

## Detection of antimicrobial resistance genes of *Helicobacter pylori* strains to clarithromycin, metronidazole, amoxicillin and tetracycline among Egyptian patients

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Antibiotic resistance of *Helicobacter pylori* (*H.pylori*) treatment is on the rise and is affecting the efficacy of current used therapeutic regimens. The choice of empiric treatment should be anticipated on the bases of antibiotic resistance rates. Therefore, we aimed to enhance the understanding of antimicrobial resistance rates of *H.pylori* strains recovered from patients in Theodor Bilharz Research Institute Hospital in Egypt, as a mandatory step before starting treatment. Mutant genes conferring metronidazole, amoxicillin, and clarithromycin and tetracycline resistance were detected in 60 *H. pylori* strains recovered from patients who underwent upper endoscopic examination. Patients were considered to be infected with *H. pylori* when rapid urease test and detection of 16S rRNA in gastric biopsies recorded positive. Molecular detection of resistant genes to metronidazole (*rdx* gene) and amoxicillin (*pbp1A* gene) was carried out by conventional PCR followed by sequencing of PCR products. *H. pylori* resistance to metronidazole and amoxicillin were 25% and 18.3% respectively. While for clarithromycin and tetracycline, point mutations in 23S rRNA types A2142G and A2143G and in 16S rRNA of *H. pylori* were assessed by real time PCR assay respectively. Resistance mutant genes were found to be 6.7% of clarithromycin and 1.7% of tetracycline. Combined resistance rates to metronidazole and amoxicillin was 11.6% followed by metronidazole and clarithromycin 5%, while patterns of clarithromycin and amoxicillin 1.6%, metronidazole, clarithromycin and amoxicillin 1.6% were revealed. In conclusion, data concerning antimicrobial resistance genes play an important role in empiric treatment of *H. pylori* infection. According to our results *H. pylori* resistance to metronidazole and amoxicillin was relatively high. Clarithromycin is still a good option for first line anti- *H. pylori* treatment. Combined resistant strains are emerging and may have an effect on the combination therapy.

### Biography

Dalia Salem is a Lecturer of Medical Microbiology at Theodor Bilharz Research Institute- Egypt. Her special research interest and expertise is in "Detection of emerging mechanisms of multi-drug-resistant bacteria and their susceptibility patterns to novel antibiotics in addition to antimicrobial resistant genes and virulence markers in *Helicobacter pylori*-related infections".

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