

Changing patient safety in India: Mandatory hepatitis B immunity

Hepatitis B is a dreaded infectious disease and one of the major global public health problems and is the tenth leading cause of death. The global disease burden is staggering with about two billion people acutely infected and nearly 350 million chronically infected with hepatitis B virus (HBV). Worldwide, it has been estimated that more than 2 billion of the population has evidence of the past or recent HBV infection, and there are more than 350 million chronic carriers of the mentioned infection. In India, the prevalence of hepatitis B surface antigen (HBsAg) among the general population ranges from 2% to 8%, placing India in an intermediate HBV endemicity zone. Our country has over 50 million cases making it the second largest global pool of chronic HBV infections. HBV is also the second most common cause for acute hepatitis in India (after hepatitis E), being responsible for nearly one-third of acute viral hepatitis patients. The seroprevalence is two to four times higher among healthcare workers. This, in the context of an outsized population of the country and absence of a national hepatitis B immunization program, could spell a projected escalating burden of the disease in the years to come.

India has a much higher prevalence of HBV carriers than the developed countries, making the Indian medical and dental students prone to exposure. One of the most serious threats these students face during their clinical training is the possibility of exposure to blood-borne pathogens, with the attendant risk of infection with HIV, HBV or hepatitis C virus. Hepatitis B, among these, is the most important infectious occupational disease. The high risk of being infected is the consequence of the high prevalence of virus carriers in the assisted population, the high frequency of exposure to blood and other body fluids and the high contagiousness of HBV. In fact, HBV infection is more dangerous compared to HIV infection vis-a-vis occupational exposure is due to the fact that its transmission rate after percutaneous exposure to blood is much higher (about 30%) than that of HIV (0.3%).

A study from New Delhi in 1997 revealed that while only 2.3% preclinical students were positive for HBsAg, and 18% and 10.4% for anti HBs and anti HBe respectively, amongst



the clinical group who had been exposed to the clinical departments, the corresponding figures were 1.4%, 69% and 55% respectively. Another study from Mumbai in 2002 highlighted the lack of awareness among medical and nursing students. Besides, the study also revealed that only 26.3% of the medical students had taken 3 doses of hepatitis B vaccination. However, a study from Orissa in 2000 found that although the vaccination rate was 86.7% among dental students and 79.5% among medical students, it was an abysmal 1.9% among nursing students. None of the students received counseling about hepatitis B vaccination at the time of admission to the medical college. Vaccination is the best way by which one can armrest oneself against hepatitis B. Transmission rate is as lofty as 30% in nonimmunized individuals, though it is a rare finding in those who have been immunized.

An important facet of global HBV epidemiology is the emergence and increasing significance of HBeAg negative infections as well as the distribution and significance of HBV mutants, particularly those in the precore (PC) and basal core promoter regions of the HBV genome. The prevalence of this “e” - negative chronic hepatitis B and its molecular basis varies geographically. Thus, in the Mediterranean countries, nearly 90% of the HBeAg-negative infections are associated with the PC mutants while this is 50% in the Far East and 25% in the USA.

Ample data are available documenting that hepatitis B vaccination has been in vogue for several years in other countries as well. In these countries, routine immunization against hepatitis B has led to a significant reduction in the prevalence of chronic HBV infection. The revelation of this effect in a wide array of countries and epidemiological settings has established that this effect is independent of geographical and social factors.

Based on this data, it is possible using mathematical modeling techniques to reckon the likely effects of a universal neonatal

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immunization program on the health status and survival of the Indian population. Attention should be paid to find out if the young medical and dental students possess correct knowledge about the disease, its risk factors, modes of transmission and consequences and do not harbor any misconceptions about it. A strong hold of such basic knowledge would go a long way in helping them to protect them.

From the information available at hand, it is now quite evident that although the western institutions have taken passable steps to protect and fight against the disease, despite the minimal risk, the Indian institutions including the statutory bodies like the Indian Medical Council, Dental Council of India, the University Grants Commission, and the Ministry of Health, and professional bodies like the Indian Medical Association, Indian Society of Gastroenterology, Indian National Association for Study of the Liver and the Association of Physicians of India pretend to be ecstatically ignorant of their contractual obligations and odd jobs in this regard.

The young and inexperienced medical and dental students might underestimate the risk of exposure. Even if not performing invasive procedures, chance of mucocutaneous exposure while examining the patients physically still exists, so do that of accidental exposures due to improper disposal of sharps. This reduced perception of risk may translate into recklessness which can prove hazardous. Compliance with universal precautions has been found to be lower among health care workers with a lower perception of risk.

In the practically scenario, exposure cannot be avoided, therefore, it should be ensured that the students know the standard postexposure prophylaxis protocol in case any accidental exposure. They ought to be made to comprehend the extreme importance of immediately reporting the incident to the concerned authorities, undergoing prompt investigations and seeking appropriate treatment and suitable follow-up. This is of prime importance owing to the time constraints for the administration of hepatitis B immune globulin to persons who have inadequate HBV antibody protection. Finally, an attempt should be made to identify factors which persuade the awareness level and vaccination status of students. Interventions, to improve and maintain optimal compliance with infection control guidelines, are required and must take into consideration personal factors as well as organizational and administrative factors.

India is on the doorsteps of espousing an HBV prevention program. Based on the global experience, it is liable that an effective childhood immunization program will reduce the burden of infection in this country. Formulation of a national policy is of utmost importance. While the medical and dental students ought to be protected, measures are called for the patients from being unwittingly infected from an infectious health care provider. An aggressive approach needs to be followed as regards to vaccination and steps should be taken to provide for adequate reparation.



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