For surgical incisions, does the use of hydrocolloid dressings reduce the risk of infection compared with silver dressings?

Bailey Dallas & Searra Richardson
bailey.dallas@live.longwood.edu & searra.richardson@live.longwood.edu

Abstract

Surgical incisions are cuts in the skin and soft tissue created to facilitate an operation or procedure. Afterwards, these cuts must be covered with a wound dressing to prevent infection from occurring. Hydrocolloid dressings and silver dressings are commonly used for surgical incisions. Hydrocolloid dressings are gel-like that stick to the wound to provide a moist, healing environment. Silver dressings release silver into the wound to provide an antimicrobial effect. The question is, based on evidence-based practice and nursing research, which dressing provides the best environment to prevent infection and promote optimum healing for surgical wounds. For our research, we used a variety of current scholarly sources to compare the dressings and concluded the silver dressings were more effective on preventing infection of surgical wounds.

Introduction

Surgical wound infections is a common complication, and this can be due to the type of dressing that is used or not used during the healing period. The wound healing process is complex and requires a certain environment to promote proper, efficient recovery (see **Figure 1**). Overall wound care should be based on the amount of exudate, if the wound is infected or not, and the depth. Dressing selection is based on many factors including ability to provide bacterial infection, debridement, maintain moist environment, and promote angiogenesis. Not all patients are at the same risk of developing an infection. Risk factors include obesity, diabetes, smoking, malnutrition, chemotherapy, and immunotherapy. Indications of infection include redness, foul odor, warm to touch, pain, fever, and purulent exudate. Infections can simply be a local inflammatory response (see **Figure 2**); however, some may develop sepsis or bacteremia.

Methods

In order to begin our research, we formulated a PICO question based off topics encountered in the class and/or clinical setting. To find credible sources, we searched through various databases from Longwood University's Greenwood library as well as google scholar. Some databases and sources cited include Sage Journals, National Center for Biotechnology Information, Cochrane Library, and University of Toronto Surgery. When searching, the sources were limited to the last 5 years from 2015 to 2020 to include the most current data to conduct our research. Keywords used during research include surgical infection, surgical wound, silver, hydrocolloid, dressing, and rates. To narrow it down, we carefully selected the most factual and reliable sources that gave the best understanding of the topic selected.

Figure 1: Clean wound

Figure 2: Infected wound

Figure 3: Silver dressing

- Studies found that silver dressings were most effective. This includes people undergoing a variety of different surgeries and procedures with different contamination classifications.
- An advantage to silver dressings is that they have minimal bacterial resistance. Therefore, this leads to many dressings to be silver coated and available for therapeutic use.
- Clinical guidelines are recommending that silver dressings are used for wounds where infection has already established or an excessive wound delays healing.

Figure 4: Hydrocolloid dressing

- Most often used for superficial, noninfected wounds that create light to moderate exudate such as minor burn or traumatic wounds and pressure sores.
- Not indicated for use on patients at high risk for infection rates or complicated wounds such as major injuries, highly exudating wounds, and contaminated wounds.
- Studies show they had very low evidence for any differences in outcome on infection compared to other dressings

Evaluation & Analysis

- Based on the evidence, silver dressings are more effective on preventing infection on surgical wounds
- Silver dressings are used on a wider variety of wounds and patients who have a higher risk for infection.
- Hydrocolloid dressings are used for minor, basic wounds that are not as complicated. Therefore, they are not as effective in preventing infection among surgical wounds.

Conclusion & Implications for Future Research

- The current research available was not descriptive enough to fully evaluate the effectiveness of these dressing types.
- Further research is indicated to understand the full effect of these dressings on the healing process regarding the prevention of infection.
- Focused studies on each of the comparative dressings are needed to indicate the effectiveness on specific patient populations.

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