Oral Mucositis in Allogenic Haematopoietic Stem Cell Transplant: Comparing current preventative practice to recent guidelines	
Authors:	**Milly Payne** **Dr Jen Vidrine**
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1. Abstract

Oral mucositis is an important cause of morbidity in haematopoietic stem cell transplant (HSCT) patients, but clinical practice is often reactive, with little focus on prevention. Mucositis causes significant patient pain and distress and often needs referral to palliative care services. This project aimed to compare current preventative practice at the Northern Centre for Cancer Care (NCCC) with recent guidelines published by the UK Oral Management in Cancer Care Group (UKOMiC).

This was a retrospective review of case notes for all 33 adult patients who received allogenic HSCT at NCCC between October 2020 and March 2021.

This project focused on three main areas of guidance. Baseline assessment of the oral cavity, discussions around good oral hygiene, and the prescription of mouthwashes. Baseline assessment was carried out for four (12%) patients, none with a recognised grading system. Discussion of oral hygiene was noted with eight (24%) patients. Three mouthwashes were recommended in the guidance. No patients used saline mouthwashes. Caphasol® was prescribed for 13 (39%) of patients, but none as recommended. Benzydamine was prescribed for 20 (61%) of patients and just five of these were prescribed as recommended.

This project has brought about change in several clear domains of clinical practice: implementing a recognised grading system for assessment of the oral cavity on all patients having a SCT, empowering patients and improving their awareness surrounding oral hygiene, and re-writing chemotherapy regimens to include proactive prophylactic use of an appropriate regular mouthwash.

Outcomes will be re-evaluated when the above changes have been embedded.

2. Background

Oral mucositis is a common side effect in cancer therapy but is especially prevalent in patients undergoing HSCT, affecting 75-85% of patients (Woo *et al,* 1993; Sonis *et al.,* 2001; Naidu *et al.,* 2004). In addition to causing pain*,* ulcerative oral mucositis affects eating, drinking, swallowing and speech.

Mouth sores have a significant impact on quality of life and have been identified in at least one study as the most debilitating side effect of HSCT, and a significant cause of suffering and morbidity (Barasch and Epstein, 2011; Bellm *et al.,* 2000). Severe mucositis may require the use of NG or TPN feeding, or systemic opioids. It can increase the duration of hospital stays as well as the risk of infection and death (Sonis *et al.,* 2001). Therefore, it is important to attempt to prevent oral problems, reduce the patients' pain and minimize complications. (Köstler *et al.,* 2001)

Guidelines for oral care in HSCT, and the prevention of oral mucositis, differ, and there is variation in practice between and within centres (Elad *et al.,* 2015). Approaches to treatment are often reactive, inconsistent and annecdotal rather than proactive and evidence based (European Oral care in Cancer Group, 2016).

3. Aims and Objectives

- To establish how many patients undergoing allogenic HSCT in the trust develop mucositis

- To assess how current practice compares to recent clinical guidance with regards to assessment of the oral cavity, use of mouthwashes and support to maintain good oral care
- To identify any areas of current practice we could change to help improve patient outcomes

4. Standards

This audit compared practice to the Oral Care guidance and support in cancer and palliative care, Third Edition produced by the UK Oral Management in Cancer Care Group.

This guidance recommends the following interventions for all haematopoietic stem cell transplant patients, for the prevention of oral mucositis:

- Encourage self-reporting of any oral changes
- Ensure accurate baseline assessment - by trained health care professionals using a recognised grading system at regular intervals
- Patients supported and encouraged to maintain good oral hygiene
- Smoking cessation
- Hydration – encourage regular fluid intake
- Plaque reduction – a soft or medium toothbrush with high fluoride containing toothpaste/foam/gel is recommended to prevent dental caries
- Encourage interdental cleaning
- Salt water mouthwash – 1 teaspoon salt added to 900ml of cold or warm water. Salt water mouthwashes to be swilled and gargled more than four times in 24 hours to clean the mouth and remove debris. A fresh supply to be made daily. Each salt water rinse (patients in hospital may use 0.9% sodium chloride from a vial) to be followed by rinsing with cold or warm water
- Oral rinses – Benzydamine 0.15% oral solution, use 10 ml rinsed around the mouth and spat out 4 times a day. Caphasol® (4-10 times a day), recommended to start on the first day of chemotherapy
- Consider mucosal protectants
- Dietitian review prior to commencing treatment, seen at regular intervals during treatment
- Consider low level laser therapy
- Consider anti-infective prophylaxis

