82. Plasma Cell Myeloma and Plasma Cell Disorders

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Emerging Prognostic Factors for Clinical Care

Factor	Definition	Clinical significance	Level of evidence
t(14:20), amplification 1q21, deletion of 1p22 and 1p32	Detected by FISH	Worse overall survival	I
MYC translocation	Detection of translocation by FISH or next-generation sequencing (NGS)	MYC translocations are an independent prognostic factor for overall survival in multivariate analysis	II
Gene expression for high-risk vs. low-risk disease	High-risk signatures based on Affymetrix* or RNA-sequencing measures of gene expression		I
Mutation panels	Detected by NGS	Mutations in *TP53*, *ATM/ATR*, and *CCND1* are independent prognostic factors for overall survival in multivariate analysis	II
Circulating plasma cells	>400 plasma cells per 150,000 events by multiparameter flow cytometry	Worse overall survival	I

*Affymetrix, Santa Clara, CA.

Risk Assessment Models

The AJCC recently established guidelines that will be used to evaluate published statistical prediction models for the purpose of granting endorsement for clinical use.[1] Although this is a monumental step

AJCC
American Joint Committee on Cancer

toward the goal of precision medicine, this work was published only very recently. Therefore, the existing models that have been published or may be in clinical use have not yet been evaluated for this cancer site by the Precision Medicine Core of the AJCC. In the future, the statistical prediction models for this cancer site will be evaluated, and those that meet all AJCC criteria will be endorsed.

Recommendations for Clinical Trial Stratification

Transplant eligibility
History of prior therapy
Revised ISS stage at diagnosis
Age </>65
Minimal residual disease status
High-risk versus standard-risk myeloma

Bibliography

1.   Kattan MW, Hess KR, Amin MB, et al. American Joint Committee on Cancer acceptance criteria for inclusion of risk models for individualized prognosis in the practice of precision medicine. *CA: a cancer journal for clinicians.* 2016.