The Use of a Foam Dressing as an Alternative Central Venous Catheter/Peripherally Inserted Central Line Dressing

Valarie Haisley BSN, RN, CWON, Karen Johnson, MSN, MBA, CRNI, VA-BC, Robin George, BSN, RN, and Jamie Wallace, BSN, RN
AnMed Health, Anderson, SC

INTRODUCTION:
Nurses face a challenge when attempting to provide adherence of a transparent film dressing to skin in the presence of diaphoresis, skin erosion, or bleeding. A transparent film dressing is unable to adhere in these situations because this dressing has no fluid absorptive capacity.

According to the Centers for Disease Control (CDC) 2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections, catheter site dressings should be replaced if the dressing becomes damp, loosened, or visibly soiled.

The 2011 Infection Control and Epidemiology (ISE) Standards of Practice state that dressing changes should be performed immediately if the dressing integrity becomes compromised, if moisture, drainage, or blood is present. A non-adherent dressing leads to an increased risk of infection, increased skin erosion, increased pain, and increased costs.1,2

These guidelines and standards translate to unscheduled, and, often frequent, dressing changes. The application of a foam dressing that is capable of absorbing moisture while still maintaining skin adherence is an attractive alternative. With a $98 direct cost per dressing change at one southeastern United States hospital, significant savings would be realized by providing a dressing that is able to adhere for its intended wear time.

Savings would be seen in the decrease of PRN dressing changes and in the lowered risk of infection. In addition, patients would benefit from the maintenance of skin integrity and in decreased pain associated with fewer dressing changes.

ABSTRACT:
Four case studies revealed the effectiveness of foam dressings over CVC/PICC lines as an alternative to transparent film dressings in the presence of moisture, skin erosion, and bleeding. The frequency of dressing changes decreased because of the absorptive and adherence properties of foam dressings. The risk of infection lessened as the foam dressings adhered and removed moisture from the skin. Skin erosion healed. Patients experienced less pain. Patient satisfaction improved. Significant savings were seen in the reduction of bilshed unscheduled dressing changes.

CASE STUDIES:
Methods and Patients:

CASE STUDY 1: A middle-aged African American female patient required twice a day dressing changes because of the high level of discomfort while wearing the transparent film dressing.

A CHG-infused foam dressing was applied. (Figure 1)

Using sterile supplies and technique, the intervention therapy nurse cut a window in the center of the dressing. The window in the foam dressing allowed visualization of the insertion site. This allowed the dressing to remain on for seven days in accordance with the 2011 INS Standards of Practice.

The skin was cleaned with CHG and a CHG-impregnated sponge was placed at the insertion site. A foam borderless dressing was then placed over the foam dressing and onto the skin surrounding the dressing. This allowed the dressing to remain on for seven days in accordance with the 2011 INS Standards of Practice.

The patient did not require PRN dressing changes due to itching, therefore, the dressing was able to remain on for seven days. The patient reported the dressing felt comfortable on his skin. By decreasing the number of dressing changes from once a day to once every seven days, a direct cost savings of $88 was realized in a one week period.

CASE STUDY 2: An African American male patient in his twenties developed a reseed smear and skin maceration from weeping skin. In order to decrease the number of dressing changes and increase patient comfort, a hydrogel foam dressing (Aquacel Ag, Convatec, Skillman, NJ) was applied. (Figure 2)

The authors found that foam dressings served as a viable and cost-saving alternative for CVC/PICC line dressings.

The foam dressing was placed over the PICC line insertion site. Two 4”x4” transparent film dressings were then placed over the foam dressing and onto the skin surrounding the foam dressing. The edges of the transparent film dressings overlapped with each other in the center of the foam dressing and onto the skin approximately 1” to ensure the high degree of occlusiveness needed with central lines.

Using sterile technique and supplies, the foam dressing was applied after the skin was cleansed with CHG. A CHG-impregnated sponge was applied over the skin prior to the application of the adhesive action of the foam. Two 4”x4” transparent film dressings (Tegasilket, 3M, St. Paul, MN) were then placed over the foam dressing and onto the skin surrounding the dressing. By decreasing the number of dressing changes from once a day to once every seven days, a direct cost savings of $588 was realized in a one week period.

The dressing changes decreased because of the very high level of discomfort while wearing the transparent film dressing. The edges of the transparent film dressings overlapped with each other in the center of the foam dressing and onto the skin approximately 1” to ensure the high degree of occlusiveness needed with central lines.

In accordance with the 2011 INS Standards of Practice, the foam dressing was changed in forty-eight hours because the dressing did not allow visualization of the insertion site. No skin maceration had occurred. The patient reported that the foam dressing was soothing to her skin and felt comfortable. The direct cost of two-day PICC line dressing changes over a 48-hour period was $352. The direct cost for one dressing change in a 48-hour period was $98. The hospital realized a 75% cost savings over a 48-hour period by decreasing the frequency of dressing changes.

DISCUSSION: Currently, gauze dressings are recommended by the CDC as the alternative to transparent film IV dressings for CVC/PICC lines when moisture or bleeding is present. These gauze dressings must be changed every two days. However, there is evidence showing the ineffectiveness of gauze as a barrier to infection.1,2 Evidence also supports higher rates of healing with the use of a foam dressing vs. a transparent film or gauze dressing.4,5 Literature search of Cinahl, PubMed, Medline databases revealed one article addressing the use of foam dressings as an alternative to transparent film dressings over IV catheters. Kutzher10 discussed in this article the application of a silicone bordered foam dressing over PICC lines when irritant contact dermatitis developed in patients receiving chemotherapy. In addition, a poster presentation by Maranond et al.11 demonstrated the effectiveness of soft silicone foam dressings in the management of lymphatic duct leaks—a rare complication of CVC and PICC line placement. The use of alternative foam dressings over CVC/PICC lines requires further research to validate the positive results of these four case studies and the limited prior published work. When deemed appropriate because of moisture, skin erosion, or bleeding, could the use of foam dressings serve as an attractive alternative to transparent film adhesive dressings? Would the use of foam dressings in these situations result in lower CVC/PICC line infection rates, improved skin integrity, decreased pain, higher patient satisfaction, and result in significant hospital cost savings? Research is needed to see if these benefits would indeed occur when projected across a larger population.

CONCLUSION: The authors found that foam dressings served as a viable and cost-saving alternative on CVC/PICC lines for these four patients.

REFERENCES:

CONTACT INFO: Valarie Haisley, BSN, RN, CWON veryveryverybusymom@yahoo.com
864.478.1055

DISCLAIMER: The information provided is for educational purposes only and should not be used as a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. The views and recommendations expressed in this article are those of the author and do not necessarily reflect the views of the publisher.