Cyclin D1 amplification in multiple myeloma is associated with multidrug resistance expression.

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Abstract:

Cyclin D1 is involved in normal regulation of the cell cycle and in neoplasia. Inhibition of cyclin D1 function markedly attenuates the proliferation of fibroblasts of colon, esophageal, lung, and pancreatic cancer. However, the prognostic value of overexpression of cyclin D1 in multiple myeloma is still a point of debate. This study aimed at evaluating the effect of cyclin D1 gene amplification in multiple myeloma on overall survival and response to therapy. PATIENTS AND METHODS: Fifty patients with multiple myeloma were retrospectively studied. Cyclin D1 gene amplification was studied in bone marrow biopsies of these patients using FISH. An immunohistochemical study of the bone marrow biopsies was done to detect MDR1 protein expression. The correlations between the cyclin D1 gene amplification and overall survival and MDR1 expression were studied and analyzed statistically. RESULTS: Cyclin D1 gene amplification was found in 20% of myeloma patients and was associated with higher percentage of plasma cell infiltration of the bone marrow and increased liability for multiple osteolytic lesions. Cyclin D1-positive patients had a significantly lower progression-free and overall survival and higher levels of MDR1 compared with cyclin D1-negative patients. Cyclin D1 levels showed a highly statistically significant positive correlation with MDR1 levels (R, 0.8 and P

Keywords:

Chemoresistance; FISH; Hematologic malignancies; Immunohistochemistry; Overall survival

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