You work for a teaching hospital in a major metropolitan city. Your primary area of expertise is GU/GYN. You usually circulate, but occasionally scrub to keep your skills up. You especially enjoy working with “Dr. W.” He prides himself on being efficient and expects the same of the rest of the team. That being said, he is pleasant to work with, is kind to his patients and considerate of his crew, and has been known to pitch in with turning over his room to keep the schedule on track.

During a routine vaginal hysterectomy, you suffer a needle stick injury when the resident acting as first assistant returns a needle holder to you.

The source patient consents to have her blood drawn. She admits to IV drug use approximately 6 years ago, but did not feel the need for a work-up as she had never “felt sick”. Since she is no longer using, she had not relayed this high-risk behavior to her surgeon. Her results are positive for HCV RNA.

You are scheduled for HCV testing every 2 months for the next 6 months. Although you have had no symptoms, your blood studies at 2 months show the presence of HCV RNA and elevated amino-transferase levels. Combination therapy is started with pegylated interferon alfa (PEG-IFN alfa) and the nucleoside analogue ribavirin.

What is your risk of transmitting Hepatitis C to your patients? Must you disclose your status to your patients and other health care workers/employers? What can be done to reduce the risk of sharps injuries in the future? Provide the evidence-based rationale for your answer.

Response:

Most of the literature relates to transmission of the virus from an infected patient to a health care worker (HCW); this could be due to the fact that provider to patient transmission is the least common mechanism of infection (Michelin and Henderson, 2010). Most of the cases of provider to patient transmission in the US and clusters reported in Israel and Spain have occurred secondary to IV drug use by a provider (Michelin and Henderson, 2010).

Any risk reduction strategy that decreases the chance of transmission of infection from the patient to the health care provider (see below) would also work conversely to decrease the likelihood of blood from an infected provider reaching the patient. The other strategy to reduce risk is by restricting practice for those infected individuals who present the highest risk for transmission, which has huge legal, ethical, and moral implications. It should come as no surprise that there are no current, consistent regulations on detection, management, or restrictions on professional activities of HCV infected health care workers in the US, although the literature cites at least one instance of a surgeon losing his practice after becoming HCV positive (Berguer, 2011; Dagi et al, 2007). Healthcare workers in the US work under the honor system; career choices related to exposure-prone procedures (EPP’s) should be made based on knowledge of one’s infectious status. Raggam et al (2007) recommend disclosure of the HCW’s status to patients who have been exposed to “substantial” amounts of the infected HCW’s blood (p. 274). AORN (2012a) recommends HCWs voluntarily report any infectious status to the employer.
In Europe, both the infectivity of the provider and the exposure risk of the procedure are taken into account when determining whether the provider may return to work, and it is not unrealistic to imagine that the US may adopt similar guidelines in the future. In the United Kingdom and Italy, providers who have detectable HCV RNA are prohibited from performing EPP’s. Both countries allow an HCV-infected provider to return to work involving EPP’s after receiving antiviral treatment and being HCV RNA negative for a pre-determined number of months. The UK requires new health care workers, including students, to be screened prior to performing EPP’s. Germany recommends screening for HCV antibodies for all persons working with blood and body fluids. A panel determines any restrictions based on serum HCV RNA concentration levels (Raggam et al, 2009). Obviously these systems require extensive follow-through and meticulous record keeping by both the provider and the health care system.

Recommendations for preventing percutaneous injuries include practicing “sharpless” techniques whenever possible. If members of the surgical team are resistant to these modifications to practice, it may help to facilitate the change by reminding these practitioners that both AORN and the American College of Surgeons endorse these practices.

- Develop a “neutral” or hands free” zone which eliminates hand-to-hand passage of sharp instruments. The benefit of this practice is that it involves no expense, just incorporation into daily practice. This practice can be modified for microscopic, endoscopic, and robotic surgeries when patient care could be compromised if the surgeon’s eyes leave the field.
- Decrease the use of sharps. Suture needles are the most frequent cause of injury in the OR, and most (59%) occur during wound closure suturing of muscle and fascia (Berguer, 2011). This precipitated the Needlestick Safety and Prevention Act’s recommendation to use blunt needles for suturing muscle and fascia. Such sharpless strategies as cautery for skin incisions, protective shields for needleholders, and surgical “glue” for skin closures may require a paradigm shift in surgical culture and a learning curve to incorporate into personal practice but have been shown to decrease the incidence of injury.
- Use engineered sharps injury prevention (ESIP) devices. “Safety” or “sheathed” scalpels and intravenous needles which retract into a plastic barrel after access into a blood vessel has been obtained are examples of this technology. This is an area of expanding technology; successful development of these devices is contingent on input from the people actually using them.
- Decrease the severity of the injury and level of contamination when a percutaneous injury does occur. The recommendation for double-gloving has been expanded from high-risk procedures to all invasive procedures (AORN, 2012). Although this practice may not entirely prevent the perforation of both sets of gloves, it may decrease the amount of blood transferred to, and the contact exposure time with, the skin of the health care worker (Dagi et al, 2007). The use of a colored inner glove was found to increase detection of a perforation in an outer glove (Cicconi et al, 2010). From a patient safety standpoint, double gloving decreases the risk of surgical site infections.

Consider the following changes to promote the perioperative culture of safety. These ideas can be incorporated at no or low cost to the facility.
• Initiate a “time out” at the end of the procedure that identifies the effectiveness of complying with sharps injury risk-reduction strategies (neutral zone, double gloving, etc.) and prompts reporting by those who may have been exposed to blood and body fluids.

• Streamline the reporting system to make it less cumbersome to report sharps injury. This data collection is important in analyzing factors related to sharps injury and methods to decrease the incidence. Some facilities utilize an on-line hotline that promotes more rapid entry of the health care provider into the system, thus decreasing the time needed to access treatment.

• Ask your facility infection preventionist to provide an in-service on the process undertaken when a sharps injury occurs. A review of root cause analysis and development of a corrective action plan help staff to understand the trajectory of the injury from the surgical field to testing and follow-up care, if needed. This may also help identify gaps between what should be the reporting process and what is actually happening, and why.

• The passage of the Needlestick Safety and Prevention Act in 2000 provided stricter guidelines than those originally outlined in the CDC’s Bloodborne Pathogen Standards. Your employer should be providing ESIP devices when available, an annual review of exposure plans, and maintenance of a safety log (OSHA 2001a). The CDC (2008) has a free downloadable tool that outlines how to implement and evaluate a sharps injury prevention program which could serve as a basis for a continuing quality improvement plan incorporating all members of the health care team.

This discussion focuses on operating room team members but it should be noted that our partners in decontam/sterile processing/environmental services are at equal risk for injury due to improperly disposed sharps. Sterile processing and housekeeping personnel should be included in all education and risk reduction strategies.

Although routine screening of the general population is not recommended, the CDC has just released a new guideline that all persons born between 1945 and 1965 receive a one-time test for Hepatitis C, as this group has a “disproportionately high prevalence of HCV” (CDC 2012b). Focused testing on identified high-risk groups continues to be a way to protect both HCW’s and their patients and illustrates the synergy between worker and patient safety.

References and resources:


