Curcumin in combination with triple therapy regimes ameliorates oxidative stress and histopathologic changes in chronic gastritis–associated Helicobacter pylori infection

Gastritis is a gastric mucosa inflammation[1]. One of the known causes of gastritis is infection with Helicobacter pylori[2] .One of the important mechanisms of H. pylori gastritis is the production of reactive oxygen species (ROS) and lipid peroxidation products accumulation, such as malondialdehyde (MDA). These oxidative products feature genotoxic and carcinogenic properties[3.] The importance of oxidative stress in gastritis associated with H. pylori, one of the todays' aspects of treatment in this context, is the use of natural antioxidants in these patients[4.5]. Curcumin is a hydrophobic polyphenol isolated from Curcuma longa L. It has antioxidant, anti-microbial, anti-inflammatory, and anti-carcinogenic effects[6]. Studies showed that curcumin can cause a high rate of H. pylori eradication and gastric rearrangement effects in mice[7]. So far, the effects of curcumin on the pathological and oxidative features of gastritis caused by H. pylori have not been determined in humans.

A randomized clinical trial published in 2017 was conducted during 2013 and 2014 on patients referred to the gastrointestinal and liver clinics in Iran, All patients with gastritis, confirmed by biopsy, were selected to be a part of the sample. The aim of this study was to investigate the effects of curcumin on oxidative stress marker levels and gastritis histopathologic features in patients with chronic gastric associated with *H. pylori* infection. One hundred eligible patients were divided into two groups (1:1 ratio) : a triple therapy group and a triple therapy + curcumin group. Triple therapy was given as a one-week course of an omeprazole-based triple regimen (omeprazole/20 mg, amoxicillin/1 g, and metronidazole/800 mg), each given orally twice a day. For curcumin administration, curcumin used as Turmeric tablet (700 mg orally three times a day) for 4 weeks. They evaluate MDA markers, glutathione peroxides and increased total antioxidant capacity of the gastric mucosa, oxidative damage to DNA and the eradication rate and endoscopic and histological assessment. [8]

The results were; triple therapy with curcumin treatment group significantly decreased MDA markers, glutathione peroxides and increased total antioxidant capacity of the gastric mucosa at the end of study compared to baseline and triple regimen groups ($P<0.05$ for both). In addition, the oxidative damage to DNA was significantly decreased in triple therapy with curcumin group at the end of study compared to baseline and compared to triple therapy ($P<0.05$ for both). Triple therapy group in combination with curcumin significantly decreased all active, chronic and endoscopic inflammation scores

of patients compared to the baseline and triple therapy group ($P<0.05$ for both). The eradication rate by triple therapy plus curcumin was significantly increased compared to triple therapy alone ($P<0.05$). [8]

In conclusion ,curcumin can be a useful supplement to improve chronic inflammation and prevention of carcinogenic changes in patients with chronic gastritis associated by *H. pylori*.

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Done by Pharm.D student : Mahar Dwiri
Supervised by Pharm .D: Eshraq Al-Abweeny