



Kent and Medway Cancer Collaborative

Guidance Document

Systemic Anti-cancer Therapy Care Pathway

Treatment induced mucositis and stomatitis

Status:	Published
Expiry Date:	April 2019
Version Number:	5
Publication Date:	April 2017

Contents

Contents	2
MUCOSITIS & STOMATITIS	3
1. Introduction	3
2. Oral assessment	4
Examination Guidelines.....	5
i) Assessment	6
ii) Other factors	6
iii) Exclusion Criteria	6
3. Oral complications of systemic anti-cancer therapy	7
i) Infection	7
ii) Dry mouth	7
iii) Bleeding.....	8
iv) Tooth decay	8
v) Taste changes	8
vi) Pain.....	8
4. Before Commencement of Therapy	9
5. Post Therapy.....	9
6. Non-systemic anti-cancer related oral complications	10
References	11
Bibliography	11
Document Administration	12
Approval Record	12
Enquiries.....	12
Document Location	13
Revision History	13

MUCOSITIS & STOMATITIS

Introduction

Good mouth care is an essential element when looking after a patient with cancer (Doyle et al., 1996). Patients who have advanced cancer; are receiving systemic anti-cancer therapy, radiotherapy or those who are immune compromised are at particular risk of incurring mouth problems (Crosby 1989).

The terms oral mucositis and stomatitis are often used interchangeably, but they are different.

Mucositis

Oral mucositis is defined as inflammation of the mucosal membrane. This usually appears as sores or ulcer-like sores throughout the mouth which may result in pain, dysphasia and impairment of the ability to talk. Mucositis remains a major dose-limiting side effect of systemic anti-cancer therapy. Mucosal injury provides an opportunity for infections to flourish, placing immunocompromised patients at risk of sepsis and septicaemia. (Rubenstein et al. 2004)

It has been recognised that mucositis experienced in cancer patients is much higher than previously thought and can be expected to occur in at least 50% of patients undergoing chemotherapy for solid tumour cancers, rising to 98% of patients undergoing haematopoietic stem cell transplantation (Wardley et al 2000). Almost all head and neck patients receiving radiotherapy, regardless of whether it is administered concurrently with chemotherapy will experience a degree of mucositis. Targeted therapies can also impact on the incidence of mucositis and preventative measures have shown to reduce the burden of oral damage caused by the agents. (Quinn et al 2008)

Stomatitis

Stomatitis is the inflammation of the mucous membrane of the mouth such as gums, tongue, cheeks, lips and palate. It is a common debilitating complication of cancer, systemic anti-cancer therapy and radiotherapy. Dry mouth due to the lack of saliva is caused by radiation induced stomatitis and causes symptoms such as, diffuse erythema, ulceration, taste alteration, pain, dysphagia, difficulty in speaking and mouth odour. (The Oral Cancer Foundation 2014)

Mucositis and stomatitis can limit the patient's ability to tolerate either systemic anti-cancer therapy or radiotherapy. This may lead to delays in planned treatment and limit the effectiveness of systemic anti-cancer therapy. Symptoms range from pain, discomfort and bleeding, to an inability to tolerate food or fluids. Patients with damaged oral mucosa and reduced immunity resulting from systemic anti-cancer therapy and radiotherapy are also prone to opportunistic infections in the mouth. This condition may affect the patients gum, dental condition and speech. (Xavier, 2000) - "Patients can also be prone to low self-esteem which can impact on their, response to treatment and / or palliative care". It is therefore extremely important that mucositis be prevented whenever possible, and promptly treated to reduce its severity and possible complications. Healthcare professionals should receive education and training in the management of mucositis and stomatitis to ensure consistent and individualized oral care is provided. (Quinn et al 2008)

Oral assessment

All patients at risk of developing mucositis should receive a standardised oral care regime as an ongoing component of their care. The aim of this regimen is to achieve and maintain a clean mouth and to limit opportunistic infection via the damaged mucosa. Oral assessment should be undertaken by trained healthcare professionals using a recognised grading system. (Quinn et al 2008). Refer to Table 1.0)

Table 1

Assess the condition of the patient's mouth daily where appropriate i.e. an inpatient, or at each treatment visit. Whilst there is no evidence to suggest any one assessment tool is better than others, below is the World Health Organisation grading of mucositis as an example of a typical tool. (LCA 2013)

WHO Grade Oral Mucositis	Clinical Presentation
0	No Symptoms
1	Soreness +/- erythema, no ulceration
2	Erythema, ulcers. Patient can swallow solid diet
3	Ulcers, extensive erythema. Patient cannot swallow solid diet
4	Oral mucositis to the extent that alimantation is not possible.

