Reduction of Erosion Risk in Adult Patients With Implanted Venous Access Ports

Jennifer Burris, MA, RN, ACNS-BC, and Mary Weis, MSN, RN, ACNS-BC, CNOR, CRNFA

One of the most common venous access devices used in patients with cancer is the implanted venous access port. Although incidences of infection and thrombosis are the most commonly reported complications, erosion rates of venous access ports are estimated at almost 1%. This article describes how evidence-based interdisciplinary interventions decreased port erosions for a regional health center from 3.2% to less than 1%.

Jennifer Burris, MA, RN, ACNS-BC, is an advanced practice nurse in the Medicine Care Center and Mary Weis, MSN, RN, ACNS-BC, CNOR, CRNFA, is an advanced practice nurse in the Coborn Cancer Center, both at St. Cloud Hospital in Minnesota. The authors take full responsibility for the content of the article. The authors did not receive honoraria for this work. No financial relationships relevant to the content of this article have been disclosed by the authors or editorial staff. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the Clinical Journal of Oncology Nursing or the Oncology Nursing Society. Burris can be reached at burris@centracare.com, with copy to editor at CJONUSEditor@ons.org.

Key words: implanted venous access ports; port erosions; power port

Review of the Evidence

Many contributing factors are associated with erosions. Research suggests a correlation between the timing of bevacizumab (a vascular endothelial growth factor–specific angiogenesis inhibitor) administration and the actual placement of the port (Almhanna et al., 2008; Erinjeri et al., 2011; Fong et al., 2009; Genetech, Inc., 2013; Grenader, Goldberg, Verstandig, & Shavit, 2010; Muslimani et al., 2010; Zawacki et al., 2009). A potential complication associated with the administration of bevacizumab is delayed or incomplete wound healing (Genetech, Inc., 2013). Angiogenesis likely plays a role in lack of wound healing in repetitive trauma from puncture site wounds and surgical incisions. Long-term corticosteroid use is known to cause thin skin and slower wound healing (Vallerand & Sanoski, 2012). Erosions were correlated with repeated access at the same location (Almhanna et al., 2008; Camp-Sorrell, 2004). Erosions were correlated with repeated access at the same location (Almhanna et al., 2008; Camp-Sorrell, 2004). VAP erosion has been associated with active patients who use repetitive movements (Almhanna et al., 2008; Camp-Sorrell, 2004). According to manufacturer recommendations, the depth of VAP placement should be from 0.5–2 cm. If the port is placed too shallow or if the tissue layer supporting the skin is placed too shallow or if the tissue layer supporting the skin is, wound healing may be delayed. Recommendations for placement depths are based on the level of evidence (Armola et al., 2009). The recommended depth is 1 cm for mobile patients and 1.5 cm for active patients. Erosion rates have been reported to decrease with increased depth of placement (Armola et al., 2009).

A literature search was performed searching MEDLINE® and CINAHL® to establish what the causes of erosion were. The key search terms included erosions, skin erosions, central venous ports, implanted venous access devices, chemotherapy, wound healing, corticosteroid therapy, and bevacizumab therapy. Articles were written in the English language, dates ranged from January 2000 through March 2011, and populations of adults aged 18 and older were included. Fourteen articles were retained for evaluation, and 11 were used based on the level of evidence (Armola et al., 2009). Protocols for VAPs must be established in accordance with manufacturer’s directions for use (Infusion Nurses Society [INS], 2011). Two manufacturer recommendations were used as well as the INS, bringing the total references to 14.