Helicobacter pylori Infection in Saudi Arabia

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Detection of H. pylori infection in childhood today mostly depends on the endoscopic biopsy of the gastric tissue which is an invasive method performed for rapid urease test, histology, and culture. In pediatric patients, however, invasive procedures have major disadvantages such as risk of anesthesia, discomfort, and terrifying the patients and their parents. For this reason, common use of those procedures in children is limited; therefore, a noninvasive, practical, and sensitive diagnostic test for tile detection of H.pylori infection is desirable. The most common noninvasive tests are serology, HpSA and UBT.1- Identification of H. pylori in fecal specimens that were collected from patients complaining from gastroduodenal disorders. For H. pylori identification, specimens were subjected to morphological and biochemical tests.2- The antibiotics sensitivity test of identified culture of H. pylori was done. This test indicated that the organism was sensitive to Ceftriaxone, Cefoperazone, Imipenem, Amoxicillin + Clavulanic acid, Tobramycin, Cefotaxime, Cefuroxime, Amikacin, and Ampicillin, and less sensitive to Clarithromycin. However, the isolated organism was resistant to Vancomycin, Lincocin-Dalacin, Flumequine, Erythromycin, Methicillin, Metronidazol, Aztreonam, Ampicillin Penbritin, Neomycin, and Vibtamycin The use of accurate biochemical methods for identification of H. pylori may eventually improve anti-H. pylori therapy.3- H. pylori stool antigen test (HpSA) was an enzyme immunoassay (EIA) to detect H.pylori antigen in stool specimen. This test was approved in USA in 1998 for both diagnosis and monitoring the response to treatment of H.pylori infection in adult patients. HpSA was suitable to use particularly in developing countries like ours. Detection of H.pylori antigens using HpSA shows a high sensitivity and specificity and might be useful for noninvasive diagnosis of H.pylori infection in children. HpSA may be useful particularly in selection of the cases requiring endoscopic examination, in monitoring the response to treatment and in epidemiological studies. The results of HpSA revealed that 71 out of 100 patients (71%) were found to be infected with H. pylori.4- The urea breath test (UBT) was one of the most important non-invasive methods for detecting H. pylori infection. The test exploits the hydrolysis of orally administered urea by the enzyme urease, which H pylori produces in large quantities. Urea was hydrolyzed to ammonia and carbon dioxide, which diffuses into the blood and was excreted by the lungs. Isotopically labelled CO_2 can be detected in breath using various methods.The UBT was considered to be one of the most important and reliable non-invasive methods for the diagnosis of H pylori infection. The examination was simple and innocuous when 14C was used, easy to repeat, highly accurate, and requires a low number of precautions in order to obtain reliable

results. The results of UBT revealed that 65 out of 100 individuals (65%) were found to be infected with H. pylori.5- Non-invasive techniques for detecting H. pylori infection, such as serum ELISA, can be used in patients where invasive procedures were contraindicated and also in children in whom these procedures were not easily tolerated. IgG better than IgA or IgM. IgG, was also much more specific in children than adults, corroborating the fact that adults were more likely to have been exposed to H. pylori in the past. While some investigators have observed IgA to be equal to IgG in performance. Here, IgA yielded poor overall sensitivity and specificity, although it performed better for samples from children than those from adults. IgM has been found to have little diagnostic utility for H. pylori infections and was elevated only acutely after infection, whereas H. pylori infections are generally chronic. Here we show that IgM has low sensitivity, confirming its lack of clinical utility in either children or adults. Titers to IgA and IgG were increased with age in response to exposures to H. pylori. Serum antibody testing of IgG antibody by the enzyme-linked immunosorbent assay (ELISA) was 98.6 % sensitivity, 93% specificity and 97% accuracy, Serum antibody testing of IgM antibody by the enzyme-linked immunosorbent assay (ELISA) was 94 % sensitivity, 93% specificity and 94% accuracy and Serum antibody testing of IgA antibody by the enzyme-linked immunosorbent assay (ELISA) was 84 % sensitivity, 96.7% specificity and 88% accuracy.6- PCR has been found to have higher detection rates of H. pylori in fecal specimens to other identification tests. Although PCR was a very sensitive and specific method capable of detecting scarce bacterial amounts, its results depends on the primer’s specificity and sensitivity. For example in a PCR test for detection of H. pylori in the fecal specimens the use of primers related to the bacterial urease activity will be confounding factor. Mutations (A2142G and A2143G) in the 23S rRNA gene associated with clarithromycin resistance in H. pylori. Countries in the Middle East such as Saudi Arabia have high prevalence of H. pylori and this could be the cause of high resistance to metronidazole and clarithromycin. High prevalence of H. pylori was reported by many authors previously.7- The present study was done on 100 cases. They were 70 patients (30 males, 20 females and 20 children) with dyspeptic symptoms and 30 asymptomatic healthy volunteers (18 males and 12 females). The results of isolation and microbiological and biochemical examination revealed that only 60 from 100 individuals (60%) were found to be infected with H. pylori.8- The prevalence of H. pylori was the same among males and females. The prevalence of H. pylori infection varies from country to another country with large differences between advanced and developing countries. The epidemiology of H. pylori infection in developing countries, such as Saudi Arabia, was characterized by a rapid rate of acquisition of the infection such that approximately 70% of the population was infected by the age of 20years, because the disease was most often acquired in childhood or when young children were present in the household. In developing countries the prevalence of infection peaks in the 20 to 30 years old age group.