All mouth care strategies are dependent on four key principles, accurate assessment of the oral cavity, individualised plan of care, initiating timely preventative measures and correct treatment. (Quinn et al 2008)

Examination Guidelines

- Gain consent from the patient
- Give adequate information, explanation and reassurance prior to, during and after procedure.
- Provide appropriate education at the end of the examination to the patient and where appropriate their carer.
- Ensure that patients have access to equipment to perform their own care.
- Ensure that findings and recommendations for further treatment are documented in the patients' notes.

i) Assessment

Using the chosen referenced tool, in patients receiving SACT should be assessed on a daily basis and ambulatory patients should be assessed prior to the commencement of each cycle of treatment. Each patient should have a dental assessment prior to commencement of treatment.

Elad et al (2014)

- Lips – examine externally and internally
- Teeth/Dentures – ask the patient to part lips keeping teeth or dentures together. Examine front teeth and gums. Use a gloved hand and pen torch if more light is needed to examine the inside of the gums.
- Tongue – ask the patient to stick out his or her tongue.
- Saliva – observe and score
- Mucous membranes – examine the inside of the cheeks and inner sides of the lips.
- Pain – this may be localised within the patient’s mouth or they may have pain, which limits their ability to attend to their own mouth care needs.
- Nutrition – the MUST (Malnutrition Universal Screening Tool) should be referred to in order to determine a score.

ii) Other factors

- Mobility – consider the environment which the patient is in, have they got easy access to washroom facilities i.e. downstairs or upstairs, are they able to get upstairs
- Drugs – steroids and antibiotics can also have an effect on the oral mucosa. Health care practitioners should apply their specialist knowledge regarding side effects accordingly.
- Diabetes – diabetics are at a higher risk due to an increase in blood sugars.

iii) Exclusion Criteria

- Swallowing difficulties should be referred to the Dietician and SALT (Speech and Language Therapist)
- Loose teeth/dentures should be referred to the dental department

3. Oral complications of systemic anti-cancer therapy

i) Infection

As mucositis breaks down the lining of the mouth, this can allow germs and viruses to get into the bloodstream. If the immune system has been weakened by systemic anti-cancer therapy, even the good bacteria in the mouth can cause infections. If the white blood cell count is low, patients will be more susceptible to infection in the mouth. This is especially true of patients receiving high dose chemotherapy for leukemia, lymphoma or radiotherapy for head, neck and oral cancers. **(LCA 2013)**

Bacterial infections in patients who have gum disease may be treated with a solution of salt water. Some patients may prefer to use medicated mouth rinse however, there is no evidence to suggest that this is more effective than salt water. Chlorhexidine is one of the most commonly used mouthwash solutions, however, evidence does not support whether it is any better than saline mouthwashes. **(Best Practice 1998)** It is the action of mouth rinsing and its regularity that is essential. If infection is present medical advice should be sought with regards management. Analgesia must always be considered in the first instance to discourage a decrease in fluid and nutritional intake.

There is weak evidence that antifungal agents may cure fungal infection in the mouths of people receiving systemic anti-cancer therapy. However, drugs such as Fluconazole, which are absorbed fully or partially in the gastrointestinal tract are more effective than those which are not absorbed systemically such as Nystatin, but more research is required **(Clarkson JE et al 2004)**. If prescribing Fluconazole care must be taken to assess any potential drug interactions (see BNF or contact pharmacist for advice).

The herpes simplex virus may cause infections such as cold sores in patients with a lowered immune system, and these may recur frequently. Oral anti-viral medication should be prescribed such as Acyclovir with the addition of a topical cream.

ii) Dry mouth

Although a dry mouth is normally associated with damage caused by radiation to the salivary glands, there is some evidence that salivary glands may be damaged by certain types of systemic anti-cancer therapy drugs given alone or in combination.

