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EPIDEMIOLOGICAL IMMUNOCHEMISTRY OF

***Helicobacter pylori* IN JESSORE,**

BANGLADESH

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ABSTRACT

This thesis describes the largest cross sectional investigation into infection with *Helicobacter pylori* in rural and urban communities in Bangladesh. The study was thought to be unique in incorporating family members and institutionalised persons from different social classes. The key aims were to determine the age-specific seroprevalence of *H. pylori* infection in the normal population irrespective of sex or age, to investigate the incidence of serum antibodies to *H. pylori* CagA, and to examine the risk factors for *H. pylori* infection within the study population. Serum samples were collected from 3212 subjects located in villages within the Jessore district, and people were interviewed about themselves and their households, and data recorded on specially designed questionnaires.

A total of 1213 sera were randomly selected for laboratory investigation for *H. pylori*-specific antibodies using the techniques of immunoblotting, an in-house ELISA, a commercial ELISA, and a commercial Latex Agglutination assay. The overall seroprevalence of *H. pylori* infection detected was 83.3%. The seroprevalence rate in families (82.7%) was lower than the institutionalised population (87.1%). Among 69 putative risk factors investigated, the following were found to have a significant association with infection with *H. pylori*: age, land ownership, construction of dwellings (eg. type of wall, floor, roof etc.) and house maintenance. Associations were also observed with the level of educational achievement, location of drinking and domestic water supplies, awareness of basic hygiene, method of disposal of house-hold waste, milk intake and living within an institution. Serodiagnosis involving members of eight families indicated the significance of spouse-to-spouse, parents-to-offspring (especially mother-to-offspring) and sibling-to-sibling routes of transmission. Several members of some families were infected by a common strain of *H. pylori*; however, patterns of infection within various households were complex. Almost 80% of subjects infected with *H. pylori* had serum antibodies to the *H. pylori* CagA protein.

From the results of this study it was concluded that infection with *H. pylori* was common within members of the Bangladeshi population, and it highlighted the complexity and multiple risk factors associated with infection with this organism. The conclusions and serodiagnostic protocols described here will improve the surveillance of infections with *H. pylori*, and could be applied readily to the study of other populations.