

# Development and Implementation of an Oral Care Protocol for Patients With Cancer

Rena L. Sieracki, RN, ADN, Linda M. Voelz, RN, BSN, Tina M. Johannik, RN, BSN, Dawn M. Kopaczewski, RN, ADN, and Kelly Hubert, RN, BSN, OCN®

On an inpatient oncology unit, mucositis is a recurrent issue with devastating effects on patients. Available interventions were limited, palliative in nature, and ineffective. Evidence-based preventive measures and treatments were needed; as a result, a nurse-driven, patient-centered oral care protocol was developed.

The development of mucositis in patients being treated for cancer can have devastating effects. Mucositis can cause a cascade phenomenon that has the potential to interfere with almost every aspect of a patient's life. As such, the impact of oral mucositis on a patient's physical and psychological well-being and quality of life can be significant. The condition increases morbidity and mortality and also can lead to increased healthcare costs (Elting et al., 2003; Silverman, 2007). Patients with mucositis may develop pain and difficulty in swallowing, eating, drinking, and even talking, which may then compromise their nutritional status, psychological well-being, and overall healing process (Silverman). When oral cavity breakdown occurs, the loss of mucosal integrity can put patients at risk for many additional problems, including anorexia, dry mouth, change in taste, ulceration, bleeding, and systemic infection (Eilers & Epstein, 2004). Mucositis also can alter or delay the treatment plan and contribute to increased hospital stays (Elting et al.).

## Pathophysiology

According to Sonis (2004), mucositis is the inflammation and ulceration of the oral mucosa and submucosa, usually occurring as an adverse effect of chemotherapy and radiotherapy treatment for cancer. The condition can affect up

to 100% of patients undergoing high-dose chemotherapy with hematopoietic stem cell transplantation, 80% of patients with malignancies of the head and neck receiving radiotherapy, and up to 40% of patients receiving standard-dose chemotherapy (Graham, Pecoraro, Ventura, & Meyer, 1993; Rubenstein et al., 2004).

The mucosal lining of the oral cavity was previously believed to be particularly susceptible to damage during cancer therapy for two reasons. First, most treatments for cancer cannot differentiate between healthy cells and cancer cells; consequently, both are injured during treatment. Second, chemotherapy typically targets fast-dividing cells such as those lining the mouth and throat, so the cells become damaged during treatment (Sonis, 2007). However, treatment-induced mucosal damage now is believed to occur in five phases.

- Initiation: Direct reversible and irreversible damage to DNA is caused by chemotherapy or radiation therapy.
- Upregulation and message generation: Transcription factors are activated and move to the nucleus of a cell, where they become capable of upregulating

to genes that produce effector proteins, which cause tissue injury.

- Signaling and amplification: Some proteins produced during upregulation are aimed at amplifying tissue injury initiated in the previous phase.
- Ulceration: Ulcers form that can penetrate the epithelium into the submucosa, causing pain and dysfunction.
- Healing: The biologic process occurs through which the epithelium forms an intact surface over mucosal ulcers (Sonis, 2004) (see Figure 1).

## Mucositis and Oral Care

Aside from cryotherapy used with bolus 5-fluorouracil and high-dose melphalan, no agent has proven to prevent mucositis in patients receiving chemotherapy (Multinational Association of Supportive Care in Cancer [MASCC], 2005; Worthington, Clarkson, & Eden, 2007). However, research indicates that adherence to an oral care protocol can aid in the reduction and severity of mucositis (MASCC). Because mucositis can have devastating consequences for patients, nurses should take action. First,

Rena L. Sieracki, RN, ADN, Linda M. Voelz, RN, BSN, Tina M. Johannik, RN, BSN, Dawn M. Kopaczewski, RN, ADN, and Kelly Hubert, RN, BSN, OCN®, all are staff nurses at Froedtert Memorial Lutheran Hospital in Milwaukee, WI.

Digital Object Identifier: 10.1188/09.CJON.718-722