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Title: Characterization of clarithromycin-resistant *Helicobacter pylori* strains in Iran: A systematic review and meta-analysis

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Highlights

- The prevalence of clarithromycin-resistant *H. pylori* strains is in an acceptable level in Iran
- The prevalence of bacterial resistance to clarithromycin in Iran is lower than those reported in many countries
- The most prevalent point mutations in Iran is A2143G

Abstract

Background: The high prevalence of clarithromycin-resistant strains of *H. pylori* is a main challenge for the successful treatment of gastrointestinal infections. Point mutations in the *23S rRNA* gene are one of the main mechanisms leading to the resistance to clarithromycin in Iran. The purpose of the present review was to evaluate the prevalence of clarithromycin-resistant *H. pylori* strains in Iran and to identify the major molecular mechanisms of resistance in the resistant isolates.

Methods: Using related keywords and computer search in English and Persian databases (up to November 21, 2016), available data about prevalence of clarithromycin-resistant *H. pylori* strains and molecular mechanisms of resistance in Iran were retrieved. Relevant articles were selected using pre-defined inclusion and exclusion criteria.

Results: The results of the meta-analysis showed that the overall prevalence of clarithromycin-resistant *H. pylori* strains in Iran is 14.7%. The highest and the lowest resistance to clarithromycin were reported from Kashan (33.7%) and Rasht (5.5%), respectively. The most prevalent point mutations in Iran were A2143G (59.1%), A2142G (17.8%), A2142C (8.8%), and A2144G (6.2%), respectively.

Conclusion: The prevalence of clarithromycin-resistant *H. pylori* strains was in an acceptable level in our region. Therefore, clarithromycin can be used for the eradication of *H. pylori* infection in Iran. However, it seems that investigation about the role of other mechanisms involved in the induction of resistance to clarithromycin is needed.

Keywords: *Helicobacter pylori*; Clarithromycin resistance; Point mutation; Iran.

1. Introduction