Hepatitis B Infection and Sharp-Object Injuries in Hospital Laundry Workers

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Introduction

Health care workers who most commonly sustain injuries due to contaminated sharp objects in healthcare facilities include nurses, physicians, surgical technicians, and phlebotomists. But employees in the “other” category are also affected by sharps injuries. These “others” include housekeepers, food service assistants, laundry workers, and a variety of other workers, most of whom do not use needles or other sharp objects in the course of their work. In this report, we describe the occurrences of sharps injuries and the prevalence of hepatitis B infection in an “other” group—laundry workers—in a large community teaching hospital in South Carolina. The report should serve as a reminder that those in the “other” category are at real risk of infection from bloodborne pathogens from needlesticks.

Background

The Greenville Hospital System (GHS) includes a 675-bed community teaching hospital and five affiliated health care institutions with a total of 500 additional beds. GHS is serviced by a single laundry department with 50 employees. In late 1989, two laundry workers who sustained occupational needlestick injuries were found to be HBsAg-positive after baseline testing. An environmental assessment was then conducted in the laundry department to look for potential bloodborne pathogen hazards. When needle boxes were observed in the dirty laundry sorting area, employees explained that such containers were needed in order to properly dispose of contaminated sharp objects commonly encountered during the sorting process. Laundry workers were then asked to set aside all sharps and unusual objects found in dirty linen for a period of five years.
days. An alarming number of such objects was collected over the five days.

This experience prompted investigation of the prevalence of hepatitis B (HB) infection and the occurrence of sharp injury among GHS laundry workers. In 1990 we also conducted a mail survey on the experience of other hospital laundries. In late 1992 a follow-up mail survey of hospital laundries was done to assess whether significant changes in the rates of sharp-object injury and utilization of hepatitis B vaccination had occurred as a result of the OSHA Bloodborne Pathogens Standard.

Investigation of GHS Laundry Workers

Methods

A confidential questionnaire was developed for collecting information from laundry workers and interviews were conducted by one of the authors (CS). Information requested included demographic data, laundry and other prior health care employment history, potential non-occupational exposure to HB, past medical/social history (liver disease, number of lifetime sex partners, history of sexually transmitted diseases), and HB vaccination status. An HB seroprevalence survey was done by screening for HB core antibody, with subsequent testing for HBsAg in those who were HB core antibody positive.


Patient Care: Bed pan*(5), needles/syringes*(5), whole needle disposal box*, thermometers*(3), box of hazardous waste*, suction container*, pillows, IV bags/bottle/tubing*(9), IV poles*(2), egg crate, blood pressure cuff*(2), stethoscope*(2), trays, slings

Critical Care: Heart monitor*(3), life support system, fetal monitor*, respirators, telemetry unit, airway*, trauma pants*, pacemaker*, oxygen regulator*(2), oxygen cylinder*, oxygen tank stand*

Surgical Supplies: Complete surgical instrument tray*(4), scalpels*(4), endoscope(2), endoscope with camera attached*(2), miscellaneous surgical instruments*(9), dental instruments*(2), bone drill*, orthopedic traction device*

Body Parts: Placenta(3), finger, finger with ring*

Miscellaneous: Motors, bottles, whole sink, metal bed elevators, wheelchair parts(2), x-ray vests(2), mop wringer, butcher knife*(2), beer can, soda can, box cutters, paper towels

Notes:

() indicates number of laundries reporting the item
* indicates item was reported at least once in 1992 survey; items without an asterisk appeared in 1990 survey only.

Results

Of 49 participating laundry workers, 85% were black and 65% were female. Of the 46 who were interviewed, none had major non-occupational risk factors for HB. Overall, 39% (18/46) had a history of at least one prior sharp injury. This percentage increased with years of laundry work (see Figure 1). None had received hepatitis B vaccination. Eleven of 46 (24%) tested positive for HB core antibody, and five were HBsAg positive. No correlation was found between HB infection and years of laundry work (Figure 1).

