Which is promising as therapeutic targets in patients with biliary tract cancer? EGFR or HER2?

October 16 2009

A research team from Germany analyzed the pathogenetic role and potential clinical usefulness of the epidermal growth factor receptor (EGFR) and the human epidermal growth factor receptor 2 (HER2) in patients with advanced biliary tract cancer (BTC). They found that routine testing and therapeutic targeting of HER2 does not seem to be useful in patients with BTC, while targeting EGFR may be promising.

The epidermal growth factor receptor (EGFR) and the human epidermal growth factor receptor 2 (HER2) are involved in the carcinogenesis of many malignancies. Therapeutic molecules targeting EGFR and HER2 have been successfully used for the treatment of colorectal, breast, lung and head and neck cancers among others. It is unknown if EGFR and HER2 are overexpressed in advanced biliary tract cancer (BTC) and therefore may serve as therapeutic targets in these cancers.

A research article to be published on September 28, 2009 in the *World Journal of Gastroenterology* addresses this question. A research team from Germany studied EGFR and HER2 expression in biopsy samples from 124 patients (51% women; median age 64.8 years), with advanced BTC diagnosed between 1997 and 2004. Five micrometers sections of paraffin embedded tissue were examined by standard, FDA approved immunohistochemistry. Tumors with scores of 2+ or 3+ for HER2 expression on immunochemistry were additionally tested for HER2 gene amplification by fluorescence in situ hybridisation (FISH).

The results showed 34/124 patients (27.4%) had gallbladder cancer, 47 (37.9%) had intrahepatic BTC and 43 (34.7%) had extrahepatic or perihilar BTC. EGFR expression was examined in a subset of 56 samples. EGFR expression was absent in 22/56 tumors (39.3%). Of the remaining samples expression was scored as 1+ in 12 (21.5%), 2+ in 13 (23.2%) and 3+ in 9 (16%), respectively. HER2 expression was as follows: score 0 73/124 (58.8%), score 1+ 27/124 (21.8%), score 2+ 21/124 (17%) and score 3+ 4/124 (3.2%). HER2 gene amplification was present in 6/124, resulting in an overall amplification rate of 5%.

Their findings demonstrate that EGFR overexpression is frequent in BTC. In contrast, HER2 overexpression and gene amplification is a rare event. They concluded that routine testing and therapeutic targeting of HER2 does not seem to be useful in patients with BTC, while targeting EGFR may be promising.

More information: Harder J, Waiz O, Otto F, Geissler M, Olschewski M, Weinhold B, Blum HE, Schmitt-Graeff A, Opitz OG. EGFR and HER2 expression in advanced biliary tract cancer. World J Gastroenterol 2009; 15(36): 4511-4517, www.wjgnet.com/1007-9327/15/4511.asp

Source: World Journal of Gastroenterology (news : web)