Il ruolo dell'igiene del cavo orale nella prevenzione delle infezioni nel paziente oncologico:

EOCC Guidance and Support

Stefano Botti

AUSL-IRRCS Reggio Emilia

Roma, 19/10/2019

MUCOSITE : Complicanza infiammatoria "panmucosale" grave, che colpisce i pazienti sottoposti a radioterapia e/o chemioterapia.

Può interessare il cavo orale e tutta la mucosa del tratto gastrointestinale fino alla zona anale

INCIDENZA

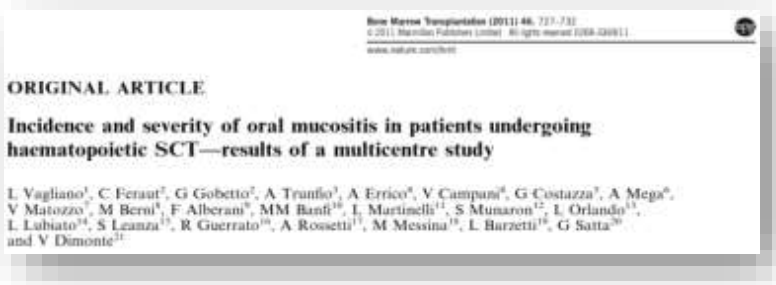
5-15%	Chemioterapia standard
50%	Chemioterapia mielosoppressiva, radioterapia H&N
68%	TCSE Autologo
97%	Radioterapia+chemioterapia H&N
98%	TCSE Allo con MAC

Elad et al. 2014
Bhatt et al. 2010, Filiko et al. 2003
Li e Trovato 2012

Table 2 Development of mucositis according to the WHO scale

	Children/ adolescents (0–18 years)	*Adult patients (19–59 years)*	*Older patients (60–74 years)*
No. of patients (%)	262 (14.2)	1231 (66.9)	348 (18.9)
Grade 0 (%)	53 (20.2)	336 (27.3)	137 (39.3)
Grade 1 (%)	91 (34.7)	365 (29.6)	113 (32.5)
Grade 2 (%)	51 (19.5)	230 (18.7)	66 (19.0)
Grade 3 (%)	44 (16.8)	182 (14.8)	21 (6.0)
Grade 4 (%)	23 (8.8)	118 (9.6)	11 (3.2)

- **Incidenza** GRADO 0 **28,6 %**
  - **Incidenza MO Lieve-moderata** (GRADO 1-2) **49,7 %**
    - **Incidenza MO Severa** (GRADO 3-4) **21,7 %**



Bone Marrow Transplantation (2011) 46, 727–732

ORIGINAL ARTICLE

Incidence and severity of oral mucositis in patients undergoing haematopoietic SCT—results of a multicentre study

L Vagliano[1], C Feraut[2], G Gobetto[2], A Trunfio[3], A Errico[4], V Campani[4], G Costazza[5], A Mega[6], V Matozzo[7], M Berni[8], F Alberani[9], MM Banfi[10], L Martinelli[11], S Munaron[12], L Orlando[13], L Lubiato[14], S Leanza[15], R Guerrato[16], A Rossetti[17], M Messina[18], L Barzetti[19], G Satta[20] and V Dimonte[21]

MO severa: Durata

Bone Marrow Transplantation (2011) 46, 727–731

ORIGINAL ARTICLE

Incidence and severity of oral mucositis in patients undergoing haematopoietic SCT—results of a multicentre study

L Vagliano[1], C Feraut[2], G Gobetto[2], A Trunfio[3], A Errico[4], V Campani[4], G Costazza[5], A Mega[6], V Matozzo[7], M Berni[8], F Alberani[9], MM Banfi[10], L Martinelli[11], S Munaron[12], L Orlando[13], L Lubiato[14], S Leanza[15], R Guerrato[16], A Rossetti[17], M Messina[18], L Barzetti[19], G Satta[20] and V Dimonte[21]

