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Letters to the Editor

Sir,

Patient to patient hepatitis B transmission during heart biopsy procedures. A report of the European Working Party on Viral Hepatitis in Heart Transplant Recipients

Hepatitis B virus (HBV) is an hepatotropic DNA virus. Important routes of horizontal transmission of the virus are through blood or blood products, by sexual contact and by organ transplantation. After an acute infection, 5–10% of immunocompetent adult patients and 90–100% of patients on immunosuppressive therapy or who acquire HBV via vertical transmission will develop chronic hepatitis B.

In general, heart transplant recipients are screened for the absence of HBsAg and anti-HBc before being accepted for transplantation. Organ donors, as well as blood donors, are screened for the absence of HBsAg before being accepted.[1] However, we think that it is important to draw the attention of transplant cardiologists, thoracic surgeons, hepatologists and those involved in hospital infection control to the risk of nosocomial transmission of hepatitis B virus during endomyocardial biopsy procedures. Complete epidemiological data are now published from the Hannover group and have been submitted for publication from the Rotterdam and Paris groups.[2,3,4,5] In Hannover hepatitis B was diagnosed in 67 patients in a five-year period (crude attack rate 27·5%). In Paris, 86 cases of HBV infection were diagnosed in an 11-year period (crude attack rate 11·5%). In Rotterdam, 21 cases were diagnosed in a 12-year period (crude attack rate 8·2%). How can this be explained?

Most infected heart transplant recipients will not develop severe liver enzyme abnormalities or hyperbilirubinaemia or have signs or symptoms compatible with hepatitis B infection. Therefore, recognition of an infected patient will require a high index of suspicion. For the reason mentioned above, infection will become chronic with high levels of viraemia. The amount of HBV DNA present can be up to 10^{10} genome equivalents per millilitre blood. In addition, one of the features of heart transplant recipients is that during follow-up they will have numerous invasive procedures, especially repeated right-sided endomyocardial biopsy. This makes the patient vulnerable to patient–patient or patient–doctor transmission from a highly contagious index patient.

In three heart transplant units, an epidemic outbreak of hepatitis B in

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heart transplant recipients has now been documented. In all centres, case-controlled analysis showed that after introduction of an infected patient (index patient) patient–patient transmission occurred during routine right-sided endomyocardial biopsy procedures in the post-transplantation phase. Several common factors could be identified but the most important observation was that in some centres not all of the infection control guidelines for this biopsy, as proposed for heart catheterization, had been applied. We strongly recommend that right-sided endomyocardial biopsy be considered as an invasive procedure that merits infection control practices *at least* as strict as those proposed for heart catheterization.[6] If transplant units consider vaccination against hepatitis B candidate recipients as soon as they are put on the waiting list; in the post-transplant period less than 5% of patients will respond to primary vaccination (anti-HBs>10 IU/L).[7]

Because this problem may be common to several heart-transplant units, our group has started a 'European Registry on Viral Hepatitis in Heart Transplant Recipients' to study the determinants of the outcome of the disease and to coordinate future interventions. We would welcome any centre that is willing to contribute their experience and collaborate with us.

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Sir,

Creative infection control—raising awareness of infection control policies

Following the recent article in the *Journal* describing various activities designed to increase interest in infection control,[1] the control of infection team at this hospital implemented one of the programmes mentioned, namely, a 'Hospital Handwash Day'.

Staff were targeted as they arrived at the hospital canteen for lunch, and asked to place a hand on a blood agar plate. Identification was by ticket to preserve anonymity. They were asked also to complete a brief questionnaire detailing the timing of their most recent handwash. Relevant posters adorned the hospital canteen entrance. Plates were incubated in air overnight and colony forming units (cfus) identified and quantified by standard laboratory procedures. The results were posted on a notice-board directly outside the canteen one week later, together with explanatory notes regarding the isolates found and prizes awarded for the 'Cleanest Hand', the 'Dirtiest Hand' and the hand producing the 'Most Unusual Organism'. Hands from 139 members of staff were captured on plate, and 119 questionnaires completed. Most hands carried coagulase-negative staphylococci and diptheroids, but five (4%) produced coliforms, five (4%) faecal streptococci, 12 (9%) *Staphylococcus aureus* (none methicillin-resistant) and one (<1%)