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Comparative analysis of immunohistochemical markers for differential diagnosis of hepatocelluar carcinoma and cholangiocarcinoma

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ABSTRACT

Aims and background. Differential diagnosis of hepatocellular carcinoma and intrahepatic cholangiocarcinoma is sometimes difficult to accurately perform.

Methods. Eight markers including cytokeratin 7 (CK7), cytokeratin 19 (CK19), MOC31, CD10, glypican 3 (GPC3), claudin 4, biglycan and high mobility group A1 (HMGA1) were immunohistochemically stained in samples from 179 surgically resected hepatocellular carcinomas and 127 intrahepatic cholangiocarcinomas, and the rates of marker expression were statistically compared.

Results. With the exception of biglycan, 7 of the 8 markers were found to have significantly different expression patterns when comparing the two types of cancer (P <0.05). In intrahepatic cholangiocarcinomas, the expression rates of CK7, CK19, MOC31, claudin 4 and HMGA1 were 83.4%, 89.0%, 88.2%, 69.2%, and 31.5%, respectively. These rates of expression in intrahepatic cholangiocarcinomas were all higher than in those in hepatocellular carcinomas (CK7, 31.3%; CK19, 10.1%; MOC31, 34.0%; claudin 4, 11.2%; and HMGA1, 19.5%). The expression rates of GPC3, CD10, and biglycan were 72.6%, 39.7% and 10.0%, respectively, in hepatocellular carcinoma. These were higher than the rates found in intrahepatic cholangiocarcinomas (GPC3, 7.0%; CD10, 18.1%; and biglycan, 7.0%). In a multivariate logistic regression analysis, GPC3, CK19, MOC31 and claudin 4 were found to be independent markers for differentially diagnosing intrahepatic cholangiocarcinoma.

Conclusions. Based on our results, GPC3 and CK19 can be used as first-line markers for differential diagnoses of hepatocellular carcinoma and intrahepatic cholangiocarcinoma (accuracy rate, 73.5%), and additional combined screening for claudin 4 and MOC31 markers in GPC3(-) and CK19(-) tumors might increase the accuracy rate for distinguishing hepatocellular carcinoma from intrahepatic cholangiocarcinoma to 88.5%.

Key words: cholangiocarcinoma, differential diagnosis, hepatocellular carcinoma, immunohistochemistry, microarray analysis.

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