

Emerging and Re-emerging Infectious Diseases

Perinatal Transmission of Hepatitis B in Rural Bangladesh

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Objective: Estimate the relative importance of perinatal transmission of hepatitis B in Bangladesh.

Methodology: Paired-serum samples (330 mothers and their 334 infants) were tested for hepatitis B markers in a cross-sectional study. Infants were aged 2-8 months (~40 per age month), and cord blood was drawn from 33 deliveries. Laboratory personnel were kept blind on any information regarding the individual. The study evaluated hepatitis B core (HBcAg), surface antigen (HBsAg) and e-antigen (HBeAg) using a commercial ELISA test kit. All samples were screened for HBcAg and those testing positive were further tested for HBsAg. Those positive for HBsAg were, in turn, tested for HBeAg.

Results: The mothers were young and of low parity, with a mean (SD) height of 150 (5.4) cm. The mean birth weight of 33 infants delivered at the hospital was 2.5 (0.46) kg. In maternal samples, 107 (32.4%) were positive for HBcAg, 18 (5.4%) for HBsAg, and 4 (1.2%) for HBeAg. In infant samples, 35 (10.5%) were positive for HBcAg, 1 (0.3%) for HBsAg, and none for HBeAg. Of the 35 HBcAg-positive infants, only 1 was an offspring from a HBcAg-negative mother, and was a 7-month old girl who was otherwise HBsAg-negative. Of the 18 HBsAg-positive mothers, 4 (22%) were HBeAg-positive. All 14 children of the mothers who were HBeAg-negative were negative for HBsAg. Only one of four (25%) of the children of the HBeAg-positive mothers was HBsAg carrier (8 months old), and in three children, transmission did not occur (two 8 months old, one 6 months old).

Conclusion: Hepatitis B is prevalent in rural Bangladesh. Perinatal transmission mode is relatively low. HBsAg-positive and negative for e-antigen mothers do not infect their babies. The low transmissibility of surface antigen to infants reported in this study contrasts with the published reports from other developing countries.

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Multiresistant *Salmonella* Infections: An Emerging Health Problem in Bangladesh

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Objective: Determine the prevalence and importance of multiresistant *Salmonella* isolates in Dhaka, Bangladesh.

Methodology: The present status of multiresistant *Salmonella* infections was studied by analyzing cases who submitted faecal samples for culture to ICDDR,B hospital in Dhaka during 1989-1995.

Results: In total, 4,044 *Salmonella* strains were isolated from 120,489 (3.36%) faecal samples during 1989-1995. Of the 499 salmonellae isolated in 1989, group C (33%) was the most common isolate, followed by *S. typhi* (21.2%), and group B (20.8%). In 1992, the isolation rate of *Salmonella* group B increased significantly to 57% ($p < 0.01$) of the 628 *Salmonella* isolates, which increased further to 65% of the 977 *Salmonella* isolates in 1995. The isolation rates of *S. typhi* and all other serogroups decreased significantly in 1995 compared to 1989. Of the 82 *Salmonella* group B isolates tested, 45 (55%) were *S. typhimurium* and 35 (43%) *S. gloucester*. Both the serotypes

were resistant to ampicillin, trimethoprim-sulphamethoxazole, chloramphenicol, and tetracycline which are mediated by a 157-kb conjugative plasmid.

Conclusion: The findings of the study suggest that multiresistant *S. gloucester*, a rare serotype, and *S. typhimurium* were responsible for *Salmonella*-associated diarrhoea in Bangladesh.

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Sero-epidemiological Study of Dengue and Dengue Haemorrhagic Fevers in a Metropolitan City of Bangladesh

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Objective: Identify the proportion of dengue and dengue haemorrhagic fevers (DHF) in children attending the Chittagong Medical College and Hospital (CMCH).

Methodology: The Ministry of Health and Family Welfare, Government of Bangladesh and the World Health Organization (WHO) jointly sponsored a hospital-based descriptive cross-sectional survey which identified dengue and DHF serologically. At the paediatrics departments (both out- and in-patients) of the CMCH during September 1996-June 1997, 255 cases were included consecutively following inclusion criteria, i.e.: febrile illness for 72 hours, 1-15 years of age, no focal clinical sign, and no evidence of any other infections detected by the available routine tests. Paired serum samples were taken from each case - the first sample on admission or at attendance, and the second sample after 7 days. The serum samples were processed and preserved for bulk transportation to the Virology Laboratory of the Institute of Epidemiology, Disease Control and Research in Dhaka. A specified data collection form was used for each subject. For serology, haemagglutination inhibition (HI) test was used following the Clarke and Casals Technique (1958) and interpreted according to the WHO criteria. Data were analyzed using the EPINFO 6 software.

Results: 255 were finally included for the study yielding same numbers of paired samples for HI test. The total number of males was 155 (60.7%) and of females 100 (39.3%), ratio being 1.5 and the mean age 7.2 years. Thirty-five (13.7%) cases were found to be positive for dengue, of which 71.4% were males and 28.5% females (ratio 2.5); 14.3% were of primary, 37.1% of secondary, and 48.6% of mixed (primary/secondary) infections. Dengue virus subtypes alone or in combination were: D₂ 2.9%, D₃ 47.7%, D₄ 28.6%, D₂+D₃ 2.9%, D₂+D₄ 11.4%, D₃+D₄ 8.6%, and no D₁. The 5-9-year age group was most affected with 57.1% frequency, followed by 1-4 and 10+ years age group. Seasonal occurrences of the positive cases were: premonsoon 28.5%, monsoon 25.7%, and postmonsoon 45.7%.

Conclusion: Contrary to the common notion, dengue is present in Bangladesh with high male preponderance; higher frequency relates to monsoon; secondary and mixed types and all subtypes of virus except D₁ predominate. Present situation is possibly an alarming harbinger of future catastrophe.

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