The Importance of Assessment Rating Scales for Chemotherapy-Induced Oral Mucositis

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Purpose/Objectives: To review the literature related to chemotherapy-induced oral mucositis and highlight four empirically supported oral mucositis rating scales that oncology nurses can use.

Data Sources: CINAHL® and MEDLINE® databases, published articles, and supplemental publications.

Data Synthesis: Various oral mucositis rating scales have been developed; however, a lack of consensus exists regarding their use in clinical practice.

Conclusions: To date, standards of practice for the assessment of oral mucositis do not exist, yet clinical measures are necessary for oncology nurses to manage the side effect effectively. The selection of a valid and reliable rating tool is necessary for routine oral assessment and for facilitating optimal patient outcomes related to oral mucositis.

Implications for Nursing: Knowing patient risk factors and the circumstances that exacerbate oral mucositis are keys to performing quality oral assessments. Oncology nurses should make performing oral assessments with a valid and reliable rating scale a priority. Further research regarding oral mucositis rating scales is needed.

Key Points . . .

- Barriers to routine oral assessment include knowledge gaps, absent and sporadic oral evaluations, failure to use a consistent tool, inadequate documentation, and inconsistency in using assessment data to guide clinical practice.
- Assessment is necessary to measure the various parameters of oral mucositis, including subjective (e.g., pain), objective (e.g., tissue damage), and functional (e.g., difficulty swallowing) status.
- Using a systematic, regularly scheduled oral assessment with a reliable grading scale designed for chemotherapy-induced oral mucositis will allow oncology nurses to recognize and monitor the progression of oral mucositis.
- Reliable oral mucositis rating scales, when employed routinely, will facilitate the use of appropriate nursing interventions for patients with oral mucositis and, ultimately, improve patient outcomes related to oral mucositis.

Goal for CE Enrollees

To enhance nurses' knowledge regarding rating scales for assessment of patients experiencing oral mucositis.

Objectives for CE Enrollees

1. Describe risk factors associated with the development of oral mucositis.
2. Describe advantages and disadvantages associated with the use of known assessment scales for oral mucositis.
3. Identify subjective and objective assessment parameters of oral mucositis assessment scales.

One of the biggest challenges facing oncology nurses is improving clinical outcomes for patients with oral mucositis resulting from cancer therapies. Oral mucositis is experienced by approximately 40% of patients undergoing chemotherapy (Brown & Wingard, 2004; Dodd, 2004b; Fulton, Middleton, & McPhail, 2002). Cancer therapies can produce a multitude of side effects; however, oral mucositis is considered the most distressing to patients (Brown & Wingard; Epstein & Schubert, 2004).

Oral mucositis is an inflammatory response of the tissue to cancer or the chemical or physical effects of chemotherapeutic agents (Fulton et al., 2002). The response can cause oral tissue to become thin, denuded, and ulcerated (Brown & Wingard, 2004; Fulton et al.). The pathophysiology of oral mucositis is a complex process that involves more than just injury to epithelial tissue. New evidence suggests that injury occurs in the blood

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vessels and connective tissue of the submucosa before epithelial damage occurs (Sonis, 2004). The damaged tissue can provide an entry point for microorganisms, especially from patients' normal flora, to enter the body and eventually travel through the blood stream (Dodd, 2004b). The pain associated with oral mucositis also can be significant because it can interfere with oral function, causing negative consequences such as interference with talking and difficulty swallowing, which can lead to decreased oral intake and problems eating (Cella et al., 2003). Oral mucositis becomes an economic burden when patients require prescription medications, prolonged hospitalizations, interrupted or delayed treatment cycles, and unplanned readmissions for hydration, parenteral nutrition, or pain control (Avritscher, Cooksley, & Elting, 2004).

The most significant clinical implication for oncology nurses caring for patients with oral mucositis is the importance of thorough clinical assessment of the oral cavity. Assessment is necessary to measure the various parameters of oral mucositis, including subjective (e.g., pain), objective (e.g., tissue damage), and functional (e.g., difficulty swallowing) status (Brown & Wingard, 2004). Barriers to routine oral assessment include gaps in knowledge about oral cavity changes related to mucositis, absent and sporadic oral evaluation, failure to use a consistent assessment tool, inadequate documentation, and inconsistency in using assessment data to guide clinical practice (McGuire, 2003). Although a number of oral assessment scales have been developed and are cited in the literature, a lack of consensus exists regarding their use in clinical practice. Each of the tools was developed for a different purpose (i.e., for use as a research tool, to track toxic effects of cancer regimes, or to monitor patient outcomes following various treatments for oral mucositis). In addition, the ability to compare results among studies is hindered by the use of different scales (Avritscher et al., 2004; Belim et al., 2002; Cella et al., 2003; Sonis et al., 1999).

