

Evaluation of alteration in hTERT gene expression in gastric tissue of patients with Helicobacter pylori infection

Abstract

Background: Telomerase reverse transcriptase (hTERT) is the catalytic subunit of telomerase enzyme and prevents shortening of chromosome ends during DNA replication. Disruption of hTERT gene expression plays a very important role in apoptosis, oxidative stress and chromosome instability and in the pathogenesis of diseases. Helicobacter pylori infection stimulates the production of oxygen free radicals in chronic inflammation. In past studies, the role of Helicobacter pylori in the regulation of TERT gene expression in the stomach tissue of patients has not been investigated.

Aim: Evaluation of alteration in hTERT gene expression in gastric tissue of patients with Helicobacter pylori infection

Materials and methods: In this case-control study, 100 samples were prepared, including 50 positive samples for Helicobacter pylori infection and 50 negative samples for Helicobacter pylori infection. RNA was extracted from the prepared tissues. Then cDNA was prepared from it, and hTERT gene expression levels were measured using Real Time PCR method. Gene expression analysis was done using sample t-test in SPSS 22 software environment.

Results: The mean age of the participants was 45.2 ± 14.3 years and 45 (45%) were male and 55 (55%) were female. 35 participants (35%) were smokers. 50 participants (50%) were positive for Helicobacter pylori infection. 38 participants (38%) mentioned a history of recurrence of symptoms and 57 participants (57%) were treated with antibiotics. In this study, hTERT gene expression in the group of patients with Helicobacter pylori infection showed a significant decrease compared to healthy individuals ($P < 0.05$).

Conclusion: The decrease in TERT level is associated with the progressive decrease in the shortening of telomeres at the ends of chromosomes, which affects the proliferation of cells and their differentiation, so it can play a role in the pathogenesis of the disease..

Keywords: Helicobacter pylori, hTERT, gastritis.