

MyelomaAcademy™



NURSING BEST PRACTICE GUIDE

Oral mucositis

This document is one of the Myeloma Academy Nursing Best Practice Guides for the Management of Myeloma series. The purpose of this Guide is to enhance knowledge and inform nursing practice when caring for myeloma patients with oral mucositis (OM).

After reading this, you should be able to:

- ★ Define oral mucositis
- ★ Understand the cause, symptoms and consequences of oral mucositis in myeloma patients
- ★ Be aware of the clinical testing and assessment tools for oral mucositis
- ★ Understand the prevention and treatment of oral mucositis
- ★ Understand the nurse's role in the assessment, intervention and management of oral mucositis and in the education of patients about this complication

The information contained within this Guide should be used in conjunction with local and national policies, protocols and best practice guidelines in oncology.

Background

Oral mucositis (OM) is the term used to describe damage to the lining of the mouth (mucosal membrane) that is caused by certain treatments for myeloma. It is characterised by redness or changes in the colour of the mucosa, inflammation and ulceration that can result in difficulty in

eating, drinking and speaking and in some cases may lead to infection^[1].

In myeloma, the vast majority of cases of OM occur following high-dose therapy and stem cell transplantation (HDT-SCT), with around 90% of patients affected to some degree.

KEY FACTS

- ★ Oral mucositis is inflammation and ulceration of the lining of the mouth and is a common complication of the high-dose chemotherapy given prior to stem cell transplantation
- ★ The consequences of OM include pain, difficulty swallowing and/or speaking, infection (including septicaemia) and, when severe, OM impacts strongly on quality of life
- ★ Early recognition and intervention are key to reducing the severity of OM and maintaining quality of life

OM is much less commonly seen in patients receiving conventional dose chemotherapy or anti-myeloma treatments such as thalidomide, lenalidomide (Revlimid®) and bortezomib (Velcade®). It may also be seen in patients receiving radiotherapy to the head and neck area to treat a plasmacytoma or those receiving more intensive combination chemotherapy treatment. This guide mainly discusses OM following HDT-SCT.

The pathophysiology of OM was previously thought to be a simple process consisting solely of direct cell damage caused by cytotoxic treatments. It is now understood to be more complex, involving five distinct phases^[2]. Phase one (initiation) describes the initial damage to the mucosal membrane, while phase two (primary damage response) refers to the release of cytokines (chemical messengers) from the damaged cells. In these first two phases, there are often no visible signs of OM although there may be dryness of the mouth and changes in sensation or taste. Phase three (amplification) describes the stage involving enhanced secretion of cytokines in response to the inflammation and damage which they cause to the mucosal membrane. This drives a 'vicious circle' which amplifies the damage even further and by this stage, there may be signs of damage (redness and soreness).

In phase four painful ulceration occurs, and at this point there is a significant risk of bacterial colonisation and infection. Phase five involves healing of the lining of the mouth and the resolution of symptoms. These events typically occur 7 - 14 days after high-dose chemotherapy (or radiotherapy) and may last for 2 - 3 weeks after treatment has been completed. It is important to appreciate the phases of OM because early recognition and intervention can prevent minor damage from progressing to painful ulceration.

The clinical consequences of OM depend on the severity and the progression of OM. As described above, in the early stages, they may include changes in taste and sensation, and dryness of the mouth. Problems are more apparent if ulceration occurs. They can cause varying degrees of pain and lead

to difficulty in eating and drinking, weight loss and electrolyte imbalance. Difficulty in speaking, eating or drinking may cause social isolation which increases distress.

Importantly, ulceration increases the risk of local infection and, particularly post-transplant, may lead to septicaemia. This can result in a prolonged hospital stay and potentially increased mortality.

There are no specific treatments for OM once it is established, and treatment is generally aimed at palliating symptoms. The risk of OM can however be significantly reduced by maintaining good oral hygiene and by a number of preventive measures.

It is important that doctors and nurses recognise the impact that OM can have on patients' quality of life and that early recognition, together with timely preventive strategies, is vital in preventing and reducing the severity of OM.

The following describes the general medical approach to the prevention and treatment of OM, and provides best practice guidance for nursing interventions and nursing management of patients with OM.