Follow-up/Changes in Practice

As a result of these investigations, a number of measures were taken to minimize exposure of laundry workers to contaminated sharp objects and to reduce the risk of HB transmission. Laundry workers without evidence of HB infection (N=35) were offered hepatitis B vaccination, with an acceptance rate of 100%. Educational programs were conducted for health care workers using sharps which emphasized proper disposal techniques and the potential consequences of improper disposal. Utility gloves were added to the personal protective equipment worn by laundry workers when in the contaminated laundry sorting area. A needleless IV system was implemented in 1991 through-

Figure 2. Unusual Items Found in Dirty Hospital Laundry

Based on 1990 and 1992 Surveys of 52 Hospital Laundries** in 14 States


Patient Care: Bed pan*(5), needles/syringes*(5), whole needle disposal box*, thermometers*(3), box of hazardous waste*, suction container*, pillows, IV bags/bottle/tubing*(9), IV poles*(2), egg crate, blood pressure cuff*(2), stethoscope*(2), trays, slings

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out the Greenville Hospital System, and an IV catheter with a resheathing device in 1992, in order to reduce the total number of sharp objects that could potentially injure employees, both at the point of use and downstream in the disposal process. Ongoing monitoring for inappropriate objects mixed with dirty linen is conducted by the laundry department manager, and reports are forwarded to the Infection Control Department when results of monitoring indicate the need for further action.

Questionnaire Surveys of Other Hospital Laundries

Methods

Mail surveys were conducted in June 1990 and December 1992 (before and after the promulgation of the OSHA Bloodborne Pathogens Standard). The pre-OSHA Standard survey was distributed to laundry managers attending two regional meetings, and the post-Standard survey was mailed to laundry managers for all hospitals in South Carolina, North Carolina, Virginia and Georgia. Both surveys asked the same questions regarding type and size of hospital(s) serviced, number of laundry employees, HB vaccination program and vaccine acceptance rate, incidence of sharps found in laundry, other inappropriate or unusual objects found in laundry, and incidence of reported employee sharps injury. The 1992 survey requested laundries to report data for the period July-December 1992.

Results

The 1990 survey of 21 hospital laundries in 14 states found a monthly average of 66 sharps in dirty laundry (range 0.5-400). The range of sharps injuries reported to occur annually was 0-15, with an average of three per year. The 1992 survey had 31 respondents (42% response rate) who reported a monthly average of 35 sharps in dirty laundry (range 0-350). The range of sharps injuries per year in 1992 was 0-24, with an average of 2.7 (yearly injury rate obtained by doubling injuries reported for the six-month period). A large number of inappropriate or unusual items were reported to have been found mixed in dirty hospital laundry (see Figure 2). Items mentioned frequently included: dentures, needles/syringes, whole needle containers, bed-pans, IV bags/bottles/tubing, scalpels, other surgical instruments, and body parts. The 1990 survey found that 66% of hospitals (14/21) offered hepatitis B vaccination, with an estimated 54% of employees vaccinated. The 1992 post-OSHA Standard survey found that 97% (30/31) of hospitals offered HB vaccination, with an estimated 70% of employees vaccinated.

Conclusions

While the high prevalence of HB was more likely related to demographic factors than to contaminated sharp-object injuries among GHS laundry workers, the fact that contaminated sharps and other objects continue to be found in significant quantities in dirty hospital laundry supports the use of HB vaccine in laundry workers. It also indicates the necessity of identifying methods—such as the use of engineering controls and personal protective equipment—that will reduce the number and hazard of downstream sharps injuries to laundry workers. Continued education of all health care workers on proper disposal of equipment is crucial, since sharps injuries among laundry workers cannot be reduced without the cooperation of the clinical workers who use the sharp devices.

Concern for the safety and health of laundry workers was the driving force behind this study, but there is another reason—an economic one—for educating hospital employees about inappropriate objects in dirty laundry. Such carelessness can result in a significant loss of valuable equipment and supplies for hospitals.

References

See Also: