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Prognostic Impact of Baseline Laboratory Parameters on Mortality in Patients with Multiple Myeloma: A Retrospective Cohort Study

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Abstract

Background:
Multiple myeloma (MM) is a clonal plasma cell malignancy characterized by heterogeneous clinical outcomes. Several laboratory parameters measured at diagnosis reflect tumor burden and organ dysfunction and may have prognostic significance.

Objective:
This study aimed to evaluate the association between baseline laboratory parameters and mortality in patients diagnosed with multiple myeloma.

Methods:
This retrospective single-center cohort study included 415 patients diagnosed with multiple myeloma and followed at our institution. Baseline demographic data and laboratory parameters at diagnosis were collected from medical records. Laboratory variables included hemoglobin, creatinine, calcium, albumin, β2-microglobulin, lactate dehydrogenase (LDH), platelet count, and white blood cell count. Patients were categorized according to survival status (alive vs. deceased). Continuous variables were compared using independent t-tests or Mann–Whitney U tests depending on distribution. Logistic regression analysis was performed to identify laboratory parameters associated with mortality. A p-value <0.05 was considered statistically significant.

Results:
A total of 415 patients were included in the study. The mean age at diagnosis was 56.69 ± 11.74 years, and 54% of patients were male. The overall mortality rate in the cohort was 23%. Patients who died during follow-up were expected to have significantly lower hemoglobin and albumin levels, as well as higher creatinine, calcium, β2-microglobulin, and LDH levels at diagnosis compared with surviving patients. Logistic regression analysis was planned to determine independent predictors of mortality among these laboratory variables.

Conclusion:
Baseline laboratory parameters reflecting disease burden and organ involvement may provide important prognostic information in patients with multiple myeloma. Simple and readily available laboratory markers could contribute to risk stratification and clinical decision-making in routine practice.

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Conflict of Interest:
The authors declare no conflicts of interest.

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Ethics:
This study was approved by the local ethics committee and conducted in accordance with the Declaration of Helsinki. Due to the retrospective design, informed consent was waived.