

Evaluation of methylation status in hTERT gene promoter in gastric tissue samples of patients with Helicobacter pylori infection

Abstract

Background: Helicobacter pylori is commonly colonized in human gastric mucosa and is responsible for the development of many diseases, including inflammation in the gastric mucosa. The exact mechanism of pathogenesis of this infection is still unknown. Changes in the epigenetic level play a significant role in the pathogenesis of the disease. The relationship between hTERT gene methylation and inflammation induced by Helicobacter pylori infection is not yet known. This project investigates the role of hTERT gene methylation levels in Helicobacter pylori-induced inflammation.

Aim: Evaluation of hTERT gene promoter methylation changes 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. DNA was extracted from the prepared tissues. After preparing agarose gel and electrophoresis, PCR products were finally examined for methylation using specific PCR methylation. The level of methylation was analyzed using the sample t-test in SPSS 22 software.

Results: The mean age of participants was 45.3 ± 14.5 years, and 50 participants (50%) were positive for Helicobacter pylori infection and 50 participants (50%) were negative for Helicobacter pylori infection. In the infected group, 53% were female and 47% were male. 40% of this group was smokers and 33% consumed alcohol. In the control group, 44% were male and 56% were female, 31% of them was smoker and 12% consumed alcohol. In this study, the level of methylation of the hTERT gene promoter in individuals with Helicobacter pylori infection did not show a significant difference compared to the control group.

Conclusion: Considering that changes in methylation can be involved in molecular mechanisms of disease development, this study suggests that

other mechanisms besides methylation may play a role in creating changes in the promoter region of the hTERT gene and, consequently, changes in hTERT gene expression.

Keywords: Helicobacter pylori, hTERT, gastritis