GENERAL RECOMMENDATIONS:

- ★ Before receiving high-dose therapy (HDT), all patients should be started on preventive measures against OM
- ★ Patients undergoing HDT should have prophylactic oral cryotherapy using ice chips, ice cubes or ice lollies both before and after HDT
- ★ All patients who have undergone HDT should have daily assessment of the mouth by a trained healthcare professional using a recognised reporting system
- ★ Regular daily assessment of the mouth should include eliciting symptoms and examination of the mouth
- ★ Arrangements should be made for close liaison with other members of the multidisciplinary team to manage control of pain and/or infection

NURSING RECOMMENDATIONS:

- ★ Patients and their families should be informed about the importance of good mouth care in preventing OM
- ★ Patients and their families should be informed about how to assess the mouth for evidence of OM and the importance of early reporting of symptoms
- ★ Following discharge, patients should be encouraged to continue mouth care and given contact details to report any concerns



Medical Approach

Oral mucositis is a common complication associated with conditioning treatment but by taking preventative measures, performing regular assessment and exercising good oral care, its incidence and severity can be significantly reduced.

The following section provides details of the general medical approach to the prevention, treatment and management of oral mucositis in myeloma patients. Management of pain or infection may involve referral to other members of the multidisciplinary team for more specialist assessment and intervention.

Assessment and risk classification

Assessment

All patients receiving HDT-SCT, and other patients considered at risk of OM, should be assessed daily using a recognised grading system. Assessment should begin from the start of HDT, or any other treatment which may cause OM. This is particularly important for transplant patients in the neutropenic phase as this is the period they are most susceptible to infection; early identification of OM at this stage is therefore critical.

The most widely used systems include the World Health Organisation (WHO) Oral Toxicity Scale and the National Cancer Institute Common Terminology Criteria for Adverse Events (NCI-CTC) scale. (See Appendix 1).

In the early stages of OM, there may be no visible changes. Nurses should ask patients about any changes in mouth sensation, taste, speech and dryness of the mouth. Also, nurses should ask if patients have any difficulties in eating, drinking or swallowing. It is important that any examinations of the inside of the mouth are done using a good light source, and tongue depressor if necessary, with particular attention paid to the areas most often affected by OM. These particularly include areas where the teeth come into contact with the mucosal membrane such as the inside of the upper and lower lips, soft palate, inside of the cheeks, lateral and ventral areas of the tongue, and also the floor of the mouth as shown in Figure 1.

Any reddening of the mucosa or other changes should be noted together with any evidence of ulceration. In addition, it is important to assess the mouth for any sign of infection.

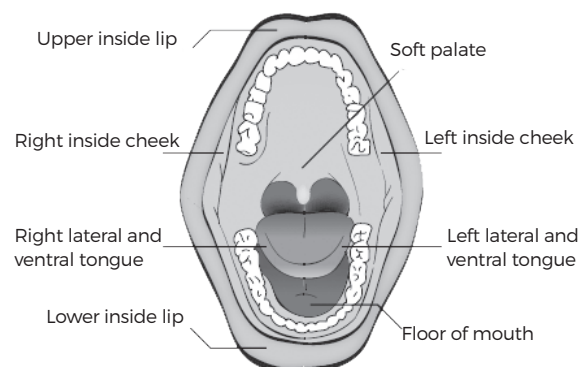


Fig 1. Commonly affected sites^[1]

Prevention and Treatment

Prevention

Preventive measures are key to reducing the risk of OM developing, and its severity, should it occur. Several different measures may be implemented for patients receiving any treatment which can cause OM.

Cryotherapy has shown clear benefits in preventing and/or ameliorating OM^[3, 4]. It involves the cooling of the mouth with ice and is one of the simplest ways of reducing the risk of OM. Cooling of the mouth causes vasoconstriction which decreases the exposure of the oral mucous membranes to cytotoxic treatment.



For patients undergoing HDT-SCT, the most effective way to apply cryotherapy is to give patients ice cubes or ice lollies to suck immediately before high-dose therapy commences and for a short period afterwards. It is also good practice to ensure that patients receiving HDT have access to cooled water and are encouraged to rinse the mouth regularly throughout the day.

If OM does develop there are measures which may be applied to reduce the severity and duration.

