Analysis of 7 immunohistochemical markers in male germ cell tumors demonstrates the prognostic significance of p53 and MIB-1.

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Source

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Abstract

BACKGROUND:

Various prognostic factors have been investigated in order to predict the minority of male germ cell tumor (GCT) patients who will develop resistant disease. However, no prognostic system has been proven accurate.

MATERIALS AND METHODS:

Paraffin-embedded tissue specimens, obtained from primary lesions during the initial diagnosis of 83 advanced chemotherapy-treated GCT male patients, were stained for 7 immunohistochemical markers: p53, bax, bcl-2, MIB-1, topoisomerase IIa, c-kit and COX-2. The percentage of positive cells for each marker was measured for each patient. Cox regression was used for the prognostic factor analysis.

RESULTS:

All patients were followed for a median of 4 years. Nineteen patients had seminoma and 64 non-seminomatous GCT. In univariate analysis, only p53 (hazard ratio (HR) = 4.01, 95% confidence interval (CI) = 1.25-12.84, p = 0.019) and MIB-1 (HR = 3.16, 95% CI = 1.06-9.45, p = 0.039) were found to be prognostic for disease-specific survival. The best prognostic cut-off values of p53 and MIB-1 were 10% and 30% respectively. In multivariate analysis, these two markers obtained independent significance only when considered in combination (HR = 6.63, 95% CI = 1.40-31.41, p = 0.017, for patients with one or both markers above their cut-off), while the International Germ Cell Consensus Cancer Group (IGCCCG) risk was the most significant (HR = 7.99, 95% CI = 1.96-32.52, p = 0.004, for the high-risk group). However, the expression of these markers seemed to be significantly correlated with known prognostic factors. Nevertheless, we identified 34 patients of low IGCCCG risk expressing both markers below their cut-off with excellent survival.

CONCLUSION:

Among 7 immunohistochemical markers, p53 and MIB-1 demonstrated prognostic significance. Their combination may contribute to improvement of the accuracy of the currently approved prognostic system (IGCCCG).