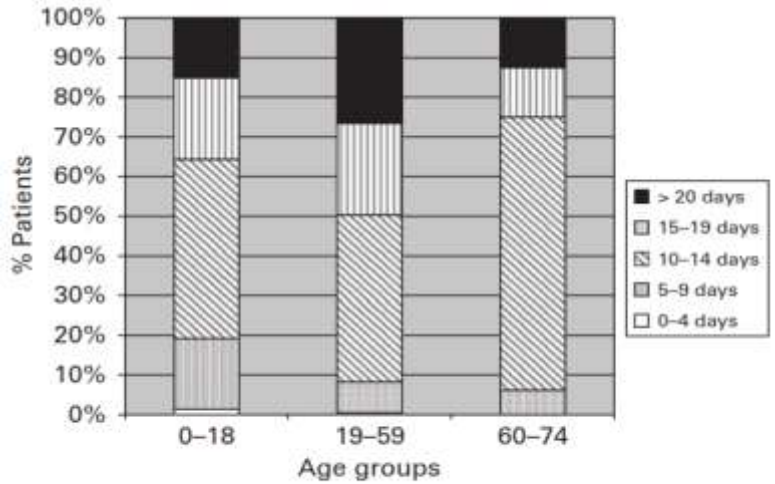
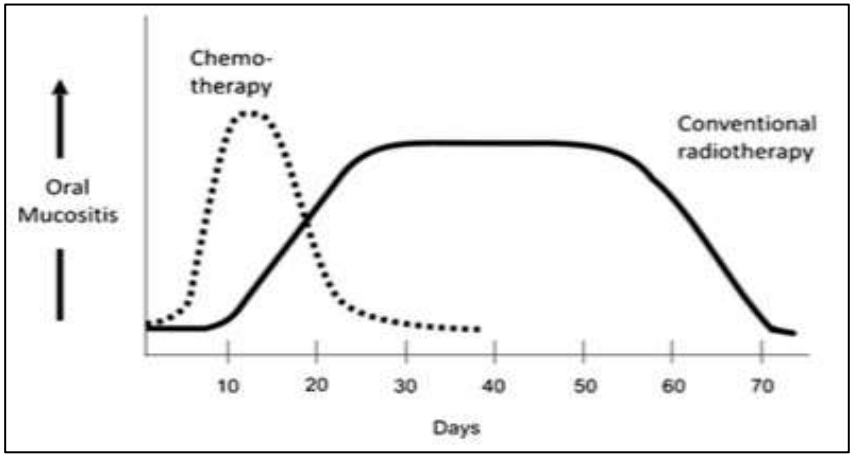
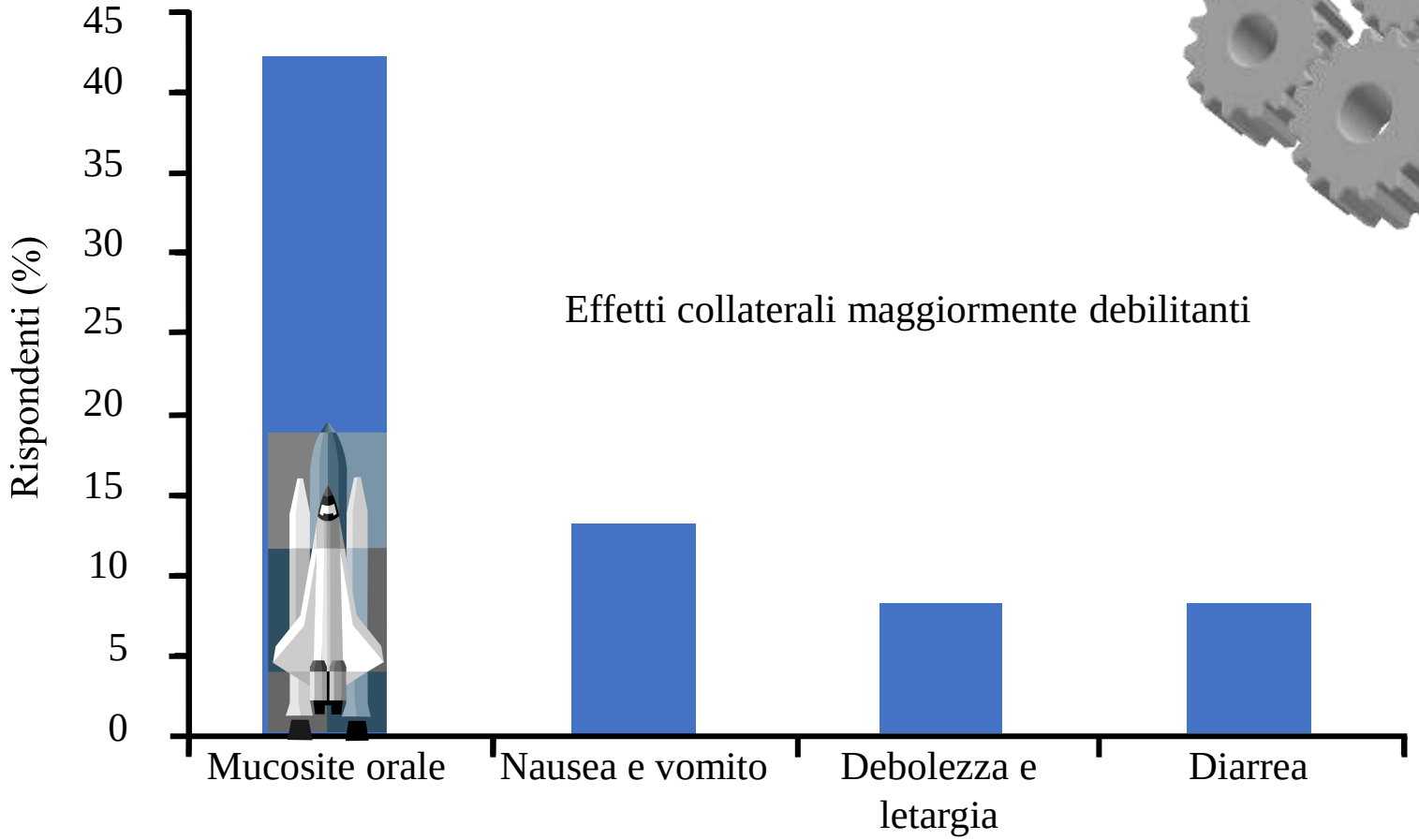


Figure 2 Duration of severe mucositis (Grades 3 and 4 according to the WHO scale).



Al-Ansari S. et al. 2015 Curr Oral Health Rep (2015) 2:202–211

Mucosite orale: la peggiore complicanza della chemioterapia mieloablativa pre-HSCT



Effetti collaterali maggiormente debilitanti

Adattato da Bellm LA, et al. *Support Care Cancer*. 2000;8:33-39

Fattori di Rischio e Trattamenti

TBI

Chemioterapie
5-FU
Metotressato
Etoposide
Citarabina
Ciclofosfamide
Melphalan
Busulfano
Cisplatino
Doxorubicina
Taxoli
Dacarbazina
Bleomicina
Irinotecan
Altre Antracicline

Targeted Agents
Alemtuzumab
Cetuximab
Erlotinib
Everolimus
Gemtuzumab
Pazopanib
Pertuzumab
Sorafenib
Sunitinib
Temsirolimus
Trastuzumab
Trastuzumab emtansine
Temsirolimus

