Reducing Risk Of Post-Operative Complications
After Joint Replacement Surgery

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INTRODUCTION
A multitude of factors influence the development of surgical site infections. In the post-operative phase, maintaining a covered incision during the first 72 hours, while skin closure takes place, reduces the risk of a surgical site infection.

While the incision is initially dressed in a sterile environment, post-operative dressing changes are performed under aseptic guidelines. The longer the wound remains covered, without exposure to the external environment, the more healing can occur which in turn reduces the risk of surgical site infection.

A surgical wound heals by primarily healing; there is minimal tissue loss and the edges of the wound are held together by sutures or staples. It takes approximately 48 hours before epithelialisation occurs. During epithelialisation, epithelial cells migrate from surrounding wound edges or from hair follicles, sweat or sebaceous glands to cover the wound. These fragile and easily removed cells appear as a thin translucent film over the wound. Until epithelialisation is completed the wound remains open which creates a potential infection track by the prostate by an inadvertent contamination.

As peri-operative nurses, we need to consider the patients’ wounds for 48-72 hours post surgery. This includes selecting dressings that do not leak, which would provide a potential route for micro-organisms to enter the wound, and dressings that the ward staff do not have to take down in the first crucial 48-72 hours while epithelialisation is occurring.

METHOD

The orthopaedic surgeons at Geelong Private Hospital were requested to use multifunctional polymeric membrane dressings following hip and knee arthroplasties. This was a change from the gauze, combine, and island dressings previously applied after closing the case.

35 arthroplasty patients were tracked during their post-operative care. The polymeric membrane dressings were monitored daily for exudate absorption. The dressings were changed when it became apparent that the dressings were applied approximately 75% saturated with blood or exudate.

When this occurred, the old dressing was removed and a new polymeric membrane dressing was applied. Since the home is a cleaner environment than the ward, if at 72 hours a dressing was still on the wound, and it could be left in place, the patient was sent home and instructed to remove it after an additional 24 hours. The duration of the dressing wear times were documented.

BACKGROUND

Advances in infection control practices include improved operating room ventilation, sterilisation methods, barriers, surgical technique, and availability of antimicrobial prophylaxis. Despite these activities, surgical site infections remain a substantial cause of morbidity and mortality among hospitalised patients.

In 2006, the Victorian Hospital-Acquired Infection Surveillance System (VHCINSS) System calculated the cost of superficial and deep post-operative surgical site infections following total knee and hip arthroplasties. The study found that when the excess length of stay (LOS) and all additional hospital costs were added together 126 infections cost the Victorian healthcare system a total of $5,019,994 or $251,000 per month.

The average excess LOS per infection, per patient, was 27 days (range 2-142 days). The average additional cost following hip arthroplasty infection was $34,138.65 AUD and following knee arthroplasty was $40,940.00 AUD.

Proper aseptic technique is one of the most fundamental and essential principles of infection control in the clinical and surgical setting. The word “aseptic” is defined as “without microorganisms,” and aseptic technique refers to specific practices which reduce the risk of post-surgical infections in patients by decreasing the likelihood that infectious agents will invade the body during clinical procedures.

Aseptic technique also encompasses practices performed immediately before and during a surgical procedure to reduce post-operative infection.

OBJECTIVE

The aims of this study were to reduce the number of arthroplasty patients who required a dressing change within the first 48-72 hours post-op with the goal of reducing the risk of wound contamination and resulting infection.

REFERENCES

5. Man D, Aleksic P. Pre-operative-use followed with post-op application of polymeric membrane dressings re- duces post-op pain, edema and bruising after full face lift surgery. Poster #3-071, Symposium on Advanced Wound Care and Wound Healing Society Meeting, April 17-20, 2010: Orlando, FL USA
8. "PolyMem®" Dressings are made by Ferris Mfg. Corp., Burr Ridge, IL 60527 USA
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