(UK Oral Management in Cancer Care Group, 2019)

For this audit we focused on:

- Baseline assessment of the oral cavity
- Discussions around good oral hygiene and mouth care
- The prescription and use of mouthwashes: salt water/saline, Caphasol® and Benzydamine

We also looked at chlorhexidine mouthwash use as, despite being removed from the allogenic transplant protocols, it is commonly prescribed. It does not appear in the guidance due to the lack of evidence supporting its use in preventing mucositis. (Cardona *et al.,* 2017)

5. Methodology

This audit used a retrospective review of case notes and prescribing records for all 33 adult patients who received allogenic HSCT at NCCC between October 2020 and March 2021.

To assess the presence of mucositis we reviewed notes for any positive documentation of mucositis, mouth pain with no other identified cause, oral inflammation, and oral ulcers.

Evidence of baseline assessment was gathered from patient's admission clerking and was deemed to be any description of the condition of the oral cavity.

Clinical notes were reviewed for any recorded discussion around good oral hygiene or documentation of the provision of mouth care. Although the guidance includes multiple aspects, for the purpose of this audit they were all grouped together.

Prescribing records were reviewed for the prescription of Caphasol® and Benzydamine mouthwashes. To compare to guidelines the frequency and regularity of the prescriptions was assessed as well as the date of prescription in relation to the start of chemotherapy. Prescription of chlorhexidine mouthwash was also noted. The mouthwashes were then deemed to be prescribed either:

- As recommended: four times daily (or more for Caphasol®) prescribed on (or before) the first day of chemotherapy
- Not as recommended: including less frequent prescriptions, as required prescriptions or prescriptions occurring after the first day of chemotherapy

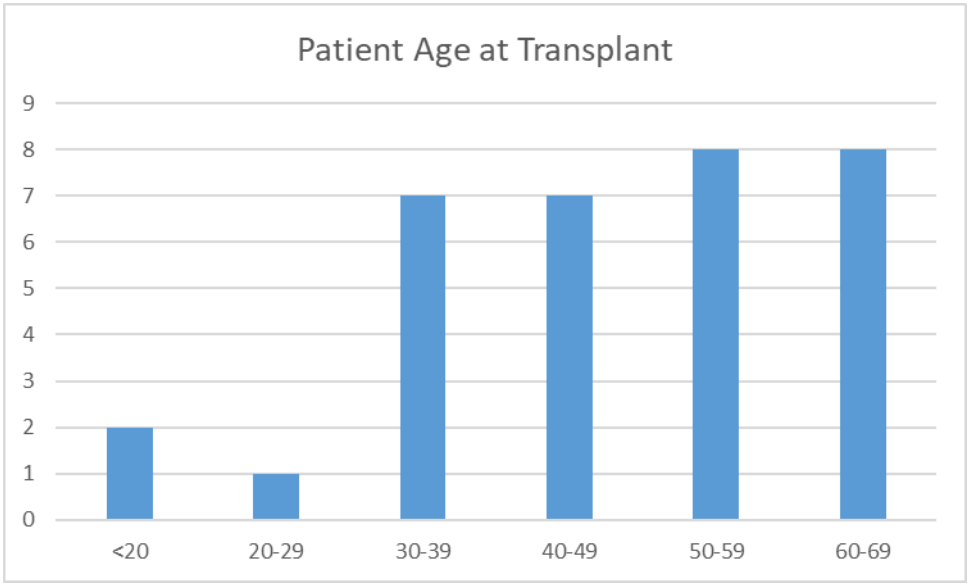
The use of saline mouthwashes was established through the clinical notes.

