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CYP2C19 **Genotype Related Effect of Omeprazole on Intragastric 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 intragastric 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 intragastric pH, and their remaining percentage in the intragastric 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 intragastric pH, and possibly the higher stability of antimicrobials in the higher intragastric 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.