

Helicobacter pylori resistance to antibiotics at the An-Najah National University Hospital: a cross-sectional study

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Abstract

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Background Bacterial resistance to antibiotics is considered the most important determinant of treatment failure. Monitoring the evolution of antimicrobial resistance to common antibiotics is therefore of special importance for clinicians. The frequency of resistance to antibiotics in *Helicobacter pylori* isolates is increasing. The aim of this study was to determine the pattern of *H pylori* antibiotic resistance at the An-Najah National University Hospital.

Methods In this cross-sectional study, we recruited patients older than 18 year who were admitted to the An-Najah National University Hospital. Participants underwent oesophageal gastroduodenoscopy and gastric biopsy in the hospital's laparoscopic department. Biopsies were taken from the gastric antrum and body during endoscope. The analysis of the biopsies included rapid urease test, histological examination to detect *H pylori*, and bacterial culture using selective media. After culturing the bacteria for 7 days, we tested oxidase, urease, and catalase activity. Cultures that were positive for *H pylori* were tested for their susceptibility to various antimicrobial agents. Ethical approval was obtained from the An-Najah National University before starting the data collection. All participants gave informed consent before the procedure.

Findings Between July 1, 2016, and Jan 1, 2017, we enrolled 91 patients with dyspepsia (49 women and 42 men). 38 (42%) patients had an *H pylori* infection. *H pylori* was found in three (100%) of three patients with a duodenal ulcer, three (46%) of ten patients with a gastric ulcer, 20 (54%) of 37 patient with gastritis, and 12 (41%) of 29 patient with a normal endoscopic appearance. When isolates of *H pylori* isolates were subjected to sensitivity tests against six antibiotics, ciprofloxacin was the most effective drug against *H pylori* (0% resistance), followed by levofloxacin (0%), moxifloxacin (3%), and amoxicillin (18%). Metronidazole and clarithromycin were the least effective drugs, with resistance rates of 100% and 47%, respectively.

Interpretation *H pylori* isolates from the Palestinian patients included in this study were highly resistant to the traditional first-line antibiotics clarithromycin and metronidazole. However, fluoroquinolones and amoxicillin are still effective antimicrobial choices. This could be the result of the unjustified wide use of antibiotics in the Palestinian community and the use of clarithromycin-based therapy as first-line treatment for *H pylori*, which in turn has led to increased rates of *H pylori* eradication failure. We recommend using quinolone-based regimens for *H pylori* and rationing the use of antibiotics in Palestinian patients.

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Contributors

The study was designed by ST and AS. JK and WA collected and analysed data and wrote the Abstract. QA did the procedure and collected samples. LK handled the samples. KA did the statistical analysis. All authors have seen and approved the final version of the Abstract for publication.

Declaration of interests

We declare no competing interests.