The twofold purpose of this article is to review the literature regarding oral mucositis in patients receiving chemotherapy with respect to risk factors and effect on patient outcomes as well as to describe empirically validated oral assessment rating scales for use in clinical nursing practice for patients with chemotherapy-induced oral mucositis.

Literature Review

A literature search was conducted of the CINAHL® and MEDLINE® databases using the terms oral mucositis, nursing care, assessment, and instrumentation. The search yielded 14 articles that highlighted the nursing role of assessment of patients at risk for oral mucositis. Empirical articles that described oral mucositis rating scales for use with patients with cancer receiving chemotherapy were a primary focus of the review (n = 8). Information provided in the review will assist oncology nurses to better understand the clinical effect of chemotherapy-induced oral mucositis and provide knowledge to aid oncology nurses in selecting an appropriate rating scale to incorporate comprehensive oral assessments into their practice. The four rating scales that will be highlighted in this review were chosen for several reasons. First, the scales are cited frequently in the literature for use with chemotherapy-induced oral mucositis. Second, strong empirical support exists for their use. Finally, in comparison to other oral mucositis rating scales, they contain a small number of variables, thus making them excellent choices for use in clinical oncology nursing practice (see Table 1).

Berger and Eilers (1998) examined factors that influence the development of mucositis. The sample in their study consisted of 50 inpatients who were receiving high-dose chemotherapy for leukemia. The condition of the oral cavity was assessed using the Oral Assessment Guide (OAG), an oral mucositis grading scale designed by Eilers, Berger, and Petersen (1988). The OAG uses eight categories to assess chemotherapy-related changes: voice, swallow, lips, tongue, saliva, mucous membranes, gingiva, and teeth or dentures (Eilers et al.). Assessment changes are graded on a severity scale of 1–3, and 3 is the worst. The total score on the OAG ranges from 8, which is normal in all categories, to 24, which signifies breakdown in all categories. Variables included in the study were the OAG score pre- and post-treatment, absolute neutrophil count (ANC), blood urea nitrogen (BUN), creatinine, patient age, and whether the patient received total body irradiation (TBI) in conjunction with chemotherapy. Berger and Eilers found that an elevated BUN and creatinine, increased age, lower ANC, TBI, and a higher pretreatment OAG score were associated with a higher incidence of oral mucositis. The authors concluded that patients most likely to develop oral mucositis were those with decreased renal function, older adults, and those with decreased oral status at the onset of cancer treatment. Furthermore, patients with cancer who received high-dose chemotherapy and TBI were at even greater risk for developing oral mucositis (Berger & Eilers).

To measure the reliability of the OAG, Andersson, Persson, Hallberg, and Renvert (1999) evaluated the oral status of a group of patients receiving chemotherapy treatment. Subjects were given an oral care patient guide (developed by Andersson, an RN) and verbal instructions in oral care by a nurse or dental hygienist. An oral assessment of each patient's mouth was performed every morning by a nurse and once a week by a dental hygienist. All subjects in the study demonstrated alterations in their oral mucosa. The most frequent alterations occurred in the mucous membranes and included blisters, ulcers, and changes in color; the least common was related to swallowing. However, of note was that the OAG does not specify the type of alteration that occurred. Alterations in oral mucosa are important because intact mucous membranes protect patients from infection. Correlational analysis indicated that OAG scores were highly related to the number of days that had elapsed since the last course of chemotherapy ($R = 0.41$, $p < 0.05$) and patients' thrombocytopenia ($R = -0.53$, $p < 0.01$) and leukopenia ($R = -0.50$, $p < 0.05$). Because chemotherapy suppresses the bone marrow, thrombocytes and leukocytes are at their lowest 7–14 days postchemotherapy, placing patients at an increased risk for bleeding and infection (Varricchio, Pierce, Walker, & Ades, 1997). Andersson et al. concluded that the OAG is a reliable and useful tool for monitoring and recording changes in the oral cavity.

