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Bacterial Diseases-2019: Clarithromycin Resistance and Genetic Pattern of Helicobacter pylori in a Group of Patients with Peptic Ulcer Disease in Alexandria, Egypt - Hadir EL-Kady - Pharos University, Egypt

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Clarithromycin resistance is one of the main predictors of eradication treatment failure in Helicobacter pylori (H. pylori) infections. Clarithromycin-based regimens were commonly used as a first-line therapy for H. pylori-positive patients. Lately, cure rates of H. pylori infection are decreasing to as low as 60% and are inversely correlated with antibiotic resistance rates that have crossed the 15-20% threshold. Monitoring of antibiotic susceptibility of H. pylori can be achieved through molecular methods; which stand out as an attractive alternative to conventional culture-based methods. The 23S rRNA Real-time PCR has several advantages in detection of H. pylori resistance to antibiotics; such as short working time, a high specificity up to 100% and low risk of contamination.This study aimed to detect clarithromycin resistance and genetic pattern of H. pylori in a group of 50 patients suffering from symptoms suggestive of gastrointestinal diseases. Gastric biopsy specimens were taken by endoscopy at the Gastroenterology Department of Alexandria Main University Hospital. Genotyping of H. pylori strains using multiplex PCR to detect CagA and VacA genes and detection of point mutations conferring clarithromycin resistance using a 23 S rRNA real time PCR was carried out.

The majority (98%) of H. pylori strains detected in patients were CagA positive while only (56%) were VacA positive. Most of the strains (67.86%) expressed the s2 (non toxigenic) allele and the most common genotype was VacA s2m1; expressed by 39.3% of strains. All H. pylori strains of the control group were sensitive to clarithromycin while resistance was detected in 26% of strains recovered from cases. The majority (77%) of point mutations responsible for resistance to clarithromycin were due to A-G transition at position 2143 while only 23% of which were due to A-C transition at position 2142. Genotyping of *H. pylori* in patients may be a useful strategy for identifying those at high risk of PUD and gastric cancer. Clarithromycin triple therapy should be confined to patients with no previous history of macrolide exposure and who reside in areas where clarithromycin resistance is known to be low. Quantitative *23S rRNA* real-time PCR assay is highly recommended for the accurate detection as well as quantification of *H. pylori* in gastric biopsy samples and for clarithromycin antibiotic susceptibility testing. Extended large scale studies are required to screen for antibiotic resistance pattern of *H. pylori* in the Egyptian population. This will have considerable cost/benefit implications because it will save the National Health System and patient resources; in terms of drugs, diagnostic tests and medical examination expenses. Helicobacter pylori (H. pylori) is an irresistible specialist colonizes half of the total populace and must be destroyed with appropriate anti-toxins. Of twenty years prior, H. pylori was perceived as a significant reason for peptic ulcers, in this way a considerable lot of these clinicians endeavored to treat those colonized people with antibiotic. Afterward, the World Health Organization (WHO) suggested that bacterial end can be a valuable methodology to diminish mortality of gastric malignant

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growth on the planet. Along these lines, in the primary portion of 2017, WHO recorded the clarithromycin safe H. pylori in the classification of high need which requires extreme consideration on the treatment. This declaration by WHO is a beginning to rethink current testing difficulty about H. pylori clarithromycin safe confines. Consequently, examining of different elements influencing this assignment by WHO is exceptionally invited. Helicobacter pylori is a microaerophilic Gram-negative bacterium that dwells inside gastric mucosa. It is answerable for an assortment of gastric and extra-gastrointestinal sicknesses. Despite the fact that in some creating nations, its pervasiveness is as high as 80% - 90%, lower paces of disease are accounted for from created nations. Various helpful regimens are utilized so as to destroy H. pylori contamination and forestall the advancement of medication opposition. The standard triple treatment remembers amoxicillin for mix with either metronidazole or clarithromycin and a proton siphon inhibitor (4). Protection from antimicrobial medications is a significant reason for treatment disappointment and is to a great extent liable for the decrease in destruction rates. Different regimens that have been utilized so far in patients with H. pylori contamination incorporate second-line treatment, successive treatment, and associative treatment. In these regimens, elective anti-microbials, for example, ciprofloxacin, rifampin, and antibiotic medication are utilized. Truth be told, WHO identified in excess of 16 microorganisms which truly dangers human life and general wellbeing, in this manner better administration or viable rules are fundamental. New dreams of H. pylori treatment just as the better understanding of dubious remedy of anti-toxins in the battle against this bacterium is ensuring the answer for address the quandary. H. pylori standard triple treatment incorporate proton siphon inhibitor (PPI), amoxicillin and clarithromycin giving the worthy destruction rate, be that as it may, expanded pervasiveness of anti-infection obstruction hampered proceeding with the triple treatment for one years from now. In that capacity, more current definitions were in the focal point of explores among the gastroenterologists and microbiologists. As first line treatment for H. pylori-positive subjects, bismuth fourfold treatment or corresponding treatment comprising of a PPI, clarithromycin, amoxicillin, and metronidazole are currently enthusiastically suggested by numerous global rules. Along these lines, it appears that clarithromycin has an unavoidable job in H. pylori treatment and even bacterial obstruction appears not have the option to expel its reality from restorative lines. In next area, we survey the significance of clarithromycin and how the bacterium got impervious to this normally utilized medication in rewarding the H. pylori. Annihilation of H. pylori doesn't just mend gastritis of peptic ulcer ailment, however may forestall the spread of contamination and H. pylori repeat. Additionally, it might diminish the danger of improvement of gastric disease, therefore lessening further costs required for the treatment of ensuing H. pylori-related infections. The treatment of H. pylori disease utilizes a triple medication routine utilizing one of the accompanying anti-toxins (amoxicillin, antibiotic medication or clarithromycin) alongside metronidazole and a proton siphon inhibitor (PPI) or bismuth salt, and joined PPI and bismuth salt with fourfold routine when triple treatment regimens have fizzled. In Egypt, the standard treatment consolidates PPI and metronidazole, and one antimicrobial medication, looked over among clarithromycin and amoxicillin.