6. Results

6.1 Demographics

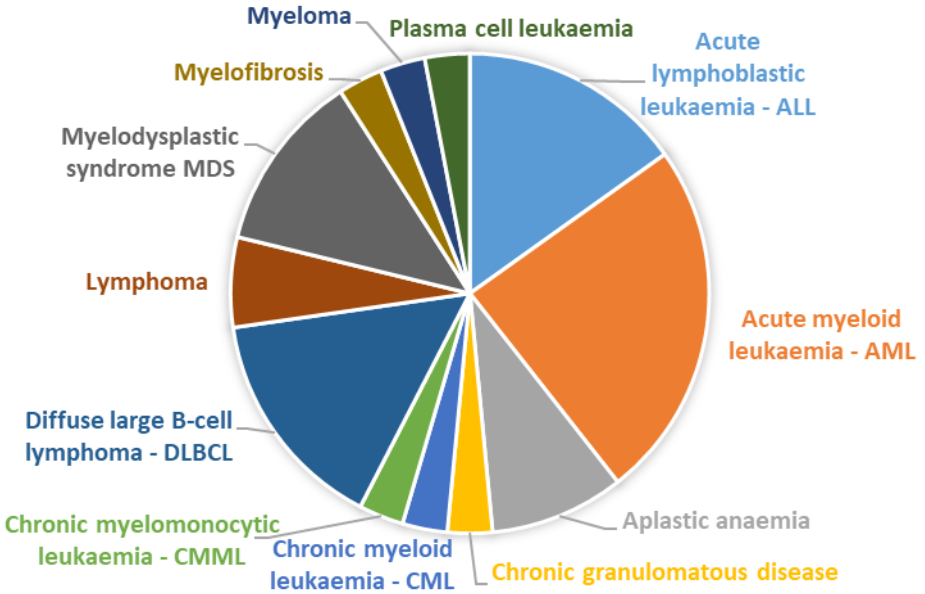
Number of patients: 33
Gender: 13 female, 20 male

Patient age at transplant ranged from 19-69 years with an average age of 48 years.



The range of diseases being treated by the transplant is shown below. The majority were malignant haematological conditions but did also include some non-malignant.

Diagnosis	*No. of patients*
Acute lymphoblastic leukaemia	5
Acute myeloid leukaemia	8
Aplastic anaemia	3
Chronic granulomatous disease	1
Chronic myeloid leukaemia	1
Chronic myelomonocytic leukaemia	1
Diffuse large B-cell lymphoma	5
Lymphoma	2
Myelodysplastic syndrome	4
Myelofibrosis	1
Myeloma	1
Plasma cell leukaemia	1



6.2 Incidence of oral mucositis

16 (48%) of the 33 patients experienced oral mucositis. It was not possible to accurately assess the severity. This may be an underestimation of the true incidence as recording of symptoms was variable.