Pain is a symptom experienced by most patients who develop oral mucositis (Cella et al., 2003; Epstein & Schubert, 2004). Pain often is so severe that patients require parenteral opioids for pain control (Belim et al., 2002). To avoid pain, mucosal damage caused by oral mucositis must be prevented. Cella et al. evaluated pain associated with oral mucositis after high-dose chemotherapy to determine an effective rating scale that would capture patients' subjective assessments of pain in addition to objective findings related to oral mucositis. The sample included 323 patients who received stomatotoxic

Table 1. Comparison of Mucositis Rating Scales for Chemotherapy

Scale and Author	Scale Parameters	Subjective Assessment Categories	Objective Assessment Categories	Weakness in Scale Design	Strong Points in Scale Design
Oral Assessment Guide (OAG) (Eilers et al., 1988)	Severity scale of 1–3; 3 is worst. A total score of 8 indicates normal in all areas, and a total score of 24 indicates breakdown in all areas.	Voice, swallow, teeth and dentures	Lips, tongue, saliva, mucous membranes, gingiva, teeth and dentures	Total score is not reflective of severity of oral mucositis in specific areas. Pain is not assessed.	Reliable and valid; easy to follow
National Cancer Institute Common Toxicity Criteria scale with the addition of a pain scale (Cella et al., 2003)	0–4: 0 = no stomatitis; 1 = painless ulcers, erythema, or mild soreness, no lesions; 2 = painful erythema, edema, or ulcers, ability to swallow; 3 = painful erythema, edema, or ulcers, inability to swallow; 4 = severe ulceration, needs prophylactic intubation		Stomatitis	–	Mean pain scores correlate with mean scores for dysphagia and stomatitis. Pain aspect of oral mucositis is included.
	0 = no dysphagia; 1 = mild dysphagia, can eat solids; 2 = dysphagia requiring soft to liquid diet; 3 = dysphagia requiring IV hydration; 4 = complete obstruction, cannot swallow		Dysphagia		
	Pain scale: 0–10; 10 is worst.	Pain scale and questionnaire			
Oral Mucositis Assessment Scale (OMAS) (Sonis et al., 1999)	0–3: 0 = no lesions, 1 = lesions < 1 cm^2, 2 = lesions 1–2 cm^2, 3 = lesions > 3 cm^2		Mucous membrane ulceration in the upper lip, lower lip, right cheek, left cheek, right ventral and lateral tongue, left ventral and lateral tongue, floor of the mouth, hard palate, soft palate	–	Objective mucositis scores are strongly correlated with symptoms associated with oral mucositis. The scale is effective at tracking mucosal changes over time; is easy to use, taking less than five minutes to perform; and includes pain aspects of oral mucositis.
	Visual analog scale: 0–100; 100 is worst.	Pain and difficulty swallowing			
Revised Western Consortium for Cancer Nursing Research (Olsen et al., 2004)	0–3: 0 = none, 3 = > 50% denuded	–	Lesions	No specific directions are given regarding which areas of the oral cavity were assessed, as with the OAG and OMAS; does not address swallowing or pain	Assesses only stages of stomatitis; quick and easy to incorporate into busy clinical practice; correlates with the World Health Organization grading scale
	0–3: 0 = > 50% pink, 3 = > 50% very red		Erythema		
	0–3: 0 = none, 3 = spontaneous		Bleeding		
	Total score: 0 = normal mucosa, 1–4 = mild stomatitis, 5–7 = moderate stomatitis, 8–9 = severe stomatitis				

therapy. Each subject's oral mucosa was assessed on the first day of cytotoxic therapy and then three times per week for three weeks using subjective and objective measures. The National Cancer Institute's Common Toxicity Criteria (NCI-CTC) stomatitis for myeloablative chemotherapy scale and the NCI-CTC dysphagia scale were used to rate oral mucositis experienced by the subjects. Both scales range from 0–4, and a score of 4 signifies a severe, life-threatening impairment (Cella et al.). The subjective measurement of oral mucositis pain was obtained using a numeric pain scale ranging from 0–10, in which 10 signified the worst imaginable pain. A pain questionnaire also was used that allowed the patients to describe their pain. Cella et al. reported that oral pain peaked around days 14–16 following the initiation of cytotoxic treatment. Throughout the study, increases and decreases in the mean pain score were correlated with the average scores for oral mucositis and dysphagia. Many patients (n = 185, 57%) reported peak pain within two days of reporting peak stomatitis, and a similar number (n = 192, 59%) reported peak stomatitis within two days of peak dysphagia. Most patients (n = 248, 77%) reported peak mouth pain within one week of peak stomatitis and peak dysphagia. A high correlation was found between mucositis scores and NCI scores for pain, swallowing, and inability to eat. Cella et al. concluded