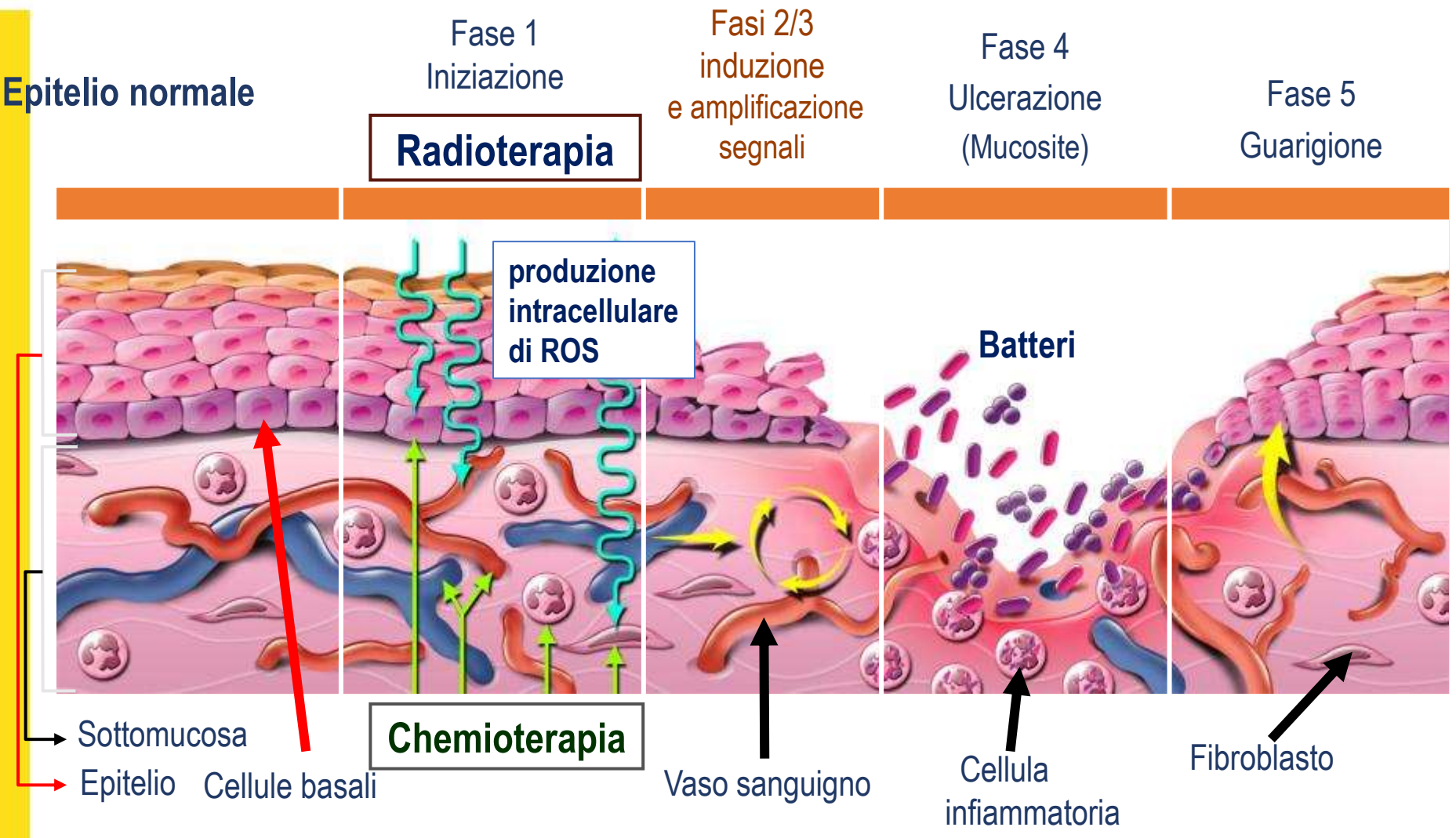
Diretti

- Età e sesso
- Precedenti condizioni
- Igiene Orale
- Stato Nutrizionale
- Chemioterapia e radioterapia: dosi, farmaci, combinazioni,durata
- Predisposizione personale (comorbidità, microbiota?)

Indiretti

- Mielodepressione
- Immunosoppressione
- Ridotta disponibilità di Ig A
- Tipo di Neoplasia
- Infezioni
- Traumi
- GvHD

