Is short-term Celecoxib intervention a effective method for preventing gastric carcinogenesis?

October 28 2009

Helicobacter pylori has been accepted as an important pathogen inducing gastric cancer. A research group from Taiwan investigated optimal intervention point of Celecoxib, to inhibit H. pylori-associated gastric carcinogenesis in Mongolian gerbils. They found that short-term use resulted in less severe inflammation and inhibited the invasion degree of gastric cancer. Therefore, Celecoxib could be used in the later stages of H. pylori infection to achieve safe and effective chemoprevention of gastric adenocarcinoma.

Since the isolation and culture of Helicobacter pylori (*H. pylori*) in 1983, this bacterium has become accepted as an important human pathogen for the development of gastritis, peptic ulcer, and gastric cancer. Cyclooxgenase-2 (COX-2) is a prostaglandin-synthesizing enzyme. Elevated expression of COX-2 is observed in a wide variety of human malignancies, including gastric cancer. Long-term high dose COX-2 inhibitors can inhibit gastric carcinogenesis in animal models, but the possible life-threatening cardiovascular adverse events limit its popular application. Therefore, it is important to evaluate the optimal intervention point of COX-2 inhibitors for inhibiting *H. pylori*-associated gastric carcinogenesis.

A research article to be published on October 21, 2009 in the *World Journal of Gastroenterology* addresses this question. The research team led by Prof. Wu from the Department of Gastroenterology of Kaohsiung

Medical University Hospital used the Mongolian gerbil model to evaluate the optimal intervention point of COX-2 inhibitor treatment for inhibiting *H. pylori*-associated gastric carcinogenesis. The article also investigates the possible mechanism of chemoprevention and possible side effects of COX-2 inhibitors.

Previous studies used relatively long-term periods of chemoprevention. However, COX-2 inhibitors were not a placebo and had toxic effects. COX-2 inhibitors should not be used too long for chemoprevention of gastric cancer. According to the findings of this study, Celecoxib may have effects including anti-oncogenic effect, inhibition of angiogenesis and metastasis, and it was shown that these effects were obtained by both late and short-term use of Celecobxib. The protective effect of Celecoxib could involve an early oncogenic phase not an early inflammation phase. The short-term use also resulted in less severe inflammation and inhibited the invasion degree of gastric cancer. According to these findings, Celecoxib could be used latterly and short-term for refractory *H. pylori* infection in a clinical situation; a point which was seldom discussed in previous reports. This is very important for decreasing the possible side effects of COX-2 inhibitors.

The research team suggests that COX-2 inhibitors should be used as chemoprevention for people older than about forty years old. This chemoprevention may play an important role for people who have extensive metaplastic gastritis with the highest risk for the development of gastric cancer, and it is also very important for those patients with refractory *H. pylori* infections at high risk of gastric cancer.

A gastroenterological expert said that this result provided some new information about personalized therapy for gastric cancer prevention and would prove beneficial for clinical application in the future.

More information: Kuo CH, Hu HM, Tsai PY, Wu IC, Yang SF, Chang

LL, Wang JY, Jan CM, Wang WM, Wu DC. Short-term Celecoxib intervention is a safe and effective chemopreventive for gastric carcinogenesis based on a Mongolian gerbil model. World J Gastroenterol 2009; 15(39): 4907-4914, www.wjgnet.com/1007-9327/15/4907.asp

Source: World Journal of Gastroenterology (news : web)