Letter To the Editor

Controlling Perinatally Acquired Hepatitis B

Sir,

Eighty to ninety percent of babies who acquire hepatitis B perinatally, develop a chronic carrier state.[1] When hepatitis B is acquired later, as an adult, the chances of developing a chronic carrier state is 5%.[2] Control of perinatally acquired infection is therefore important to control hepatitis B in the community.

Two strategies may be used to prevent perinatally acquired hepatitis B. One is to immunize all babies at birth and again at 1 month and 6 months of age. The alternate strategy is to check all mothers for hepatitis B status prior to delivery and vaccinate only those babies who are born to hepatitis B positive mothers. At our hospital which has approximately 7000 deliveries a year we have adopted the second strategy. All mothers are tested for HbsAg. The babies of mothers who are HbsAg positive are vaccinated within 48 hours of birth, at 1 month and at 6 months of age. We analyse our data from last year and consider the cost implications. For the purposes of calculation of costs, all pregnancies have been considered to be singleton deliveries and the cost of hepatitis B immunoglobulin has not been factored in.

Data from 6910 mothers from 1st January to 31st December 1999 is available. All mothers had the HbsAg ELISA test done (Hepanostika HbsAg Uni-Formi II, Organon Teknika SAF-99267 Fresnes Cedex) at the first antenatal visit. If an un-booked mother delivered soon after arrival in the hospital, then HbsAg testing was done after delivery. The pediatric team was informed about all HbsAg positive mothers within 12 hours of the delivery. Babies delivered to HbsAg positive mothers received their first vaccine within 24 hour of birth. The second and third doses were given at 1 and 6 months of age. Due to difficulties in obtaining hepatitis B immunoglobulin and its cost, not all babies of HbsAg positive mothers received the immunogloblulin at birth.

Seventy mothers were HbsAg positive. The prevalence of hepatitis B was 1%. It compares with the incidence of 0.6% and 2.2% reported from North India.[3,4]

COST ANALYSIS

The retail price of the Hepanostika Elisa test strip used in our hospital in approximately Rs 32 per test and the cost of 6910 tests is Rs. 221,120. The retail cost price of a single dose vial of the least expensive hepatitis B vaccine in the market is Rs. 70. Three doses of this vaccine for the 70 babies cost Rs. 14,700. The total cost of Elisa reagents and vaccine to prevent perinatal hepatitis B transmission using this strategy works out to Rs. 235,820. The cost to vaccinate all 6910 babies with the same vaccine would be 6 times more (Rs. 1,451,100). Vaccinating all babies would have the advantage of protecting 75% of them for the duration of 5 to 8 years.[5] This cost analysis has considered only the retail price of the test reagent and the vaccine. The costs of performing the tests and administration of the vaccine have not been taken into the equation. We use the Elisa test for hepatitis B detection. The cost of reagent strips and overheads of this test are higher. Other spot tests are available that cost Rs. 25 per test (Tulip Virutex-Bambolin Complex, Goa).

These findings suggest that our strategy seems cost effective in the population coming to this hospital. There has been discussion in the printed and electronic version of the British Medical Journal about the costs of vaccination against hepatitis B in developing countries.[6] In his response, in the electronic version of the British Medical Journal, Prof. S.K. Mittal suggests that the logistics and cost of immunizing all newborns at birth is perhaps not affordable in India. Considering the high carrier rate in perinatally acquired hepatitis B, it is necessary to immunize babies of carrier mothers at birth to control hepatitis B in the community. Our study shows that it is less expensive to test all mothers and vaccinate the babies of carriers than attempt to immunize all newborns. It is a moot point if the country can afford even this cheaper option. The majority of deliveries in India take place at home. Mothers are therefore not easily available for testing of their hepatitis B status. The argument here is that if a strategy cannot be deviced to test pregnant mothers during their pregnancy, it would be even more difficult to vaccinate babies of all these mothers within 48 hours of delivery, and again at one month and five months of age. Other strategies like universal immunization in later infancy and childhood would miss this all important window of opportunity for reducing perinatal spread and is akin to locking the stable door after the horse has bolted.

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