PATOBIOLOGIA DELLA MUCOSITE OGGI



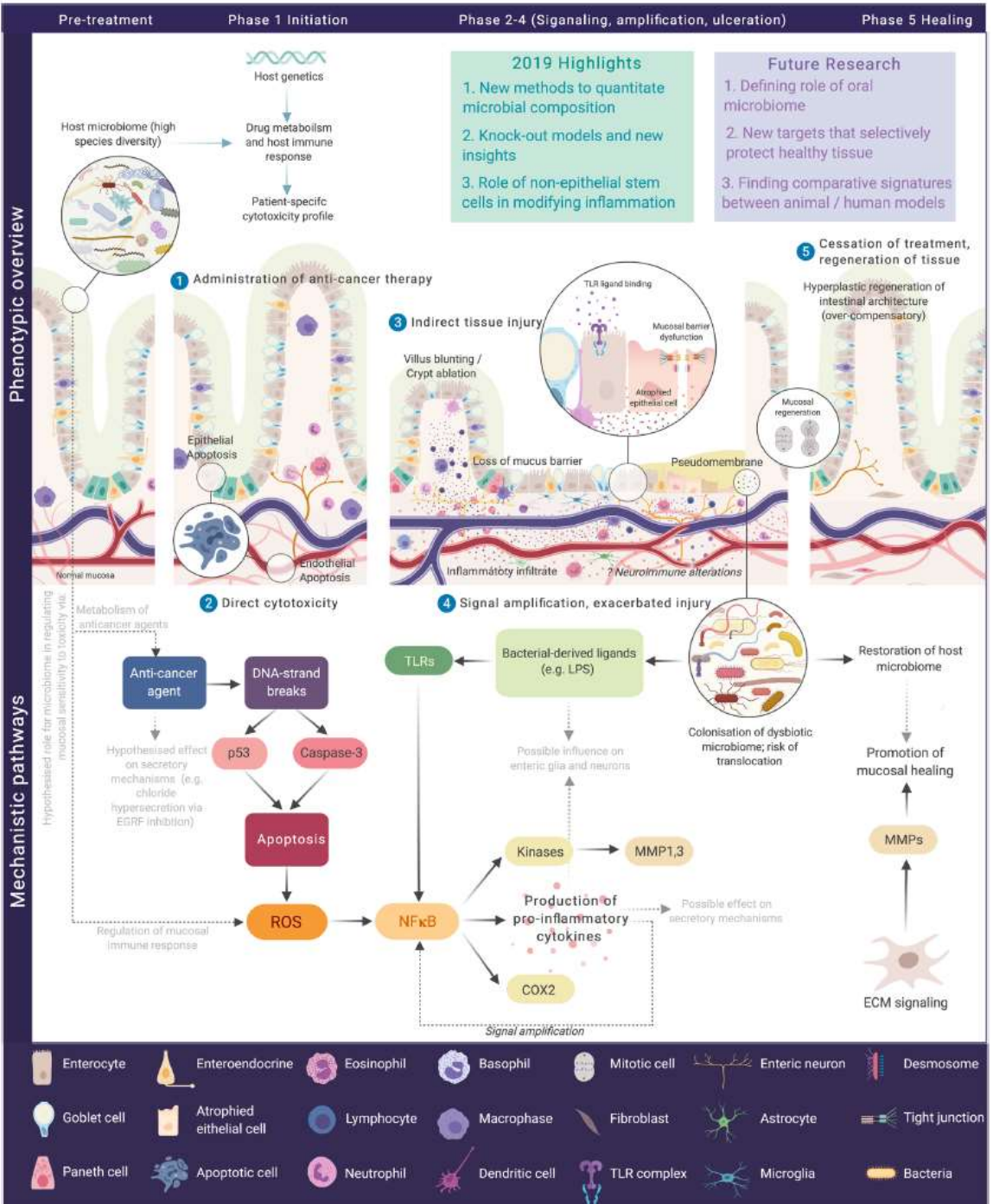
Sonis et al. 2004

Supportive Care in Cancer (2019) 27:4023–4033
https://doi.org/10.1007/s00520-019-04893-z

SPECIAL ARTICLE

The pathogenesis of mucositis: updated perspectives and emerging targets

J. Bowen[1] · N. Al-Dasooqi[1] · P. Bossi[2] · H. Wardill[1] · Y. Van Sebille[3] · A. Al-Azri[4] · E. Bateman[1] · M. E. Correa[5] · J. Raber-Durlacher[6] · A. Kandwal[7] · B. Mayo[3] · R. G. Nair[8] · A. Stringer[3] · K. ten Bohmer[9] · D. Thorpe[3] · R. V. Lalla[10] · S. Sonis[11] · K. Cheng[12] · S. Elad[13] · On behalf of The Mucositis Study Group of the Multinational Association of Supportive Care in Cancer/International Society of Oral Oncology (MASCC/ISOO)



Highlights 2019

1. Nuovi modi per definire la composizione microbica
2. Knock-out models e nuove intuizioni
3. Ruolo delle cellule staminali non epiteliali nella modulazione della infiammazione

Ricerca futura

1. Definire il ruolo del microbioma orale
2. Identificare nuovi targets protettori selettivi dei tessuti
3. Cercare segni comparativi tra modelli animali ed umani

PATOLOGIA MUCOSA

IMBIANCAMENTO

- Obliterazione capillare reattiva iniziale
- Non considerato segno di mucosite

ERITEMA

- Arrossamento mucosa
- Aumento della permeabilità vascolare
- Edema tissutale
- Assottigliamento della mucosa

ATROFIA DISEPITELIZZAZIONE

- Apoptosi mucosa
- Assottigliamento
- Riduzione/scomparsa epitelio superficiale

ULCERE

- Soluzioni di continuo della mucosa
- Placche: essudato fibroso che forma una pseudomembrana che si instaura su una mucosa edematosa e ulcerata
- Membrane: formazioni bianco-giallastre adese alla mucosa ulcerata dovute alla presenza di cheratina e di una densa lamina ricca di collagene, tendono alla fessurazione e al sanguinamento

INFEZIONI

- Candida: pseudo-membrane o lesioni puntiformi che si presentano come chiazze bianche sulla lingua e sulle mucose
- Herpes: vescicole dolorose che rompendosi danno luogo a croste, frequentemente riguardano il distretto labiale

SANGUINAMENTI EMATOMI

- Petecchie
- Ematomi sottomucosi
- Gengivite emorragica

GVHD

- Lichen: placche bianche o strie arborescenti, associato anche ad eritema ed ulcere dovuto a reazione immunologica

MUCOSITE ORALE Segni e sintomi

DOLORE

- Può essere marcato
- Profondo
- Urente
- Carnoso
- Spesso richiede oppiacei

PROBLEMI NUTRIZIONALI

- Problemi di deglutizione
- Difficoltà alla masticazione
- Edema

SALIVA

- Deficit quantitativo: (secchezza, xerostomia)
- Deficit qualitativo: perdita del potere idratante, umettante e protettivo (liquido denso, colloso, difficile da espellere e deglutire)

EMORRAGIE

- Spontanee o provocate
- Mucosa o gengive
- Presenza di ulcerazioni
- Disepitelizzazione
- Stillicidio
- Favorite dalla piastrinopenia

DISGEUSIA

- Alterazioni percezione del gusto
- Sapori «ferrosi»

DISFONIA

- Cambiamenti della voce
- Difficoltà ad emettere suoni

DISARTRIA

- Difficoltà ad articolare la parola

PERCHE' PARLARNE?

