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### **CYP2C19 Genotype Related Effect of Omeprazole on Intra-gastric pH and Antimicrobial Stability.**

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**PURPOSE:** A combination of proton pump inhibitors and antimicrobials has been applied as an anti- *Helicobacter pylori* (*H. pylori*) therapy. Omeprazole, one of the proton pump inhibitors, is metabolized by CYP2C19, which exhibits genetic polymorphism. It was reported previously that the overall anti-*H. pylori* efficacy can be related to the CYP2C19 genotype. The main aim of the present study was to obtain a rational explanation for the relationship between the overall anti-*H. pylori* efficacy and the CYP2C19 genotype.

**METHODS:** Six healthy volunteers were classified as extensive metabolizers and poor metabolizers, according to their CYP2C19 genotypes. Plasma concentrations and intra-gastric pH were monitored prior to and until 24 h after the administration of 20 mg omeprazole. The stability of amoxicillin, clarithromycin, and metronidazole was examined using buffer solutions with monitored intra-gastric pH, and their remaining percentage in the intra-gastric space was simulated.

**RESULTS:** The poor metabolizers, classified by the CYP2C19 genotypes, showed the higher effectiveness in anti-*H. pylori* therapy, via the higher plasma concentration of omeprazole and the higher intra-gastric pH, and possibly the higher stability of antimicrobials in the higher intra-gastric pH.

**CONCLUSIONS:** CYP2C19 genotyping is a very useful method to determine the effective and safe dosage regimen including the selection of the dual and triple therapy in anti-*H. pylori* therapy.