



# Interventions for Preventing Oral Mucositis for Patients With Cancer Receiving Treatment

Dora S.P. Lang, BSN, AdvDip

## Objective

To assess the effectiveness of prophylactic agents for oral mucositis for patients with cancer receiving treatment, compared with other potentially active interventions, placebos, or no treatment.

## Type of Review

An interventional review that assessed the benefit of prevention strategies for oral mucositis among patients receiving radiotherapy, chemotherapy, or targeted therapies.

## Relevance for Nursing

Oral mucositis (mouth ulcers) is a common side effect resulting from chemotherapy and radiotherapy. It affects patient quality of life as they are unable to eat, swallow, and talk normally because of severe pain. Reviewing the best available evidence will add to the knowledge of those involved in nursing care to prevent and minimize the occurrence of mucositis.

## Characteristics of the Evidence

The review included 131 randomized, controlled trials encompassing 10,514 participants. The inclusion criteria included patients with hematologic malignancies or solid tumors who received radiotherapy and/or chemotherapy from any healthcare setting. The review reported 43 interventions of interest, including pharmacologic and nonpharmacologic products comparing placebo or no treatment or another active intervention. The primary outcome of interest was the severity grading of mucositis using World Health Organization or European Organization for Research and Treatment of Cancer assessment tools

from a scale of 0 (normal) to 4 (severe) measured for a median duration of 28 days. For the methodologic assessment of included trials, 27 (21%) had adequate sequence generation, 19 (14%) employed adequate allocation concealment, and adequate blinding was seen in 19 trials (carer blinding), 45 trials (patient blinding), and 77 trials (assessor blinding), respectively. Overall, only 11 (8%) trials were assessed at low risk of bias. Meta-analysis was undertaken where possible.

## Summary of Key Evidence

Some evidence from meta-analysis indicated that cryotherapy (ice chips) versus no treatment (5 trials) and keratinocyte growth factor versus placebo (7 trials) were beneficial in the prevention of mucositis (relative risk [RR] = 0.74, 95% confidence intervals [CI] [0.57, 0.95],  $p = 0.02$  and  $RR = 0.82$ , 95% CI [0.71, 0.94],  $p = 0.005$ , respectively).

Weak and unreliable evidence of benefit occurred to prevent or reduce mucositis from meta-analysis: aloe vera versus placebo (2 trials), amifostine versus placebo or no treatment (11 trials), glutamine (IV) versus placebo or usual care (10 trials), granulocyte-colony-stimulating factor versus placebo (3 trials), honey versus no treatment (3 trials), laser versus placebo or sham control (5 trials), polymixin/tobramycin/amphotericin lozenges/paste versus placebo (2 trials), and sucralfate versus placebo or usual care (12 trials).

No evidence of a benefit was found in using chlorhexidine versus placebo or no

treatment for the prevention of mucositis (9 trials) from meta-analysis.

## Best Practice Recommendations

Cryotherapy and keratinocyte growth factor (palifermin) are recommended for adult and pediatric patients who receive radiotherapy and/or chemotherapy to prevent oral mucositis.

The evidence is weak regarding the use of aloe vera, amifostine, glutamine, granulocyte-colony-stimulating factor, honey, laser, polymixin/tobramycin/amphotericin, and sucralfate; therefore, they are not recommended for prevention of oral mucositis.

## Research Recommendations

Future research should focus on the interventions that demonstrated weak evidence of benefit and use the Consolidated Standards of Reporting Trials for greater transparency.

## Reference

Worthington, H.V., Clarkson, J.E., Bryan, G., Furness, S., Glenny, A.M., Littlewood, A., . . . Khalid, T. (2011). Interventions for preventing oral mucositis for patients with cancer receiving treatment. *Cochrane Database of Systematic Reviews*, 4, CD000978.

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Dora S.P. Lang, BSN, AdvDip, is a nurse clinician at the National University Cancer Institute, National University Health System, in Singapore. She is a member of the Cochrane Nursing Care Field. Lang can be reached at [doralang@swissmail.org](mailto:doralang@swissmail.org), with copy to editor at [CJONEditor@ons.org](mailto:CJONEditor@ons.org).

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