that patient-reported mouth pain (subjective assessment) was significantly related to oral mucositis and dysphagia scores (objective assessment). Peak oral mucositis, dysphagia, and pain all occurred at similar times for each patient. The subjective measure of pain, as it relates to the objective findings of erythema, edema, and ulcers, is incorporated in the NCI-CTC stomatitis and dysphagia scales, thus making it a straightforward method for following the course of oral mucositis in the clinical setting. Cella et al. concluded that the NCI-CTC were useful when used in conjunction with a separate patient-reported pain scale for monitoring the progression of oral mucositis.

Sonis et al. (1999) also recognized the lack of a validated, objective scoring system for oral mucositis, noting that, at the time, each of the scales in use was developed for a different objective. The two widely used scales developed by the World Health Organization (WHO) and NCI were designed to demonstrate toxicities associated with particular chemotherapeutic agents or regimens. In contrast, oncology nurses have developed grading scales with a more holistic quality that were designed for patient assessment and management of oral mucositis, including factors that traditionally have not been defined as being associated with oral mucositis. Major qualities in the nurse-developed scales include functional and subjective outcomes, such as quality of speech, difficulty with swallowing, lip and mucosal dryness, infection, bleeding, and practices such as the avoidance of spicy foods (Sonis et al.). Other types of scales, devised by researchers, attempted to separate or eliminate the subjective findings or at least evaluate them independently of the objective findings to be more applicable as research tools (Sonis et al.).

Sonis at al. (1999) sought to design, test, and validate a scoring system, the Oral Mucositis Assessment Scale (OMAS), that would be accurate, easy to use, and reproducible. To accomplish that goal, a panel of experts was convened to arrive at a consensus regarding indicators of mucositis severity. The measures the experts included were primary indicators of the degree of mucous membrane ulceration recorded on a scale of 0 (no lesion) to 3 (lesions > 3 cm^2) and mucosal erythema recorded on a scale of 0 (none) to 3 (severe). The parameters were measured in specific sites in the mouth: upper lip, lower lip, right cheek, left cheek, right ventral and lateral tongue, left ventral and lateral tongue, floor of the mouth, soft palate, and hard palate. The secondary indicators of severity included oral pain assessed on a visual analog scale (VAS) from 0 (no pain) to 100 (severe pain) and difficulty swallowing assessed using a VAS from 0 (no difficulty) to 100 (severe difficulty). One hundred and eight patients undergoing chemotherapy and 56 patients receiving radiation therapy were evaluated daily for clinical manifestations of oral mucositis by trained investigators, including dentists, oncology nurses, dental assistants, and research assistants. Prior to evaluation, patients were given the scales for pain and swallowing difficulty and a questionnaire to assess their ability to eat. Among the patients studied, 82% demonstrated some evidence of mucositis, with 78% of patients receiving chemotherapy and 64% of patients receiving radiation therapy experiencing clinically relevant mucositis (defined as a score on the NCI-CTI scale of at least 2, pain scale measurement of at least 50, swallowing difficulty measuring 50 or higher, and oral intake limited to liquids only [Sonis et al.]). The data demonstrated that objective mucositis scores had a strong correlation with symptoms associated with oral mucositis and that the scale was effective in tracking temporal changes. Sonis et al. reported that the OMAS was easy to use and that clinical evaluation of oral mucositis took fewer than five minutes to perform. Sonis et al. concluded that the new OMAS scoring system effectively measured changes that took place in the oral mucosa over time.

In 1987, Canadian oncology nurses, specifically the Western Consortium for Cancer Nursing Research (WCCNR), identified the development of nursing interventions for stomatitis as a priority (Olsen et al., 2004). In comparing mucositis assessment tools that were available at the time, Olsen et al. noted that many of the tools assessed more than stomatitis (i.e., level of consciousness, taste, voice, and teeth). According to Olsen et al., assessment of variables not directly associated with oral mucositis might yield high scores not reflective of significant changes in the oral mucosa. In addition, scores on the scales often remained the same on subsequent days despite true physiologic change occurring in the mouth (Olsen et al.). As a result of the many issues identified with the stomatitis assessment scales, WCCNR decided to develop its own assessment tool for stomatitis in patients receiving chemotherapy (Olsen et al.).