Aumento del rischio infettivo

Problemi nutrizionali

Aumento dei costi

Aumento del disagio

Ritardo nei tempi di recupero

Difficoltà nel rispetto di tempi ed intensità di cura

Sonis ST et al. 2001

Journal of Clinical Oncology, 2001

Incremento di 1 punto su scala OMAS

+1.0 giorno di febbre	$p < 0.1$
+2.7 giorni di TPN	$p < 0.0001$
+2.6 giorni di utilizzo narcotici	$p < 0.0001$
+2.6 giorni di permanenza in ospedale	$p < 0.1$
+2.1 volte rischio infettivo	$p < 0.1$
+3.9 volte rischio mortalità al giorno +100	$p < 0.1$
25.000 $ di costo aggiuntivo	$p < 0.0001$

Oral Mucositis and the Clinical and Economic Outcomes of Hematopoietic Stem-Cell Transplantation

By Stephen T. Sonis, Gerry Oster, Hank Fuchs, Lisa Bellm, Williamson Z. Bradford, John Edelsberg, Vanessa Hayden, June Eilers, Joel B. Epstein, Francis G. LeVeque, Carole Miller, Douglas E. Peterson, Mark M. Schubert, Frederik K.L. Spijkervet, and Mary Horowitz

European
Oral
Care in
Cancer Group

è un gruppo Multiprofessionale di **«esperti in ORAL CARE»** che operano in ambito oncologico, provenienti da diverse realtà Europee, con **l'obbiettivo di sviluppare e migliorare l'ORAL CARE nella PRATICA CLINICA.**

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PhD, MSc, PGCert, BD, Bacc Phil, RN. Assistant Chief Nurse. Macmillan Lead Nurse in Cancer & Palliative Care LONDON

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- Anita Margulies (CH)
- Petra Feyer (D)

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- Dorothea Riesenbeck (D)

Dental specialists

- Marinka Mravak Stipetić (HR)
- Marie-Helene Kurstjens (NL)

Haematology specialist

- Samuel Vokurka (CZ)

Dietitian

- **Annarita Sabbatini (IT)**

European Oral Care in Cancer Group

OBIETTIVI

European Oral Care in Cancer Group

Materiali e Metodi

MEETING & CALL CONFERENCE

CONDIVISIONE LG NAZIONALI E INTERNAZIONALI

DEFINIZIONE DI GRUPPI TEMATICI

5 MEETING

DIVERSE CALL CONFERENCE

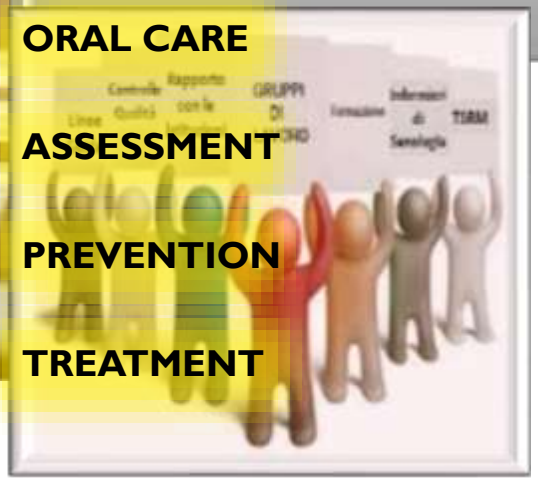
DIVERSE LINEE GUIDA NAZIONALI

ORAL CARE

ASSESSMENT

PREVENTION

TREATMENT



RISULTATI

1.0 INTRODUCTION	2.0 ASSESSMENT	3.0 CARE of the ORAL CAVITY
• 1.1 Purpose of the Guidance • 1.2 Oral Mucositis (OM)	• 2.1 The Oral Assessment • 2.2 Frequency of oral assessment • 2.3 Inspecting the oral cavity • 2.4 Examples of oral assessment tools	• 3.1 Patient education • 3.2 Nutritional screening and choice of foods • 3.3 Brushing • 3.4Interdental cleaning • 3.5 Dentures • 3.6 Mouthwash • 3.7 Dryness of lip and mouth

RISULTATI

4.0 PREVENTION of ORAL COMPLICATIONS	5.0 TREATMENT of ORAL COMPLICATIONS	6.0 CONCLUSION
• 4.1 Risk Classifications • 4.2 Preventative Interventions • 4.3 Anti-infective Prophylaxis	• 5.1 Mild/Moderate Mucositis/Oral Complications • 5.2 Severe Mucositis/Oral Complications • 5.3 Treatment of Specific Oral Complications • 5.4 Post Treatment Care/Follow up	

4.1 Classificazione del rischio

- Nessun rischio
- Basso rischio di danno al cavo orale e/o mucosite orale
- Moderato rischio di danno al cavo orale e/o mucosite orale
- Alto rischio di danno al cavo orale e/o mucosite orale

Key Points

Assessment

Oral Care

Prevenzione

Trattamento

Assessment

- ✓ Tutte le strategie messe in atto per la cura della bocca non possono prescindere da un buon assessment (Sonis 2004)
- ✓ La bocca deve essere valutata da personale sanitario formato mediante l'utilizzo di sistemi di grading validati (Quinn 2008)

Strongly recommended

OM should be assessed using a standardised protocol

OM assessments should continue after the end treatment until OM is fully resolved or the trend to resolution is established

Patient-reported outcomes should be included in all OM assessments

OM assessments should use instruments or a combination of suitable scales containing elements covering physical changes in the oral mucosa, functional changes and subjective changes

Recommended

Routine assessments should take place

Patient self-reporting should form an integrated part of the assessment

Frequent assessment of OM is recommended throughout the course of any therapy, especially for patients who are most at risk of developing OM