For example, several mucoprotective agents can be used to create a protective barrier between the mucosa and the oral cavity^[5]. Although these do not prevent OM, they help reduce the degree of ulceration and protect against bacterial infection. These agents include Episil[®], Gelclair[®] and MuGard[®]. It is important to note that only one agent should be used at any one time. Episil is a mouth spray, while Gelclair and MuGard are mouthwashes – they should be used according to manufacturer's instructions.

Caphosol[™] is a supersaturated calcium/phosphate solution which assists in maintaining oral hygiene, moistening and lubricating the oral cavity. Caphosol has been used as prophylaxis against OM in HDT-SCT patients and has been shown to reduce the incidence of OM associated with high-dose melphalan. It reduces the need for expensive parenteral nutrition, and is thus a cost-effective intervention^[6]. Patients who are at risk of OM can use Caphosol to rinse the mouth four times a day; this can be increased to up to 10 times per day. Nurses should check local policies for when Caphosol should be used.

Low-intensity laser therapy may be of benefit in prevention of OM. This treatment may not be available in all regions/centres^[7]. Where it is available it may reduce the severity of treatment-related OM.

Treatment

There is no specific treatment for OM once it has developed. Any treatment is directed at reducing the severity of OM and at relieving symptoms.

Oral mucositis involving ulceration can be extremely painful, sometimes to the point where it prevents patients from eating, drinking and even sleeping. Adequate pain relief is therefore essential and an anaesthetic mouthwash e.g. Diffiam[®] may be used in the first instance for mild to moderate pain. Other local analgesics such as Bonjela or lidocaine can also be applied to affected areas.

For more severe pain, systemic analgesia e.g. paracetamol or co-codamol may be necessary but non-steroidal anti-inflammatory drugs such as ibuprofen should not be given to myeloma patients. For patients with grade 3 or 4 mucositis, low-dose opiates should be considered but if patients are unable to swallow, then fentanyl patches or subcutaneous injections may be used.

If patients develop severe or protracted pain, management should be discussed with the palliative care and/or pain control team.

All patients receiving SCT will have prophylactic antibiotic, anti-fungal and anti-viral agents prescribed to reduce the risk of infection. If patients develop OM the anti-infection prophylaxis should be reviewed with the infection control team. Take oral swabs for microbiology and virology to confirm any potential infective complications.

Oral infection in patients who have received SCT is associated with a high risk of systemic infection. Treatment of such infections should be carried out in consultation with the infection control team.

Nursing interventions and management

Oral care is an important task in general nursing care, and nurses play a central role in the detection, assessment and treatment of OM. Good nursing care can also help prevent or reduce the incidence and severity of OM.

The following provides best practice recommendations for nursing interventions related to the assessment, treatment and monitoring of myeloma patients with OM and for nursing management related to the provision of knowledge.

Interventions

- ★ Educate patients regarding the importance of good oral care
- ★ Ensure patients have a dental check-up before starting any treatment which may cause OM. They should continue to attend routine check-ups throughout
- ★ Assess patients daily for signs or symptoms of OM, especially during neutropenic phase
 - ★ Ask patients about changes in sensation, dry mouth, difficulty in swallowing, eating or drinking
 - ★ Examine the mouth using a good light source
 - ★ Record findings using a recognised system (Appendix I)
- ★ If patients have dryness of the mouth, artificial saliva may reduce discomfort
- ★ Be vigilant for signs of infection and alert the multidisciplinary team if action is required
- ★ Identify patients who may require pain relief and ensure it is prescribed and administered appropriately, particularly if they have difficulty swallowing
 - ★ Anticipate and monitor patients, especially those taking opioids, for side-effects e.g. vomiting, nausea, constipation
- ★ Report situations of unrelieved pain to the multidisciplinary team and advocate on behalf of the patients for a change in treatment if pain relief is inadequate
- ★ Support these recommendations with documented evidence of patient assessment
- ★ Ensure patients are monitored for malnutrition or dehydration
 - ★ Assess patients for weight loss and fluid balance
- ★ If patients cannot swallow arrange for parenteral nutrition and drug administration