The original WCCNR (1987) stomatitis staging system consisted of eight descriptors: lesions, color, bleeding, moisture, edema, infection, pain, and ability to eat and drink (Olson et al., 2004). The WCCNR stomatitis staging system correlates well with the OAG and the WHO mucositis grading scales. WCCNR (1998), in a subsequent project, identified that three of the original staging system's descriptors (i.e., lesions, erythema, and bleeding) could accurately predict the stage of mucositis 96% of the time (Olson et al.). The WCCNR staging system was revised to reflect the findings of the 1998 study. The revised WCCNR staging system is based on the three descriptors—lesions, erythema, and bleeding—and is scored on a scale from 0–3. For lesions, 0 indicates none and 3 indicates that lesions are more than 50% denuded. For erythema, 0 indicates 50% or more is pink and 3 indicates that 50% or more is very red. For bleeding, 0 indicates none, whereas 3 indicates spontaneous bleeding.

Olson et al. (2004) determined the validity and reliability of the revised WCCNR staging system among patients with cancer who received radiation therapy alone and among those who received combined radiotherapy and chemotherapy. Olson et al. were able to show that the revised WCCNR staging system was a valid and reliable tool for assessing stomatitis related to radiotherapy. The staging system is a hybrid that includes the three stomatitis indicators and the toxicity grading format of the WHO scale. The revised WCCNR staging system has several advantages over other tools for assessing stomatitis resulting from chemotherapy, radiotherapy, or both, because it assesses and stages only stomatitis and is quick and easy to use during clinical nursing practice.

Nursing Implications

Oncology nurses play a critical role in improving patient outcomes related to chemotherapy-induced oral mucositis. With the advent of high-intensity cancer treatments, oral mucositis is becoming a frequent, serious, and costly side effect. Knowing the risk factors for oral mucositis, the circumstances that may exacerbate oral mucositis, and the condition of the oral cavity is key to performing good nursing assessments.

However, according to McGuire (2003), one of the barriers to effectively measuring patient outcomes related to oral mucositis is that clinicians are not familiar with the research on the numerous tools available for assessing it.

Risk Factors

When patients with cancer are admitted to a clinic or hospital for chemotherapy, nurses must perform thorough histories and oral assessments to identify factors that increase patients' risk for developing oral mucositis (Berger & Eilers, 1998). Oral mucositis develops more frequently among adults younger than 20 years of age, and individuals older than age 50 have an increased chance of developing oral mucositis that is severe (Brown & Wingard, 2004). When performing initial assessments, nurses must review laboratory values for leukocyte count, platelet count, and renal function, all of which have been shown to increase the likelihood of developing oral mucositis (Berger & Eilers). Nurses also need to inquire whether patients recently have received chemotherapy or radiation therapy, because frequent and repetitive doses can increase the risk of oral mucositis (Brown & Wingard). While conducting initial nursing assessments, systematic and comprehensive assessment of the oral cavity should be performed and documented (Brown & Wingard). Oncology nurses must establish baseline oral status so changes can be detected early.

Once patients' chemotherapeutic regimens have been prescribed, nurses must note the types of chemotherapy to determine whether they are among the stomatotoxic drugs. Chemotherapeutic drug regimens associated with oral mucositis include bleomyocin, bulsulfan, cyclophosphamide, dactinomycin, doxorubicin, etoposide, floxuridine, 5-fluorouracil, hydroxyurea, methotrexate, mitomycin, vinblastine, vincristine, and vinorelbine (Brown & Wingard, 2004; Eilers, 2004).

Assessment Protocols

Oncology nurses must perform oral cavity assessments on patients systematically (i.e., prior to beginning treatment, routinely during treatment, and after completion of treatment regimens) because the myelosuppressive effects of chemotherapy may occur as many as 10–12 days following treatment (Andersson et al., 1999; Harris & Knobf, 2004). However, the literature related to the frequency with which oral assessments should be performed is inconsistent. Historically, no consensus has been reached among experts regarding a universal standard of oral care for patients with cancer with respect to use of assessment tools and frequency of oral mucosal assessment (McGuire, 2003).