Assessment


Prima Edizione

European Oral Care in Cancer Group
Oral Care Guidance and Support

Guida e Supporto alla Cura del Cavo Orale – Versione Italiana

Contenuti
1.0 - Introduzione
2.0 - Assessment
3.0 - Cura del Cavo Orale (Oral Care)
4.0 - Prevenzione delle Complicanze Orali
5.0 - Trattamento delle Complicanze Orali
6.0 - Conclusioni
7.0 - Bibliografia
8.0 - Appendici

Gruppo di Lavoro

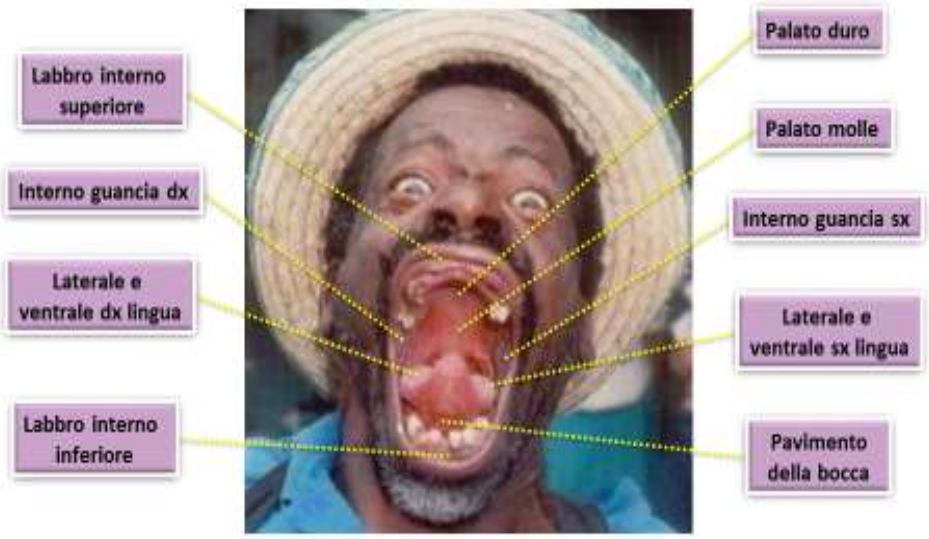
Expert reviewers

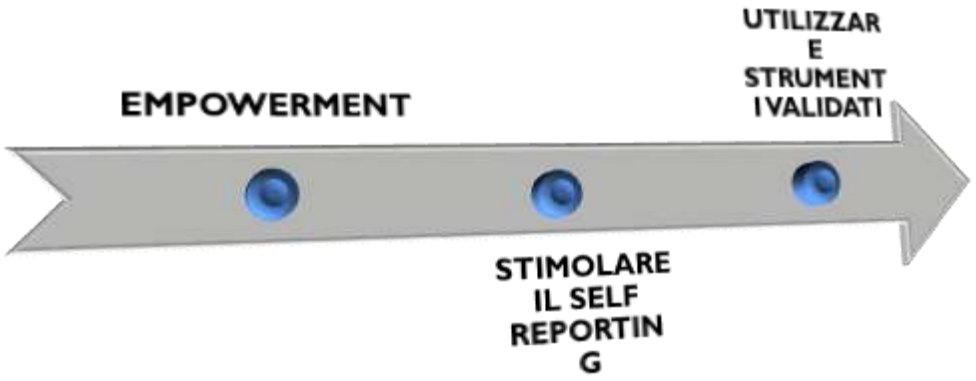
- Valutazione accurata cavità orale
- Oral Care
- Avvio tempestivo delle misure preventive
- Trattamento adeguato

Proattività

Risk Assessment pre-trattamento

- **Valutazione anagrafica** (rischio diretto): età, genere, ecc….
- **Valutazione anamnestica** (rischio diretto): condizioni iniziali cavo orale (presenza di lesioni, carie, protesi, abitudini di igiene, precedenti episodi di mucosite, precedente livello di compliance del Pz e dei CG
- **Valutazione clinica** (rischio indiretto): condizionamento (intensità, durata, farmaci, TBI, ecc….), tipo di malattia, comorbidità (malattie metaboliche, insufficienza renale, status nutrizionale, ecc…..), precedenti terapie antineolplastiche, farmaci di supporto
- **Valutazione basale con strumenti specifici:** WHO, NCI-CTCAE, ChIMES (pediatrici), strumenti soggettivi (OMDQ), strumenti gestionali, NRS o VAS (dolore), scale numeriche per deglutizione e fonazione.





Assessment tools

Caratteristiche

- **Validità:** capacità di misurare il fenomeno per cui sono state create
- **Riproducibilità:** il fenomeno può essere valutato in maniera univoca

Tipologie

- **Numeriche:** più semplici e applicabili, assegnano un grading su 4-5 livelli di gravità
- **Descrittive:** più complesse, definiscono meglio il problema, utilizzando parametri oggettivi e soggettivi
- **Self Assessment:** strumenti di autovalutazione

Valutazione della mucosite secondo OMS (WHO 1979)

Combina:

- Valutazione oggettiva delle condizioni della mucosa
- Degenerazioni funzionali
- Valutazione soggettiva della sintomatologia

