Helicobacter (H.) pylori colonizes approximately two thirds of the world’s population and it has been associated with chronic superficial gastritis in adults and children.\(^1\) The frequency of \(H.\) pylori infection is more in developing countries as compared to developed countries, while the data related to its frequency in Pakistan is inadequate. It has been shown that \(H.\) pylori infection is associated with gender and age.\(^2,3\)

The main focus of this study was to determine the frequency of \(H.\) pylori in asymptomatic individuals of Barakah, Islamabad and to analyze the potential association of \(H.\) pylori infection with gender and age.

A total of 516 \(^{13}\)C-UBT samples were collected during January 2009 to June 2010 from asymptomatic healthy individuals, residing at Barakah in the vicinity of Islamabad, Pakistan. The study population consisted of children and adults (aged 2-70 years, mean \(21.36 \pm 14.48\) years) with 268 (51.9\%) males and 248 (48.1\%) females. \(^{13}\)C-UBT, previously standardized at PINSTECH labs\(^4\) was performed in the morning after at least 5 hours of fasting and baseline breath samples were collected. Seventy five mg \(^{13}\)C-Urea (Isotec, Miamisburg, Germany) with orange juice was then given to each subject and second breath sample was collected after 30 minutes. Samples were sent to BreathMAT Lab, NORI, Islamabad and each breath sample was analyzed for \(^{13}\)CO\(_2/^{12}\)CO\(_2\) ratio using BreathMATplus mass spectrometer (Thermo Finnigan, Germany) and positive result was defined by a cut-off of more than 5\%.\(^5\)

Data were analyzed using the SPSS 15.0 statistical software program (SPSS Inc. Chicago, USA). Associations of \(H.\) pylori positivity with gender and age were analyzed using the Pearson’s chi-square or Fisher’s exact test, wherever appropriate. \(P < 0.05\) was accepted as statistically significant.

\(H.\) pylori positivity was found in 384 (74.4\%) subjects with 197 (73.5\%) males and 187 (75.4\%) females infected with \(H.\) pylori infection (\(p = 0.622\)). Children, 2-12 years of age, were taken as reference group having lowest prevalence of \(H.\) pylori infection and the data is presented in Table I. It was observed that prevalence of infection increased with age in all subjects starting from children (63.5\%, 113/178) to adolescents, 13-18 years (78.8\%, 105/133, \(p = 0.003\)) and maximum in adults, 19+ years (81\%, 166/205, \(p < 0.001\)). A similar trend was seen for female subjects while in male subjects, the highest prevalence of \(H.\) pylori infection (86\%, 49/57, \(p = 0.002\)) was recorded for the adolescents followed by 77.1\% for adults (81/105, \(p = 0.027\)).

It was worth noting that prevalence pattern in different age categories of male and female subjects was not the same. In children, the prevalence rate was almost similar (63.2\% vs. 63.9\%), while in adolescents, males had higher prevalence than females (86.0\% vs. 73.7\%, respectively) and in adults the males had lower prevalence than females (77.1\% vs. 85.0\%, respectively, (Figure I)).
13C-UBT is truly non-invasive method providing an alternative and an accurate test for determining the presence of H. pylori with the benefit of evaluating the gastric mucosa as a whole and much work has been done to document its high reproducibility. High overall frequency rate seen in this study (74.4%), was similar to other studies performed in Asian countries including India (79%), Iran (70.6%) and Saudi Arabia (70%).

H. pylori infection is known to be acquired early in childhood and has been reported to have an association with increasing age. Similarly in the present study, the prevalence of H. pylori infection increased with age (p < 0.001, Table I). Adolescents (13-18 years) had a higher prevalence of H. pylori infection (78.8%) than children (63.5%).

Recently Ahmed et al. reported 72.3% prevalence of H. pylori infection in children (3-16 years) of same vicinity of Islamabad where we found 70.1% frequency in all children (2-18 years). The authors only investigated prevalence in children, while we are reporting prevalence in adults also (81.0%). Moreover, the authors reported lower prevalence, 60.4% in children more than 12 years of age whereas we found higher prevalence in all adolescents, male adolescents and female adolescents (78.8%, 86.0% and 73.7%, respectively). One explanation could be that authors studied only school going children whereas in this study, the reporting data is from general population including both school going and other children.

In conclusion, H. pylori infection was more frequent among asymptomatic individuals of Barakaho, Islamabad. No significant association was seen between H. pylori infection and gender while significant difference was found with age. There is a need to explore the routes of transmission and risk factors of H. pylori infection in this region.

Acknowledgment:
The financial support for this study was provided by Pakistan Science Foundation through project no. PSF/res/C-PINSTECH/Med(207). We are thankful to Muhammad Azram and Kashif Siddique for their assistance in the study.

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