Saliva is needed for taste, swallowing and speech. It helps prevent infection and tooth decay by neutralizing acid and cleaning the teeth and gums. A drop in saliva production can lead to cuts or cracks in the lips or at the corners of the mouth and changes in the surface of the tongue. If severe and affecting the patients' ability to speak and swallow, then saliva substitutes or medications to stimulate the salivary glands should be considered. The following interventions may provide some relief:

- **Slipping water or moistening the oral cavity (in patients that are unable to swallow)**
- **Saline mouthwashes and saline sprays**
- **Saline nebulisers may help with thick or crusty secretion**

| **(UKOMiC 2015)**

iii) Bleeding

Bleeding may occur during systemic anti-cancer therapy when anticancer drugs affect the ability of the blood to clot. Areas of gum disease may bleed on their own or when irritated by eating, brushing or flossing. Continuing regular oral care will help prevent infections. Patients must be educated in managing oral hygiene: recommendations such as the use of a soft toothbrush, mild toothpastes and avoidance of flossing are essential. This teaching is best done prior to the patient commencing chemotherapy or Radiotherapy. All patients should be educated and encouraged to maintain good oral hygiene **(Rubenstein et al 2004)** Any changes to the oral mucosa must be documented and reported to the Medical Team. Equally blood counts should be monitored.

iv) Tooth decay

Dry mouth and changes in the balance of oral bacteria increase the risk of tooth decay. Good, consistent oral hygiene can help prevent tooth decay. There are also artificial saliva sprays, lozenges and gels that may help. **(Macmillan 2016)**

v) Taste changes

Changes in the sense of taste (dysgeusia) are a common side effect of systemic anti-cancer therapy. These taste changes are caused by damage to the taste buds, dry mouth, infection and /or dental problems. Systemic anti-cancer therapy patients may experience unpleasant taste related to the systemic effect of the drug within the mouth.

In most patients receiving systemic anti-cancer therapy taste returns to normal a few months after therapy ends, although if they have received combination therapy including radiotherapy the change maybe prolonged.

vi) Pain

Regular pain assessment and control of pain is essential, to reduce the risk of compromising fluid and nutritional intake. The use of patient controlled analgesia is recommended, with morphine being the analgesic of choice **(MASCC 2007)**.

Dentate individuals should be advised to avoid acidic pH preparations due to increased risk of decay. A fluoride containing preparation is preferable for these individuals. (UK medicines information 2013)

Edentulous individuals (absence of teeth) should take care in preventing infections and mucositis. Dentures should be cleaned thoroughly at least twice a day by brushing with unperfumed soap with a small medium toothbrush **(The British Dental Health Foundation 2014)**

If dentures become uncomfortable or mouth becomes sore they should be removed and soaked overnight in water. **(NHS Health Scotland 2013)**

Fungal infections warrant the dentures to be cleaned thoroughly and soaked in chlorhexidine mouthwash if no metal components are present. If metal can be seen on the dentures then Milton is sufficient for a 15 minute soak twice a day, **(Scottish Dental Clinic Effectiveness Programme 2011)**

4. Before Commencement of Therapy

Interventions that may be beneficial prior to the commencement of treatment include:

- a. Treatment of caries and dental disease
- b. Education regarding the importance of orodental hygiene, how to maintain oral hygiene and to develop a daily routine or oral care. All patients should be educated and encouraged to maintain good oral hygiene (Rubenstein et al 2004)
- c. Accurate oral assessment recorded in electronic records.

5. Post Therapy

Interventions that may be beneficial following treatment include:

- d. Clean teeth with a soft bristle brush 2 to 3 times a day for 2 to 3 minutes.
- e. Rinse the toothbrush in hot water every 15 to 30 seconds to soften bristles.
- f. Choose toothpaste with care using a mild tasting toothpaste containing fluoride.
- g. Rinse the mouth regularly, using a saline mouthwash (5ml salt: 500ml tepid water)
- h. Avoid mouth rinses containing alcohol.
- i. Lip salve is useful to prevent dryness and cracking – Vaseline can be used
- j. Antibacterial mouth washes for gum disease may be used 2 to 4 times a day.
- k. If dentures are worn, remove and clean them daily and leave out while at rest.
- l. Avoid painful stimuli such as hot food and drinks, spicy food, alcohol and smoking.
- m. Flossing once a day should only be carried out if the patient does not have a low platelet count liable to lead to bleeding
- n. Regular inspection of mouth by the patient and health professionals;
- o. Report any redness, tenderness or sores on the lips or in mouth;
- p. Provide comfort measures such as topical anaesthesia and analgesics
- q. Prompt treatment of mucositis symptoms and oral infections.

