Medical Xpress

What are the characteristics of clarithromycin-resistant Helicobacter pylori?

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Clarithromycin resistance is an uncommon occurrence among Malaysian isolates of Helicobacter pylori strains, and the mutations A2142G and A2143G detected were associated with low-level resistance.

Clarithromycin is currently one of the antibiotics used for eradication of *Helicobacter pylori*. However, reports of *H. pylori* resistance to this antibiotic are increasing worldwide. Clarithromycin resistance has been attributed to the presence of mutations in the 23S rRNA gene, a component of the ribosome that is the protein manufacturing machinery of all living cells. There is little information on the prevalence and characteristics of clarithromycin resistance in *H. pylori* strains isolated from Malaysian patients.

In a research article to be published on July 7,2009 in the *World Journal of Gastroenterology*, the authors determined the prevalence of resistance and characterized the types of mutations present in their resistant strains. In this study conducted by Norazah et al on strains isolated in Malaysia, a low prevalence of clarithromycin-resistant strains was noted. Transitions of adenine to guanine at positions 2142 and 2143 of the 23S rRNA of *H. pylori* were the main mutations found in clarithromycin-resistant isolates.

The A2142G and 2143G mutations of 23S rRNA genes in these strains can be detected easily by restriction fragment length polymorphism (RFLP) analysis of the PCR product of the 23S rRNA genes, using MboII or BsaI restriction enzymes. This eliminates the need to detect these mutations by sequencing. The result of the study demonstrates that

clarithromycin resistance is present among local strains. However, even though it is an uncommon occurrence, the possibility of the patient being infected with a resistant strain should be considered if the patient does not respond to treatment with clarithromycin, so that an alternative treatment can be given. The ability to detect clarithromycin resistance by molecular methods such as RFLP showed that this rapid method has the potential to be used as a diagnostic tool.

More information: Ahmad N, Zakaria WR, Abdullah SA, Mohamed R. Characterization of clarithromycin resistance in Malaysian isolates of Helicobacter pylori. *World J Gastroenterol* 2009; 15(25):3161-3165, www.wjgnet.com/1007-9327/15/3161.asp

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