Preventing an epidemic of Hepatitis B in Health Care Workers of Sri Lanka: urgent need for a comprehensive strategy

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Hepatitis B infection is a prevalent infection in many developing countries. The infection has serious sequelae which include acute fulminant hepatitis, chronic active hepatitis, cirrhosis, and hepatoma.

The present prevalence of Hepatitis B infection in Sri Lanka is not known. A study done in 1976 showed that 9.9% of an island wide sample had evidence of recent or past infection with Hepatitis B[1]. The carrier rate for Hepatitis B was found to be only 0.9%, which is probably unusual for a developing country. A more representative population survey done in 1992 in Gampaha District has showed a carrier rate of 2.5% from a sample of 1913[2].

However, it is likely that an epidemic of Hepatitis B will spread among Health Care Workers (HCW) in Sri Lanka. The principle reason for this gloomy forecast is the failure to adhere to recommended sterile precautions in our hospitals. This is evident by a recent study where 62% of insulin dependant diabetics attending the out patients department of a state hospital, had serological evidence of past or present infection with Hepatitis B[3]. Such epidemics are likely to spread to the spouses of these patients and HCW's attending on them.

This situation is compounded by a poor coverage of immunisation of HCW's against Hepatitis B and practice of improper techniques during minor procedures. Thus most HCWs including surgeons in Sri Lanka probably have not been vaccinated against hepatitis B[4]. Hyperimmune globulin which is used for post exposure prophylaxis is not available freely in health care institution and injuries from sharps, is a common occurrance in surgical practice in Sri Lanka[4]. Many HCWs eg. nurses, still continue unacceptable practice of recapping needles[5] which is well known to result in needle prick injuries[6]. Furthermore our methods of disposing hospital waste is far from satisfactory.

During 1992 the Ministry of Health implemented a policy of vaccinating HCWs against Hepatitis B in stages. However, this approach per se may not be adequate. The strategy should have a comprehensive plan which takes into account the different situations when transmission of the virus could occur.

Strategies which are available for a comprehensive prevention programme are given below.

(a) Patients with high risk of developing Hepatitis B (eg.insulin dependant diabetics, haemophiliacs, asthmatics who are frequently admitted to hospital) should be offered vaccination immediately. This would prevent them from getting the infection as well as transmitting it.

(b) All HCWs in contact with patients should be vaccinated. Thus dental surgeons, obstetricians, gynaecologists, midwives, staff in intensive care units, members of staff who perform duties of phlebotomists, and staff at dialysis units should be given priority. Prioritization of vaccination strategies should be on a cost effective analysis which have been used in similar situtations[7].

(c) Government should invest in disposable equipment (eg. syringes, needles), at least in situations where risk is high. Diabetic clinics could use innovative procedure such as issuing disposable insulin syringes and needles at monthly intervals to each patient or needles daily for all patients. Training for self administration is another option.

(d) Screening programmes like the Anti Filaria Campaign (AFC) must use disposable sterile equipment. If a programme like AFC, which combats essentially a benign disese, cannot afford safe equipment, it should abandon or restrict its screening to suit its budget.

(e) Education programmes or refresher courses on prevention of sharp injuries in addition to universal precautions should be implemented on a wider scale. Infection control nurses in each hospital would provide a nidus to inform and implement prevention strategies.

(f) Hyperimmune globulin and the vaccine against

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Hepatitis B should be available freely for post exposure prophylaxis of HCWs who have suffered injuries from contaminated sharps.

(g) Ministry should take steps to sponsor studies which will enable researchers to identify the HCWs with high risk of developing Hepatitis B.

An alternative strategy is universal vaccination of the whole population, which is costly and may not be feasible. The WHO considers the presence of more than 3% carrier rate in a population as the cut-off point for universal vaccination[8]. With carrier rates below 3% the important route of trasmission is likely to be horizontal (i.e. from patient or carrier to non immune). Above 3% carrier rates, vertical transmission becomes more important (i.e. from infected mother to infant). Thus Sri Lanka does not 'qualify' for universal vaccination of the whole population and furthermore the cost is likely to be prohibitive.

When options for a preventive programme are being considered the following aspects are worth remembering.

(a) The cost of treating one patient with chronic active hepatitis or carrier with alpha interferone, would cost approximately Rs.1,30,000 for the drug alone, with a successful seroconversion rate of approximately 40%[9]. This ignores the morbidity and mortality of the illness, cost to the health care system when caring for patients with Hepatitis B, and side effects of therapy.

(b) There is the possibility of a HCW or a patient claiming damages from the health care institution for being infected by Hepatitis B due negligance of the health care institution.

(c) An added advantage of a well planned strategy would be that HCWs may become more aware of the risks of developing HIV or Hepatitis C, eg. following injuries due to sharps[10,11] and therefore modify their behaviour. Thus the programme to prevent Hepatitis B may reduce the spread of Hepatitis C and HIV among HCWs, for which there are no known vaccines.

Despite the dangers of contracting Hepatitis B, Hepatitis C and even HIV during their occupation, HCWs and the health administrators appear to lack concern for the risks involved. Unless urgent action is taken by the profession and administrators (in the government and private sector), these infections are likely to affect many of our collegues, their families and the unsuspecting general public, with tremendous personal and socio-economic consequences.

References

1. Vitarana T. Viral Hepatitis in Sri Lanka. *Ceylon Medical Journal*, 1989, 34, 163-178.
2. Padmasiri EA. A study on prevalence of Hepatitis B surface antigen in the community and prevalence and risk factors of Hepatitis B virus infection among nursing personnel in a district in Sri Lanka, MD Thesis in Community Medicine 1993, Postgraduate Institute of Medicine, University of Colombo.
3. Fernando CRS, de Abrew K, Jayasinghe KSA, Mendis LN, Jayawardena KR, Nanayakkara HA. The prevalence of Hepatitis B infection in insulin dependant diabetics attending General Hospital Colombo, Abstracts of the 105th Anniversary Academic Sessions, Sri Lanka Medical Association, 1992, 13 (Abstract 5).
4. Kuruppuarachchi L, Jayasinghe KSA. Injuries due to sharps during surgery: a preliminary report, Abstracts of the 105th Anniversary Academic Sessions, Sri Lanka Medical Association, 1992, 15 (Abstract 8).
5. Roohulla S, Jayasinghe KSA. Disposal of sharps by outpatient departments (OPDs) in a sample of government hospitals around Colombo. Abstracts of the 106th Anniversary Academic sessions, Sri Lanka Medical Association, 1993, 23 (Poster).
6. Anderson DC, Blower AL, Packer JMV, Ganguli LA. Preventing needlestick injuries, *British Medical Journal*, 1991, 302, 769-770.
7. Mulley AG, Silverstein MD, Dietstag JL. Indications for use of Hepatitis B vaccine, based on cost-effectiveness analysis *New England Journal of Medicine*, 1982, 307: 644-652.
8. Cossart Y, Hepatitis B vaccination — for whom? *Australian Prescriber* 1989, 12, 80-81.
9. Harrison PM, Johnson YNL, Williams R. Reviews in Medicine: Hepatology, *Postgraduate Medical Journal*, 1991, 719-741.
10. McCray E. Occupational risk of the acquired immuno deficiency syndrome among health care workers, 1986, 314, 1127-1132.
11. Kiyosawa K, Sodeyama T. Tanaka Hepatitis C in Hospital employees with needlestick injuries. *Annals of Internal Medicine* 1991, 115, 367-369.