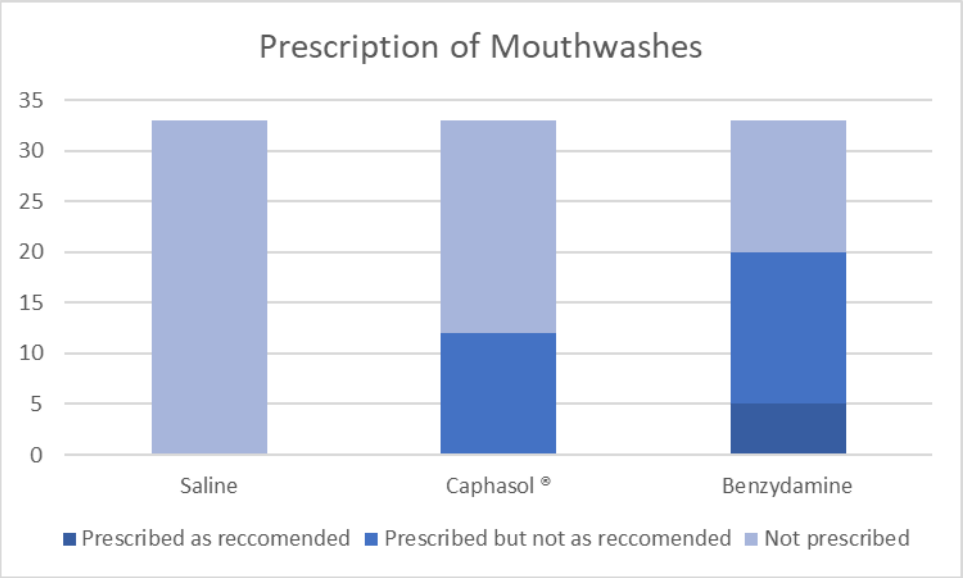
6.3 Baseline assessment

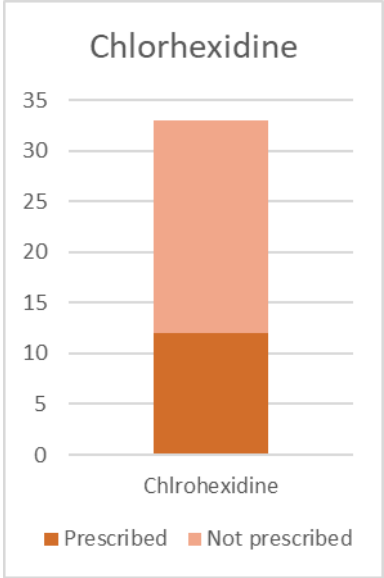
4 (12%) of the 33 patients had their mouths assessed on admission. There was no recorded use of a recognised grading system as is recommended in the guidance.

6.4 Discussion of oral hygiene

8 (24%) of the 33 patients had documented discussion surrounding mouth care and oral hygiene. Records of these conversations was limited so it is not possible to assess the full extent of advice and support patients received. It is also therefore likely that this number is an underestimation of the true value.

6.5 Use of mouthwashes





6.5.1 Saltwater or saline

No patients had any documented use of saltwater mouthwashes.

6.5.2 Caphasol®

13 (39%) of the 33 patients were prescribed Caphasol® during their admission. None of these patients were prescribed the mouthwash on the first day of chemotherapy, as recommended in the guidance. All prescriptions occurred later in the treatment process, after oral problems had already developed.

6.5.3 Benzydamine (Difflam®)

20 (61%) of the 33 patients were prescribed Benzydamine mouthwash during their admission. Five of these patients were prescribed this as recommended in the guidance (i.e. regularly, four times a day, to start on [or before] the first day of chemotherapy). Most of the remaining prescriptions were given in response to oral problems developing.

6.5.4 Chlorhexidine

12 (36%) of the 33 patients were prescribed regular chlorhexidine mouthwash during their admission.

7. Conclusions

- Many patients undergoing allogenic HSCT suffer from mucositis.
- No standardised grading system is used when assessing mouths, and there is rarely a baseline assessment performed on admission.
- Although it is hard to know how much guidance patients are truly receiving around mouth care and oral hygiene, it seems likely that patients are not receiving as much education and support in this area as is recommended.
- Prescription of mouthwashes in these patients is variable. Caphasol® is not utilised preventatively and Benzydamine is rarely used as recommended.
- Despite being removed from the transplant protocol, chlorhexidine mouthwash is still being inappropriately prescribed for some of these patients.

Limitations

- A retrospective case note analysis can only identify what has been documented. This is particularly relevant to discussions surrounding oral hygiene and mouth care, as these may be occurring but not being recorded in the notes.

8. Recommendations

- Implement a standardised mucositis grading system (such as WHO, NCI-CTC, RTOG or OMAS) to be used on admission (to establish a baseline) and at regular intervals throughout treatment to monitor oral health and assess the effectiveness of interventions.
- Ensure proactive conversations about mouth care are occurring and being recorded on admission.
- Empower patients to self-report any oral changes.
- Consider providing patients with written information about mouth care and oral hygiene.
- Provide patients with 0.9% sodium chloride to use as a mouthwash.
- Standardise the use of preventative mouthwashes: include Benzydamine and Caphasol ® mouthwashes in the transplant protocol, at the correct frequency, to begin on the first day of chemotherapy.
- Educate ward staff on the use of chlorhexidine mouthwash for these patients to prevent inappropriate prescription.

9. References

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