasma cells. - Multiparameter flow cytometry: demonstrates clonality and immunophenotype. - Cytogenetics/FISH: identifies high-risk abnormalities (del[17p], t[4;14], t[14;16]) that influence prognosis. **Laboratory Evaluation During Follow-Up Routine Monitoring** - M-protein quantification (SPEP/UPEP): mainstay of monitoring. - Immunofixation: required to confirm complete response. - sFLC assay: sensitive tool for relapse, especially in light-chain disease. - CBC, renal function, calcium, LDH, β2-microglobulin: routine for treatment toxicity and disease burden. **Advanced Monitoring** - Minimal Residual Disease (MRD): assessed via next-generation flow cytometry or next-generation sequencing. MRD negativity correlates with superior survival and is increasingly used as a response endpoint. - Mass spectrometry and liquid biopsy are promising future tools for detecting residual disease with high sensitivity. **Preferred Tests in Clinical Practice** - At diagnosis: a comprehensive panel including SPEP, UPEP, serum/urine immunofixation, sFLC, bone marrow studies (with cytogenetics/FISH), and advanced imaging is essential. - During follow-up: routine monitoring can be streamlined to SPEP and sFLC, supplemented by basic hematology and chemistry. UPEP is reserved for patients with baseline significant proteinuria. - In specialized centers: MRD testing should be incorporated, especially in clinical trials, to refine response evaluation. **Conclusion** Laboratory evaluation remains the cornerstone of myeloma diagnosis and long-term management. While a full diagnostic panel is indispensable at baseline, streamlined monitoring with SPEP and sFLC is sufficient in most patients during follow-up. Advanced tools such as MRD assessment and mass spectrometry are reshaping the landscape, providing unprecedented sensitivity in disease monitoring. The optimal combination of tests ensures accurate diagnosis, appropriate risk stratification, and effective treatment monitoring in multiple myeloma.

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Abstract 026

ACUTE AND CHRONIC GRAFT-VERSUS-HOST DISEASE: INSIGHTS INTO ETIOPATHOGENESIS

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