In severe cases more intense intervention may be required. These measures could include:

- r. A full multi-disciplinary approach
- s. If patient is unwell and unable to perform mouth care, nursing staff are to undertake these tasks with patient consent
- t. Encourage oral fluids/consider intravenous therapy
- u. Accurate fluid balance monitoring

Interventions which help reduce the mucosal toxicity of systemic anti-cancer therapy drugs include cryotherapy. Rapid cooling of the oral cavity using ice, causes local vasoconstriction and therefore reduces blood flow to the oral mucosa. For drugs such as 5-Fluorouracil, which have a short half-life and are sometimes administered as a bolus injection, the use of cryotherapy may help reduce the amount of drug reaching the oral mucous membranes and therefore reduce the local effects of these drugs. However, this is not effective for continuous infusions.

A range of antiseptic solutions have been used including Chlorhexidine and Difflam, being perhaps the most commonly used. However, there is no evidence to support their use, and in a recent review of randomised controlled trial they were not found to be effective agents for the treatment of mucositis **(Clarkson JE et al 2007)**.

As there are no interventions that have conclusively been shown to be effective, the recommendations for the prevention and management of oral mucositis is based on available evidence and supplemented by the opinion of clinical experts at local level.

6. Non-systemic anti-cancer related oral complications

If cancer has spread to the bones, some patients may be treated with Bisphosphonates. These drugs are also used in the treatment of hypercalcaemia.

Certain Bisphosphonates are linked to a breakdown of the bones in the mouth, most commonly the jaw. It occurs in patients being administered intravenous bisphosphonates, but may also occur in patients taking the treatment orally. This is called osteonecrosis, and although a large number of patients receive Bisphosphonates, only a small number develop this condition.

Prior to receiving treatment, these patients should have a baseline oral assessment carried out and documented; they should be given written and verbal information on the potential risks of Bisphosphonates. They should be given advice about what to do if dental problems occur, the need to discuss their treatment with their dentist.

It occurs most commonly after dental procedures, such as a tooth extraction, when the area fails to heal. If not treated, the areas of bone loss can become very large and infected. It is less common for this to occur in patients who have not had a dental procedure carried out.

Nurses need to be aware of the importance of carrying out an oral assessment on this group of patients, as although they are not receiving systemic anti-cancer therapy, they can still develop issues with their mouth. Symptoms can include pain, swelling, gum problems, loosening of teeth, numbness or heaviness of jaw, and failure to heal of gums following dental work.

If osteonecrosis is suspected by the nurse following an oral assessment, it should be reported immediately to the Consultant, who following discussion with the patient, may decide to discontinue their use based on the effect it would have on the patients general health.

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Document Administration

Approval Record

Approval

Date	Name / Title	Signature
07/05/09	Circulated for comments and feedback to Collaborative Systemic anti-cancer therapy Group, Collaborative Nursing and Pharmacy Group, and local Trust Systemic anti-cancer	
21/05/09	Ratified at Collaborative and Pharmacy Sub- group	
15/09/11	Ratified by Collaborative Chemotherapy Group	
2012/04/26	Ratified at the Collaborative Chemotherapy Group	

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Document Location

The document is located in the Kent and Medway Cancer Collaborative office, in hardcopy and electronic format.

DATE OF NEXT REVIEW

This item is next to be reviewed in **May 2019** by the Kent & Medway Cancer Collaborative Chemotherapy Group.

Revision History

Date	Version	Status	Author	Summary of Changes
1/04/09	V0.1	Draft	Bryony Neame	Words 'systemic anti-cancer therapy, cytotoxic and monoclonal' replaced by 'systemic anti-cancer therapy' to reflect NCEPOD report
11/05/09	V0.2	Draft	Bryony Neame	Spelling and amendments as suggested by Dr Waters – no operational changes
12/05/09	V0.3	Draft	Bryony Neame	Addition of Vaseline for mouth care as requested by Dr. Coltart
28/05/09	V1	Published	Bryony Neame	Wording changes made as suggested by Kent Oncology Centre systemic anti-cancer therapy staff. No operational changes.
2011-09	V2	Published	Collaborative Chemotherapy Nursing Group	Document reviewed and updated by group
2012-04	V2.1	Draft	Bryony Neame	Section included on use of Mugard
2017	V4	Final	Christine Hardy Marie Payne	Extensively reviewed