Agreement exists among researchers that thorough and consistent assessment of the oral cavity is a crucial step to improving the management of oral mucositis and that it should be performed often enough so that changes in the oral mucosa can be readily identified as they occur (Berger & Eilers, 1998; Cawley & Benson, 2005; Cella et al., 2003; Dodd, 2004a; Eilers, 2004; Eilers & Epstein, 2004; Fulton et al., 2002; Harris & Knobf, 2004; Olsen et al., 2004). Clinical guidelines available for the prevention and treatment of cancer therapy–induced oral mucositis do not address the use of grading scales (Rubenstein et al., 2004). For instance, the Multinational Association of Supportive Care in Cancer and the International Society for Oral Oncology assembled an expert panel for evaluating the literature pertaining to oral mucositis and for developing evidence-based guidelines for its prevention and treatment, but the issue of using grading scales in the assessment phase was not addressed (Rubenstein et al.). Furthermore, the chemotherapy and biotherapy guidelines and recommendations published by the Oncology Nursing Society (ONS) (Polovich, White, & Kelleher, 2005) addressed assessment by stating that a standard assessment tool should be used. ONS cites three common tools, including two reviewed in this article, the OAG and the NCI-CTC; however, a specific protocol for performing oral assessments using a rating tool is not provided.

Pathophysiology

Knowledge of the usual changes seen in oral mucositis and the normal progression of those changes in the oral cavity can assist with accuracy in documenting nursing assessment (Eilers & Epstein, 2004). Oral mucositis usually begins with asymptomatic erythema of the oral mucosa that may cause patients to complain of burning or tingling in the mouth. The progression of oral mucositis continues with patchy erythema and edema that progress to confluent erythema, edema, and white patches that develop into painful ulcers, leading to active bleeding and necrosis in some patients (Brown & Wingard, 2004; Dodd, 2004a). The ulcerations are most important to track in immunosuppressed patients because the risk of secondary infections, such as bacterial, fungal, and viral infections, increases (Brown & Wingard). The biologic development of oral mucositis is an ongoing area of clinical research and recently was developed into a five-phase model. Different phases can occur simultaneously in different sites of the oral cavity (Sonis, 2004). Phase 1, or initiation, takes place when chemotherapy is begun and DNA damage in the epithelial cells occurs, causing cell death. In phase 2, message generation, inflammatory cytokines are released, causing further cell damage and resulting in thinning, erythema, and pain. In phase 3, signaling and amplification, further tissue injury and cell death caused by proinflammatory cytokines occur, leading to phase 4, ulceration, in which the oral mucosa becomes ulcerated and painful and tissue is destroyed to the point where the possibility of bacteremia and sepsis is present. Phase 5, healing, includes migration, proliferation, and differentiation of wound healing, resulting in intact wound surfaces. Patient outcomes can be improved when oncology nurses are familiar with the phases and document them as they occur using a nursing-sensitive oral assessment rating scale. With data from oral assessments, nursing interventions can be initiated to reduce pain, encourage nutrition through appropriate dietary approaches, and monitor for signs and symptoms of infection.

Summary

To date, standards of practice in the use of assessment rating scales for oral mucositis do not exist (Cawley & Benson, 2005; McGuire, 2003). Yet clinical measures are necessary for oncology nurses to manage oral mucositis effectively, thus making the selection of a clinically relevant rating tool for routine oral assessment an important decision for achieving optimal patient outcomes. Several rating scales have been described and empirically evaluated in the literature, specifically, the OAG (Eilers et al., 1988), NCI-CTC (Cella et al., 2003), OMAS (Sonis et al., 1999), and revised WCCNR (1998) staging system. The OAG and the revised WCCNR staging system were designed by oncology nurses, and the OAG is used more widely in clinical

practice than any other oral assessment tool (Dodd, 2004b). Oncology nurses need to become familiar with the various oral mucositis rating scales described in the literature and choose one that is reliable and valid, as well as practical, for oncology nurses to use, with easy-to-interpret and clearly understood parameters. Also, the tool chosen must be tolerable for patients and not cause increased pain or fatigue (Eilers & Epstein, 2004). Because pain is one of the most distressing symptoms experienced by patients afflicted with oral mucositis, the use of a pain scale also is an essential element of oral mucositis assessment.

Conclusion

The primary goal of nursing assessment of the oral cavity is to identify changes in the oral mucosa, recognize the presence of infection, and describe the effect that oral mucositis has on patients' functional status. Using systematic, regularly scheduled oral assessments with a reliable and valid rating scale specifically designed to assess oral mucositis among patients with cancer will allow oncology nurses to better recognize, monitor, and document the progression of oral mucositis and institute nursing interventions to ease patients' experiences. The clinical use of reliable oral mucositis rating scales will facilitate the use of appropriate nursing interventions for patients at high risk for oral mucositis and, ultimately, should improve patient outcomes related to oral mucositis.

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