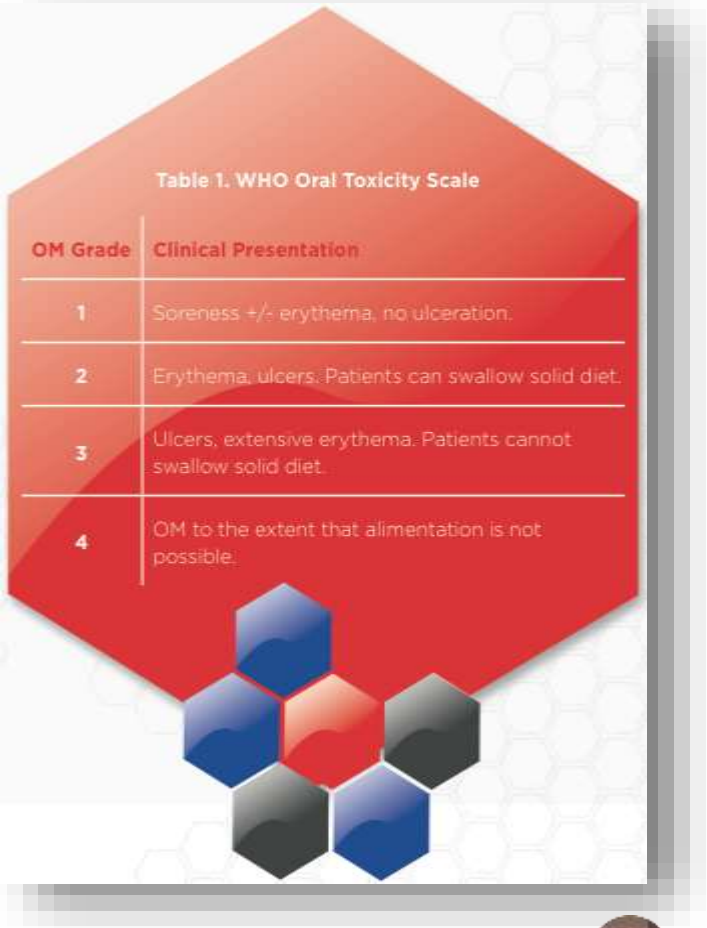


Table 1. WHO Oral Toxicity Scale

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

Gent. Concesso da:

UK Oral Mucositis in Cancer Group
UKOMiC
Oral Mucositis is no laughing matter...

BIC

FULL PAP

British Journal of Cancer (2013) 109, 2515–2522 | doi: 10.1038/bjc

CHILDREN'S INTERNATIONAL MUCOSITIS EVALUATION SCALE (ChIMES)

FUNCTION

2. Which of these faces shows how hard it is for your child to SWALLOW their saliva/spit today because of mouth or throat pain? Circle one.

0	1	2	3	4	5	☐
Not hard	Little bit hard	Little more hard	Even harder	Very hard	Can't swallow	Can't tell

PAIN MEDICATION

5. Has your child taken medicine for any kind of pain today?

☐ Yes ☐ No

If yes, did your child need the medicine because they had mouth or throat pain?

☐ Yes ☐ No

APPEARANCE

6. Please look in your child's mouth. Can you see any mouth sores (ulcers)?

☐ Yes ☐ No ☐ Can't tell

0	1	2	3	4	5	tell
Not hard	Little bit hard	Little more hard	Even harder	Very hard	Can't drink	

Oral Care

- Adeguato apporto nutrizionale
- Protocollo di igiene orale
- Individuazione e trattamento precoce della secchezza

Formazione

Info/Educazione

ESMO GOOD SCIENCE BETTER MEDICINE BEST PRACTICE
European Society for Medical Oncology

MASCC Multinational Association of Supportive Care in Cancer

UKOMiC
Oral Mucositis is no laughing matter...

JACIE EBMT ISCT

B3.7.3.4 Care interventions to manage transplant complications, including, but not limited to, neutropenic fever, infectious and noninfectious processes, mucositis, nausea and vomiting, and pain management.

- Educazione al paziente/Valutazione Compliance
- Screening nutrizionale, supporto e scelta dei cibi
- Igiene orale
- Pulizia interdentale
- Protesi dentarie
- Risciacqui orali
- Secchezza della bocca o delle labbra

Annals of Oncology 26 (Supplement 5): v139–v151, 2015
doi:10.1093/annonc/mdv202
Published online 4 July 2015

Management of oral and gastrointestinal mucosal injury: ESMO Clinical Practice Guidelines for diagnosis, treatment, and follow-up†

D. E. Peterson[1], C. B. Boers-Doets[2], R. J. Bensadoun[3] & J. Herrstedt[4], on behalf of the ESMO Guidelines Committee*

Preventive Measures: Basic Oral Care as a good clinical practice

Table 1. Example of a Basic Oral Care Protocol (expert opinion)

Two key strategies for mitigation of oral mucosal injury before and during treatment are

- Maintenance of optimal nutritional support throughout the entire period of cancer therapy.
- Developing a daily oral hygiene routine, including brushing teeth and the gums four times a day with a soft brush and using mouth rinses. This approach can contribute to the reduction and, ideally, prevention of oral tissue injury and associated pain, nutritional compromise, and related adverse outcomes.

The following information is presented as a portfolio of patient-based instructions for which health professional guidance is recommended

General measures	• Inspect your oral mucosa daily. • Have your dental team eliminate sources of trauma (e.g. ill-fitting prostheses; fractured teeth). • Lubricate lips with (sterile) vaseline/white paraffin (petrolatum), lip balm, or lip cream. Be aware that vaseline/white paraffin (petrolatum) should not be used chronically on the lips, as this promotes mucosal cell dehydration and is occlusive leading to risk of secondary infection. • Drink ample amount of fluids to keep the mouth moist.
Brushing teeth and gums	• Use a soft toothbrush or swab (as tolerated) after meals and before sleep. Brushing with a soft toothbrush reduces risk of bleeding. Each month you should utilise a new soft toothbrush. • Clean the dentition and gingiva with a mild fluoride-containing, non-foaming toothpaste. • Brush teeth twice a day (after meals and at bedtime) according to the Bass or modified Bass method. If using an electric toothbrush, utilise the techniques cited in the product description instead. • Rinse the brush thoroughly after use with water and store the toothbrush in a cup with the brush head facing upward. • If you are used to do so, clean the area between the teeth once a day. Consult a dental hygienist/dentist about the most appropriate interdental cleaner (floss, toothpick, brushes). In case you are not used to use interdental cleaners on a regular base, do not start with it while on cancer therapy, since it can break the epithelial barrier, visible through gingival bleeding.
Rinse mouth	• Rinse mouth with an alcohol-free mouthwash upon awakening and at least four times a day after brushing, for ~1 min with 15 ml mouthwash; gargle; and then spit out. During the first half hour after rinsing, avoid eating and drinking.
Denture care	• Remove dentures before performing oral care. Brush dentures with toothpaste and rinse with water; clean the gums. • Defer wearing dental prostheses as much as possible until the lining tissues of your mouth are healed. If in the hospital, soak the denture for 10 min in an antimicrobial solution (e.g. chlorhexidine 0.2% if available) before inserting in your mouth.
Avoid painful stimuli	• Smoking • Alcohol • Certain foods such as tomatoes, citrus fruits, hot drinks and spicy, hot, raw, or crusty foods.

