Hospital laundry workers — an at-risk group for hepatitis A?

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Twenty-two laundry personnel at St. Luke's Hospital, Malta, were tested for seropositivity to hepatitis A together with 37 nursing aides working in paediatric and infectious disease wards, matched for age, who were used as controls. IgG antibodies were found in 54.5% of laundry workers and 13.5% of nursing aides [odds ratio (OR) = 7.68; 95% confidence interval (CI) = 1.87-33.83]. Furthermore, laundry personnel consistently handling dirty linen prior to washing showed an OR of 16.50 (CI = 1.19-825.57) as compared with colleagues handling only clean items. These results would suggest that the increased exposure of hospital laundry workers to potentially infected linen can constitute a risk of occupational hepatitis A for this group of employees.

Key words: Hepatitis A; hospital workers; laundry workers.

INTRODUCTION

Hepatitis A remains an important public health concern in all countries. Centers for Disease Control and Prevention (CDC) estimates that the annual cost of this infection in the United States exceeds $200 million with an average of $2,500 required as direct and indirect expenses to treat every adult case and an accompanying average loss of 27 working days. The recent development of a safe and effective vaccine has provided new prophylactic opportunities. However, it is important that at-risk groups are correctly identified to ensure that any preventative programme is truly cost-effective.

Nosocomial hepatitis A has traditionally received far less attention than its parenteral equivalents. Presumably, since hepatitis A has a long incubation period and causes a mild illness in most cases, it may be very easy to miss nosocomial transmission unless all contacts are followed up for several months both clinically and serologically. When outbreaks have been reported, they have usually involved paediatric and neonatal intensive care settings.

At least 10% of all individuals with a hepatitis A infection will be hospitalized during some part of their illness. Furthermore, the most common risk factor for acquiring hepatitis A remains personal contact with an infected individual. One would therefore anticipate that, in theory, health care workers in contact, directly or indirectly, with such patients would be at risk of nosocomial infection. Few studies however have looked at the relationship between this infection and hospital employees. This may be because the faecal-oral mode of spread should, in theory, be easily preventable through diligent hand hygiene and proper adoption of standard precautions. It is well known however that, in practice, hand hygiene is often less than ideal in health care settings. Individuals exposed to contaminated faecal material such as those whose work involves direct contact with fomites such as linen, bed-pans, etc. are clearly most at risk of acquiring hepatitis A in the course of their work.

MATERIALS AND METHODS

Our group therefore decided to study two such populations of workers within St. Luke's Hospital, a 900 bed general hospital on the Mediterranean island of Malta. Malta has a low to intermediate prevalence of hepatitis A, equivalent to that found in Western Europe and the USA. Hepatitis A incidence averages around five cases per 100,000 population per year with seroprevalence less than 50% by 40 years of age. Two groups of hospital employees were investigated: nursing aides in paediatric and infectious diseases wards, who handled used linen and bedpans as part of their work, and staff within the hospital laundry. All subjects were less than 40 years of age and had been working continuously in their particular section for a minimum of 5 years.
A venous blood sample was taken, allowed to clot and the serum tested for the presence of anti-hepatitis A antibodies by EIA (Abbott). A total of 22 laundry personnel (mean age = 32 years) and 37 nursing aides (mean age = 28 years) were tested. Ward clerks (mean age = 31 years) with comparable educational backgrounds and wage earning were used as controls since they worked in a hospital environment but their occupation did not expose them to faecal material. Statistical analysis was performed using the Epi-Info Version 6 software programme.

Two individuals who volunteered a history of jaundice before starting to work in their section were excluded from the study. No-one had previously received hepatitis A vaccination for any reason or had spent more than one year in a country normally designated as high-risk for hepatitis A which were the other exclusion criteria of the study.

RESULTS

No significant difference in seropositivity was observed between individuals working in paediatric and infectious diseases wards and the control population (odds ratio (OR) = 0.47; 95% confidence interval (CI) = 0.12–1.55). On the other hand, differences in seroprevalence were present in the laundry personnel studied when compared both to the general population (OR = 3.6; CI = 1.14–11.32) (Table 1) as well as to the nursing aides in paediatric and infectious diseases wards (OR = 7.68; CI = 1.87–33.83) (Table 2).

The hospital laundry serving St. Luke’s Hospital was structured in such a way that most workers either handled used linen prior to washing or else folded and packed already laundered items. By sub-dividing and comparing the data for workers who had worked predominantly in the pre-laundering sections, the OR for workers who mainly handled used linen rose to 17.6 (CI = 3.31–101.88) when compared with their ward counterparts and to 16.50 (CI = 1.19–825.57) if compared statistically significant with their ward counterparts. At the same time compliance with standard precautions, particularly the wearing of gloves, was inferior to that found within the wards. It would appear logical to infer that whereas occasional exposure to faecal material, even in high risk ward settings, would not predispose towards hepatitis A infection, when contact with potentially infected fomites such as hospital linen is continuous, the possibility of infection rises significantly.

It is therefore important to target hospital laundry worker for intensive training campaigns to improve compliance with standard precautions. This group of hospital personnel could also potentially benefit from hepatitis A vaccination.

DISCUSSION

Our data correlates well with figures published by Poole and Shakespeare who could not establish evidence of increased exposure risk in individuals caring for children and people with learning disabilities and in paediatric and nursery nurses. On the other hand, studies by Germanaud11 and Van Damme12 found evidence of raised hepatitis A seroprevalence in nursing and hospital cleaning personnel studied.

The size of our hospital laundry meant that only a relatively small number of subjects could be enrolled in the study and this constitutes the major limitation of the study. This was particularly manifest when comparing workers in the clean and dirty sections of the hospital laundry and evident in the wide confidence intervals obtained. The results of our study would nevertheless appear to have identified a potential at-risk group for hepatitis A infection within our healthcare setting. Laundry workers in St. Luke’s Hospital have, on average, a greater exposure to potentially contaminated linen than their ward counterparts. At the same time compliance with standard precautions, particularly the wearing of gloves, was inferior to that found within the wards. It would appear logical to infer that whereas occasional exposure to faecal material, even in high risk ward settings, would not predispose towards hepatitis A infection, when contact with potentially infected fomites such as hospital linen is continuous, the possibility of infection rises significantly.

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REFERENCES


