

Teachable Moment

Magic Mouthwash for Oral Mucositis

A Teachable Moment

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Story From the Front Lines

A man in his 60s with gastric cancer presented to an urgent care center with mouth pain. He had initiated capecitabine chemotherapy (oral prodrug of fluorouracil) prior to his visit. Eating exacerbated the pain, although he could still eat solid food. He reported no fevers or chest pain. On examination, he was afebrile. Oral examination showed generalized erythema and some shallow ulcerations without bleeding. No signs of bacterial, viral, or *Candida* infection were present. He was not neutropenic. He was diagnosed with chemotherapy-associated grade 2 oral mucositis (World Health Organization scale, range 1-4, with 1 indicating soreness with or without erythema and 4 indicating no alimentation possible).

The patient was prescribed magic mouthwash rinses (swish and swallow, every 4 hours as needed) and discharged with close follow-up. At the pharmacy, he waited while the preparation was compounded and paid the medication cost out of pocket because it was not covered by his insurance. At a follow-up visit, he reported that the mouthwash was causing oral numbness and loss of taste, which were worse for his appetite than the mucositis pain itself. He also reported feeling drowsy after using the mouthwash. His oral examination was largely unchanged. He was asked to stop using the magic mouthwash. A homemade salt and sodium bicarbonate mouthwash was recommended along with dental care with the use of a soft toothbrush. His symptoms improved over the next few days.

Teachable Moment

Oral mucositis is a painful and potentially dose-limiting adverse effect of cytotoxic chemotherapy and head and neck radiation therapy.¹ The condition occurs in approximately 20% to 40% of patients receiving conventional chemotherapy. Apart from the direct morbidity, oral mucositis can limit oral intake and provide a site for local infection and a portal of entry for systemic infection. Patients receiving cancer therapy are already at high risk of malnutrition and infection owing to cancer- and therapy-related factors.

Magic mouthwash refers to a number of mixed medication formulations used to prevent or treat oral mucositis. Surprisingly, there is no fixed formulation, and these mixtures are compounded differently by individual pharmacies, with no set formula.² Commonly, these mouthwashes consist of anticholinergic agents (eg, diphenhydramine), antacids and/or mucosal protective agents (eg, sucralfate, aluminum hydroxide), anesthetics (eg, lidocaine), and sometimes antibacterials, antifungals, opioids, and steroids.² A 2005 survey of 40 institutional pharmacies across 21 US states revealed that 38 (95%) prepared a magic mouthwash with 3 or more ingredients, with frequently reported adverse events, including taste

disturbances (49%), burning and/or tingling in the oral cavity (29%), and drowsiness or any central nervous system adverse effects (11%).^{2,3} Data do not support the widespread use of these mouthwashes. A randomized double-blind trial comparing the efficacy of 3 mouthwashes (chlorhexidine; salt and soda; and magic mouthwashes, including lidocaine, diphenhydramine, and aluminum hydroxide) found no differences in the pain rating or time taken for cessation of symptoms.⁴ A systematic review of the management of oral mucositis concluded that there was no evidence supporting the use of mixed medication mouthwashes.⁵ Patients may have adverse effects related to anticholinergics and anesthetics (as in this patient) and are unnecessarily exposed to antimicrobials and steroids. Lidocaine and alcohol (base agent) can cause oral numbness and dysgeusia. The 2014 Mucositis Study Group of the Multinational Association of Supportive Care in Cancer and International Society of Oral Oncology guidelines make no recommendation about the use of mixed medication mouthwashes, and the American Academy of Nursing Choosing Wisely statement explicitly recommends against using them.^{1,3} Because of the lack of standardization of contents, clinicians may be completely unaware of what they are prescribing, and commercial health insurance plans may not cover these mouthwashes, increasing direct costs to patients. The retail cost is approximately \$34 to \$50 per 8 ounces. This amount lasts less than 2 days with an administration schedule of 1 ounce every 4 hours. Use is generally required for several days.¹ Even if mixed mouthwashes were found to be efficacious, the lack of consistency in contents is unsafe.

A comprehensive orodental assessment prior to chemotherapy can reduce the risk of developing mucositis. If mucositis develops, patients should be assessed for uncontrolled pain, decreased oral intake, infection, bleeding, and neutropenia, any of which may necessitate hospital admission. For mild cases, careful dental care with a soft toothbrush and rinses with an inexpensive, homemade salt and sodium bicarbonate mouthwash (1 teaspoon of salt and sodium bicarbonate each in 1 liter of water) are advised.⁴ The salt and sodium bicarbonate mouthwash acts by dissolving collected debris, promoting granulation tissue formation, and preventing infections by raising the oral pH. Spicy, acidic, and mechanically hard foods should be avoided. Single-agent morphine or doxepin mouthwashes can be helpful for pain control. Use of sucralfate, steroids, and empirical antimicrobials may be harmful and is not advised.³

In summary, there is no evidence of magic in magic mouthwash. Perhaps it should demonstrate its magical properties by vanishing into thin air!

ARTICLE INFORMATION

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