Management

- ★ Provide written information on good mouth care
- ★ Encourage patients to clean their teeth thoroughly with toothpaste using a soft toothbrush after each meal as well as at bedtime
- ★ Where relevant, advise patients to clean their dentures after each meal and to soak them overnight as normal
- ★ Encourage patients to maintain adequate oral fluid and dietary intake and ideally to avoid alcohol and tobacco
 - ★ Advise patients to avoid spicy foods or foods which may damage the mouth lining e.g. rough or crunchy food
 - ★ Advise patients to rinse their mouth thoroughly with saline mouthwash four times a day. Encourage patients to use a ballooning and sucking motion of the cheeks for at least 30 seconds to remove loose debris from the teeth



- ★ Advise patients to use lip salve for dry lips
- ★ Advise patients to have water available day and night and to take regular sips
- ★ Educate patients about the increased risk of recurrence following an episode of OM
- ★ Educate patients, and family members, on the signs and symptoms of OM and how to examine the mouth
- ★ Emphasise the importance of reporting any suspicion of OM or infection as soon as possible

Summary

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Oral mucositis is a common, potentially distressing, complication particularly for myeloma patients receiving HDT-SCT, affecting approximately 90% of transplant patients. It can also affect patients receiving cytotoxic chemotherapy or radiotherapy, albeit less frequently. The consequences of OM can be severely debilitating for patients and have a huge impact on their quality of life. Prevention, along with regular assessment, is key. Several interventions implemented in a timely manner can significantly reduce the incidence and severity of OM.

Nurses play a key role in assessing and monitoring the signs and symptoms of OM and in providing comprehensive support in reducing the risk of OM in their patients. Through timely assessment and management, they can significantly improve patients' quality of life and outcomes.

Abbreviations

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| <ul style="list-style-type: none"> ★ HDT-SCT High-dose therapy and stem cell transplantation ★ NCI-CTC National Cancer Institute – common terminology criteria | <ul style="list-style-type: none"> ★ OM Oral mucositis ★ WHO World Health Organisation |
|--|--|

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Appendix I

Table 1 WHO Oral Toxicity Scale^[8]

Grade	WHO Scale
1	Soreness +/- erythema, no ulceration
2	Erythema, ulcers. Patients can swallow solid diet
3	Ulcers, extensive erythema. Patients cannot swallow solid diet
4	Oral mucositis to the extent that alimentation is not possible

Table 2 National Cancer Institute–Common Terminology Criteria (NCI-CTC)^[9]

Grade	NCI-CTC Physical	NCI-CTC Functional
1	Erythema	Minimal symptoms, normal diet
2	Patchy ulcerations or pseudomembranes	Symptomatic but can eat and swallow modified diet
3	Confluent ulcerations or pseudomembranes; bleeding with minor trauma	Symptomatic and unable to adequately aliment or hydrate orally
4	Tissue necrosis; significant spontaneous bleeding; life-threatening consequences	Symptoms associated with life-threatening consequences
5	Death	Death



ABOUT THE NURSING BEST PRACTICE GUIDES

The Nursing Best Practice Guides have been developed by Myeloma UK and an expert nursing advisory group, with input from relevant specialist healthcare professionals. They have been developed to enhance nurse knowledge, inform nursing practice and support nurses in the delivery of high quality treatment and care to myeloma patients and families.

Nursing Best Practice Guide series:

- ★ Complementary therapies
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- ★ Pain
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- ★ Psychological support
- ★ Steroids
- ★ Venous thromboembolic events

ABOUT THE MYELOMA ACADEMY

The Myeloma Academy provides healthcare professionals involved in the treatment and care of myeloma patients with access to comprehensive accredited learning resources and tools in an innovative online environment and through educational events.

It supports the education and continual professional development of myeloma healthcare professionals so they can provide optimum patient-centred treatment and care within the current UK health and policy environment.

For more information visit:

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ABOUT MYELOMA UK

Myeloma UK is the only organisation in the UK dealing exclusively with myeloma.

Our mission is to provide information and support to people affected by myeloma and to improve standards of treatment and care through research, education, campaigning and raising awareness.

For more information about Myeloma UK and what we do, please visit **www.myeloma.org.uk** or contact us at **myelomauk@myeloma.org.uk** or **+44 (0)131 557 3332**.



Notes



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