

Antibody levels against hepatitis B virus surface antigen among haemodialysis patients from two major Nephrology Units in Sri Lanka

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Introduction and Objectives: Haemodialysis patients are susceptible to hepatitis B virus (HBV) infection. Annual testing for antibody levels against HBV surface antigen (anti-HBs) in patients on haemodialysis is recommended. If levels are less than 10mIU/mL, a booster vaccination is required. In the study sites, testing for anti-HBs levels is not done and thus the need for repeat vaccination cannot be identified. Our study aimed to quantify anti-HBs levels, identify factors associated with anti-HBs levels and test for HBsAg in those with anti-HBs <10mIU/mL.

Methods: This study was done from November 2019 to April 2020 in 235 regular haemodialysis patients who had received three doses of hepatitis B vaccine in three different convenient schedules practiced by these Units in the last ten years (Table). Anti-HBs levels were quantified and analyzed with demographic factors such as age, gender, duration of chronic kidney disease, duration of dialysis, cycles of dialysis done per month, body mass index, serum creatinine and haemoglobin levels.

Results: Overall protection with anti-HBs >10mIU/mL was 69% with 80.4% for schedule C. Demographic factors did not show any association with anti-HBs levels apart from gender in schedule A where females had protection more than males. Among the 73 patients with anti-HBs level of <10mIU/mL, two were positive for HBsAg giving a prevalence of 2.7% for HBV infection among the vaccinated-unprotected haemodialysis patients.

Table: Anti-HBs levels in 235 haemodialysis patients at two major nephrology units in Sri Lanka.

| HBV vaccination schedules practiced by the units | Anti-HBs levels (mIU/mL) | | | Overall protection | Total |
|--|--------------------------|------------------|----------------|--------------------|------------|
| | <10 Not protected | 10–100 Protected | >100 Protected | | |
| Schedule A (0, 1, 2 months) | 49 (33.1%) | 45 (30.4%) | 54 (36.5%) | 99 (66.9%) | 148 (100%) |
| Schedule B (0, 1, 3 months) | 13 (41.9%) | 10 (32.3%) | 8 (25.8%) | 18 (58.1%) | 31 (100%) |
| Schedule C (0, 1, 6 months) | 11 (19.6%) | 13 (23.2%) | 32 (57.2%) | 45 (80.4%) | 56 (100%) |
| | 73 (31%) | 68 (29%) | 94 (40.0%) | 162 (69%) | 235 (100%) |

Conclusions: Schedule C provided better protection compared to schedules A and B. A standard 4 dose schedule would achieve a better protection in these patients. Testing for post-vaccination anti-HBs levels and monitoring the protection by annual testing must be done to maintain protection in haemodialysis patients according to the CDC recommendation.

Keywords: Anti-HBs levels, hepatitis B vaccine, HBsAg, haemodialysis patients, Sri Lanka

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