References

Evidence-Based Interventions to Prevent Surgical Site Infections

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Background

- A surgical site infection (SSI) is an infection that results from a surgical procedure.
- Typically, these are treatable infections that occur when the surgical site is exposed to bacteria before, during, or after surgery.
- Surgeries with high rates if SSIs include colorectal surgeries and GI surgery.
- Hospitals are required to report SSIs and updated reports are published by the National Health and Safety Network (NHSN).

(Matz et al., 2019)
(Ahmed et al., 2019)
(Agency for Healthcare Research and Quality, 2019)

Significance & Purpose

- SSIs complicate 2%-4% of patients' recovery after an inpatient surgical procedure (Agency for Healthcare Research and Quality, 2019) and account for 14-16% of nosocomial infections in the U.S.
- SSIs cause increased length and cost of hospital stays as in the United States, surgical site infection is thought to increase costs by $2,300 USD per case.
- SSIs are the leading cause of readmission after surgery and the mortality rate is about 3% (Agency for Healthcare Research and Quality, 2019).
- Since the cause of SSIs is known, it is often a preventable complication of surgeries.
- SSI prevention is a high priority problem calling for reliance on evidence-based practice to make quality improvements in care to decrease the rate of SSIs.

(Matz et al., 2019)
(Ahmed et al., 2019)
(Agency for Healthcare Research and Quality, 2019)

Clinical Implications

- Prophylactic Antibiotics have been proven to decrease the rate of SSIs. A combination of oral and IV antibiotics has been predicted to reduce the risk of deep SSIs and mortality rates by at least 40%.
- Cefazolin, Vancomycin, and Gentamicin are commonly used prophylactically making patient education very important to explain the reasoning behind the prescription.
- Chlorhexidine Solutions were proven to be a superior antiseptic in the prevention of SSIs. This includes the implementation of chlorhexidine showers and scrubs like Hibiclens preoperatively the night before or day of the surgery. Patient education is very important in this case so patients know where to purchase Hibiclens so that they may use it before their surgery.
- Preoperative shaving should be avoided to reduce the risk of SSIs. Shaving the skin with a razor can create tiny cuts in the skin creating a potential entry point for bacteria.
- Hyperglycemia hinders immune function and diabetics are at an increased risk for SSIs. Stress hyperglycemia can also occur preoperatively. Glycemic control can help to reduce the risk of SSIs.
- Antibacterial coated sutures like Triclosan-coated sutures have shown to reduce the rate of SSIs by working prophylactically to prevent bacteria from causing postoperative infections.

(John Hopkins Medicine, 2019)

Barriers and Limitations

- Neomycin is not widely available in every region and Healthcare facilities may be resistant to adopting new practices that could increase costs.
- In many countries, routine blood glucose monitoring during the perioperative period is not standard, except for DM patients. Clear clinical practice guidelines should be emphasized and developed for routine blood control in all patients.
- The availability and accessibility of triclosan-coated sutures may be limited. Not all manufacturers may produce these specialized sutures. There should be a cost-benefit analysis to compare the use of triclosan-coated sutures with standard sutures.
- The major disinfectants were created in different solutions. This variability in formulations might make it challenging to establish a standardized protocol for the use of chlorhexidine in clinical practice. Healthcare facilities should work towards standardizing formulations of antiseptic agents.
- Clinicians may not be aware of the study results or the potential impact of preoperative hair shaving on SSIs. Surgical practices, including preoperative hair shaving, may be ingrained in traditional protocols. Educational sessions and workshops can provide evidence to support change.

Conclusions

These research findings underscore the essential role of nurses in implementing evidence-based practices and interventions to reduce the risk of SSIs in patients undergoing surgery. By promoting the use of prophylactic antibiotics, chlorhexidine solutions, glycemic control, shaving protocols, and antibacterial-coated sutures, the rate of SSIs will decrease. By synthesizing these findings and integrating them into their daily practice, nurses contribute significantly to improving patient outcomes and safety.