

Hepatitis B Vaccination and Prison Personnel:

A shot in the arm of the staff?

A literature-based risk analysis

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Abstract

Introduction

Transmission of hepatitis B virus (HBV) in a prison setting is a real concern. Prisons were not constructed to minimize the transmission of disease or to effectively deliver health care. The risk of infectious disease transmission is higher than in the community, owing to a large combination of factors, including large dynamic populations living in close proximity in relatively overpopulated conditions and high risk behaviours among populations with an elevated prevalence of infectious diseases.

Methods

The likelihood of transmission and the consequence of HBV infection in prison personnel were evaluated in a literature-based risk analysis. To inform the risk analysis, the published literature on HBV was retrieved and reviewed.

Results

Hepatitis B (HB) is not uncommon in prisons, a high prevalence is found around the world. This is because of insufficient vaccination coverage, high exposure to the disease, caused by e.g. a fairly violent environment (both inmate-on-inmate, inmate-on-staff), self-harm, intravenous drug use, subcultural behaviours (tattooing, body piercing), men having unprotected sex with men, poor hygiene conditions, poor health care provisions, overcrowding, and understaffing. Therefore, prisons should be regarded as areas of relatively high HBV circulation among inmates. It has been shown that, for every USD invested in HBV vaccination in prisons, 2.13 USD is saved in later treatment and care costs.

Likewise, the prison environment seems to constitute a high-risk situation for HB among correctional staff. However, the studies of occupational HBV risk among prison staff showed some discrepancies, possibly due to a selection bias of the control group.

Our risk analysis assessed the likelihood of transmission and the consequence of the infection to determine the level of risk. The first component was to evaluate the potential for exposure of the personnel, the transmissibility of the virus, high-risk factors, environmental factors that would facilitate spread of the disease and the susceptibility of the population. HBV is 50-100 times more infectious than Human Immunodeficiency Virus and 10 times more than Hepatitis C virus. HBV is one of the main causes of acute hepatitis. The case-fatality rate of HB is about 0.4%. Chronic hepatitis has a serious morbidity and mortality due to liver failure, liver cancer and cirrhosis in the long run.

Conclusions

Most of the retrieved resources (strongly) recommend HB vaccination to all previously unvaccinated prisoners and prison service personnel who are in regular contact with prisoners.