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Needlestick Prevention In The OR

March 17, 2010

Every day in the OR, surgeons and surgical staff members may be putting themselves at risk for sharps safety injuries. Both the Occupational Safety and Health Administration (OSHA) and the American College of Surgeons (ACS) have called for surgical practices to take steps to reduce the risk of suture needlesticks that can transmit disease to surgical professionals^{1,2}.



According to Ramon Berguer, MD, FACS, general surgeon at the Department of Surgery, Contra Costa Medical Center and one of the nation's experts on surgical safety, many hospitals have not adopted the necessary steps to reduce these injuries. Here, he talks with *Surgical Products* about the necessary preventative measures, why surgeons and surgical teams may be hesitant to adopt these practices, and the consequences associated with sustaining a sharps injury in the OR.

Surgical Products: What are the preventative measures that surgeons can take to reduce risks for suture needlesticks?

Dr. Berguer: The preventative measures that are listed in the ACS statement on sharps injury prevention are an excellent place to start:

- Double gloving on a routine basis.
- Use of blunt suture needles to close muscle and fascia.
- Use of the neutral zone or no-touch technique for passing sharps.
- Use of ESIP devices—Engineered Sharps Injury Prevention devices. There is no data to indicate that these devices are in fact capable of reducing the risk, but they are recommended for use. Obviously, the most well-known one of these is the so-called safety scalpel, or sheath scalpel.

Surgical Products: Why might surgeons not be taking the appropriate steps to reduce these risks?

Dr. Berguer: There are a number of reasons why surgeons may not be taking the appropriate steps:

- Habit. Surgeons are used to the benefits of sharp instruments and needles and they're used having gloves that give them good tactile sensation, so there's a resistance to change.
- There is a professional or cultural acceptance of this risk, which I think most

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- people minimize.
- There is a lack of awareness of the data.
- Up until recently, there was not a lot of publicity made of these prevention measures through professional societies—the regulatory bodies took a more passive role.
- Industry has not, until very recently, provided suitable replacements for sharp devices, whether it's needles or scalpels.

Surgical Products: What do you think needs to be done in order to start to change surgeons' way of doing things?

Dr. Berguer: It has to be a three-pronged effort. Education is required on the part of surgical societies that surgeons trust about the risks and prevention measures. I also think industry has to provide surgeons with suitable replacement devices that they will feel comfortable using on their patients. And third, in the background, there has to be a regulatory system in place that is more active and places the burden on the surgeon as well as on the institution to implement these safety measures.

Surgical Products: What are some of the products available that reduce the risks of sharps injuries, specifically blunt suture needles, and how does this technology affect a surgeon's procedure, if at all?

Dr. Berguer: Blunt suture needles have been around for many years. However, they have not had the variety of selection of suture needle types until recently. Basically, a blunt suture needle prevents the needle from penetrating the skin or will require a lot more force to disrupt the glove and the skin. There are four randomized studies that evaluate this first generation of blunt suture needles, all of which show a reduction, or in some cases a complete elimination, of needlestick injuries during the closure of muscle and fascia. So, there's good scientific evidence that shows that this works.

In terms of the effect on the surgeon, it is actually rather minimal. There is a little bit more force required to go through the tissue. There is a characteristic pop of the blunt tip as it goes through the tissue. I use them routinely and I actually find the pop reassuring. It's like feeling that seat belt fasten when you're driving.

Double gloving can be done simply by applying two pairs of gloves. Or, surgeons can use the new inner-outer glove combinations that provide a better fit and better tactile response. This does alter the surgeon's tactile sensation a little bit, but studies have shown that in about two weeks, surgeons become habituated to this. I have been using them for years with no problems.

The more problematic area is in the engineered sharps injury prevention devices. Safety scalpels have not been successful, mostly because of their design. They have been too flimsy to use. So far, their market penetration is pretty small, around five percent. There is now a second generation of sheath scalpels coming out that is much more promising in terms of their usability. I think that will definitely increase the chance that surgeons will use them.

Surgical Products: What can nurses and other OR team members do to play a role in prevention?

Dr. Berguer: They play a very important role. One thing that is clear from studies that have come to light over the last five years is that sharps injuries and the decisions about what prevention measures are taken are shared amongst the operative team. What I mean by that is if the surgeon decides to use or not to use a particular technique or device, that also affects the risk of injury to other members of the team, and vice versa. So injury prevention is really a team effort where nurses, physicians, technicians, residents and medical students all realize that everyone is affected by the choices that are made. The other members of the team can help through education, through purchasing and stocking the appropriate safety devices, encouraging their use and reminding everyone that sharps injury prevention is a team effort.

Surgical Products: How prevalent are needlesticks?

Dr. Berguer: The most telling data that has come out in the last few years has been from Epinet. This is a program that tracks sharps injuries nationally out of the University of Virginia and is led by Dr. Janine Jagger. It shows that if you look at needlesticks per 100 occupied beds since 1993, the non-OR rate—that is injuries outside of the operating room—has dropped from about 25 to around 15. That is after the Needlestick Safety and Prevention Act in 2000. Meanwhile, the operating room rate has remained constant, roughly around seven to eight needlesticks per 100 occupied

beds, so the former represents a 30 percent decrease with the use of safety devices, and the latter represents no change.

Surgical Products: What are the consequences of experiencing a sharps injury in the OR?

Dr. Berguer: According to the Centers for Disease Control and Prevention (CDC) in 2003, the risk of acquiring Hepatitis B virus from a needlestick ranges from six to 30 percent. The risk of acquiring Hepatitis C from a needlestick is 1.8 percent. The risk of acquiring HIV from a needlestick is 0.3 percent.

While those numbers are small, and the focus has frequently been on HIV, the fact that there are over 5 million Americans estimated to be infected with Hepatitis C makes it probably the largest risk factor for the surgeon. Where as Hepatitis B can be prevented by what is now the mandatory vaccination schedule, the problem is that while there are treatments that have some success rate in containing them, there is no cure for Hepatitis C or HIV at this point. So while the infection rates are low, there is no cure.

1 Occupational Safety and Health Administration. Occupational exposure to bloodborne pathogens; needlesticks and other sharps injuries; final rule (29 CFR Part 1910 1030). Fed Regist. 2001; 66 (12): 5318-5325.

2 American College of Surgeons. [ST-58] Statement on sharps safety. Bulletin of the American College of Surgeons. October 2007.Vol. 92, No.10.

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