

Chemoprevention of gastric cancer by H. pylori eradication and long term use of NSAIDs and aspirin

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Gastric carcinogenesis is a multifactorial process, involving interactions among the host, environment, and pathogens. Life style, Helicobacter pylori (H. pylori) infection, and genetic susceptibility are all risk factors.

H. pylori infection is associated with a nearly 6-fold increase in the risk of gastric cancer. Eradication therapy resulted in reduced occurrence of gastric cancer with a significant pooled odds ratio (OR) of 0.65. A study using the Taiwan National Health Insurance Database showed early eradication of H. pylori resulted in 40% reduction of gastric cancer risk and late eradication led to 37% of risk reduction. A prospective study of primary prevention for gastric cancer with H. pylori eradication was conducted at Matsu island in Taiwan from 2004. The result showed a 57% risk reduction of gastric atrophy, but not effective in preventing intestinal metaplasia. However, H pylori eradication should be performed before the progression of gastric mucosal atrophy to prevent gastric cancer.

Except for H. pylori eradication, non-steroidal anti-inflammatory drugs (NSAIDs) or aspirin may reduce risk of gastric cancer. Wang et al. found a significant protective effect of gastric cancer in NSAID user. The OR is 0.78. In 2010, we found regular use of NSAIDs is associated with reduced risk of gastric cancer by using Taiwan National Health Insurance Database. The multivariate analysis showed regular NSAID user had a significant protective effect against gastric cancer with an OR of 0.79.

Current evidence suggests that chemoprevention of gastric cancer can be done through eradication of H. pylori, aspirin, NSAIDs, selective COX-2 inhibitors, and eradication of H. pylori plus NSAIDs. Eradication of H. pylori appears to reduce the risk of developing gastric cancer and metachronous gastric cancer. Ideally, H. pylori eradication should be performed before the progression of gastric mucosal atrophy to prevent gastric cancer. Long term NSAIDs users were associated with reduced risk of gastric cancer, and the protective effect appears to be duration-dependent. Since the risk of bleeding increases with age, one should weigh the risk-benefit ratio of taking aspirin or NSAIDs as a strategy of gastric cancer chemoprevention.