Is COX-2 expression a valuable independent prognostic factor in pancreatic cancer?

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A research team from Czech Republic immunohistochemically examined the expression of cyclooxygenase-2 (COX-2) in pancreatic ductal adenocarcinoma using monoclonal and polyclonal antibodies to validate the potential usefulness of this marker in predictive oncology. Immunohistochemically assessed levels of COX-2 were not proven to represent a valuable independent prognostic factor and are not superior to the conventional prognostic factors.

Cyclooxygenase-2 (COX-2) represents a key modulatory molecule in inflammation and carcinogenesis. COX-2 is known to have multiple tumorigenic effects. Increased expression of COX-2 has been observed in a variety of tumors including pancreatic cancer. In the literature, the prognostic significance of COX-2 expression including the role of antibody used for an evaluation of COX-2 expression profile have been discussed. A significant inverse relationship between COX-2 overexpression and survival rates has previously been reported in retrospective studies of different types of malignancies. Conflicting results have been shown in pancreatic cancer and the possible role of primary antibody used for the detection of COX-2 expression has been suggested.

A research article to be published on April 21, 2010 in the World Journal of Gastroenterology addresses this question.

The overexpression of COX-2 was demonstrated in a significant proportion of pancreatic ductal adenocarcinomas using both monoclonal

and polyclonal antibodies and a relationship of COX-2 to the biological process of pancreatic cancer was confirmed.

Using the monoclonal antibody, a significantly shorter disease free survival was found in patients with COX-2 positive tumors. No significant results were obtained with regard to overall survival. High histological grade and nodal involvement were associated with significantly shorter survival.

In conclusion, the level of COX-2 expression does not seem to be a valuable independent prognostic factor. Immunohistochemical assessment of COX-2 expression is not superior to the conventional prognostic factors such as grade, stage and nodal status.

More information: Hermanova M, Karasek P, Tomasek J, Lenz J, Jarkovsky J, Dite P. Comparative analysis of clinicopathological correlations of cyclooxygenase-2 expression in resectable pancreatic cancer. World J Gastroenterol 2010; 16(15): 1879-1884
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