Prevenzione e Trattamento

Risk stratification

4.1 Classificazione del rischio

- Nessun rischio
- Basso rischio di danno al cavo orale e/o mucosite orale
- Moderato rischio di danno al cavo orale e/o mucosite orale
- Alto rischio di danno al cavo orale e/o mucosite orale

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4.2 Interventi di prevenzione

Rischio basso: pazienti senza precedenti problemi al cavo orale, fattori di rischio

Rischio moderato: pazienti con storia di complicanze orali, che ricevono trattamenti che causano mucositi di grado moderato, che ricevono bassi dosaggi di

Rischio grave: pazienti con precedenti problemi del cavo orale di moderata o grave entità, utilizzo di trattamenti ad alto rischio, alte dosi di chemioterapia e/o radioterapia precedente il trapianto di cellule staminali, radioterapia in zona testa collo.

In aggiunta agli interventi illustrati per il rischio basso e moderato:

- Il monitoraggio e follw up nutrizionale
- La profilassi anti-infettiva (cf. 4.3)
- L'utilizzo di Palifermin (nell'ambito del trapianto di cellule staminali)
- L'utilizzo della Laser Terapia a basso dosaggio

Prevenzione e Trattamento

Approccio Multidisciplinare e Integrato

EXPERTISE

European Oral Care in Cancer Group

5.0 Trattamento delle complicanze orali

Nel momento in cui si instaura una mucosite orale è necessario applicare un protocollo di trattamento. Come detto precedentemente, il trattamento della mucosite orale, analogamente agli interventi di oral care di base e preventivi, dovrebbe essere stabilito da un team multiprofessionale. Il team deve prevedere personale medico, dentisti, specialisti di igiene orale, personale infermieristico specializzato, farmacisti o radiologi. Una buona comunicazione e l'educazione del paziente sono fondamentali durante il tutto il percorso al fine di offrire il massimo sollievo ai pazienti. Tutti i piani terapeutici dovrebbero basarsi sul grading del danno al cavo orale e su quanto riportato dal paziente stesso.

5.1 Mucosite orale lieve e moderata

- Una volta che si presenta un danno al cavo orale i pazienti dovrebbero essere supportati nel proseguire gli interventi di oral care.
- Dovrebbe essere aumentata la frequenza degli sciacqui del cavo orale con lo scopo di mantenere le superfici della bocca pulite e umide (Elad et al. 2014).
- Occorre valutare la presenza di infezioni del cavo orale, eseguire tamponi colturali e trattare il problema in modo adeguato. Se necessario, somministrare un trattamento antimicotico locale o sistemico (Watson et al. 2011).
- In caso di lesioni aftose può essere considerato il gel con desametasone
- Considerare l'utilizzo di protettori della mucosa (Quinn et al. 2015)
- I fabbisogni dietetici dovrebbero essere valutati e dovrebbero essere evitati i cibi potenzialmente dannosi.
- I problemi di deglutizione, di malnutrizione e di perdita di peso dovrebbero essere monitorati, fornendo il supporto necessario e consigli ai pazienti.
- Considerare adeguamenti nella composizione dei pasti, nei metodi di assunzione dei cibi, nel supporto ed educazione dei pazienti.
- L'uso dei supplementi nutrizionali orali, PEG, RIG o sonde nasogastriche dovrebbero essere presi in considerazione (Quinn et al. 2015).
- Dovrebbe essere valutata l'assunzione di liquidi e monitorata continuamente l'assunzione della terapia antidolorifica. Dovrebbero essere valutati anche i problemi potenzialmente correlati (assunzione di farmaci, diminuiti livelli di glucosio nel sangue, diminuzione della pressione sanguigna, funzione renale compromessa che porta a sovra dosaggio dei farmaci).
- I pazienti potrebbero avere bisogno di una adeguata terapia analgesica, topica o sistemica, con farmaci quali il paracetamolo, la codeina, i risciacqui a base di morfina, benzidammina colluttorio, trimecaina, lidocaina. I pazienti dovrebbero essere educati all'utilizzo degli antidolorifici e al riconoscimento dei possibili effetti collaterali come ad esempio l'intorpidimento della mucosa orale.

5.2 Mucosite orale grave

Per quanto riguarda la mucosite orale grave va considerato:

- L'incremento nell'utilizzo degli antidolorifici a seconda delle necessità del paziente
- L'incremento del supporto nutrizionale
- L'incremento della frequenza degli sciacqui e della cura del cavo orale

Con il progredire del danno diventano necessari interventi di supporto e un monitoraggio più stretti. Un aspetto importante dell'assistenza consiste nel controllo del dolore, che può migliorare la qualità di vita dei pazienti nello specifico permettergli di continuare ad alimentarsi e ad assumere liquidi oltre che a comunicare e a dormire.

E' possibile intensificare l'utilizzo di analgesici topici. Ci sono insufficienti evidenze circa l'efficacia di molti prodotti sulla riduzione della severità della mucosite, ma alcuni di questi possono essere utili per fornire un maggiore comfort ai pazienti.
Le strutture sanitarie hanno a disposizione tutta una serie di prodotti e soluzioni per la cura del cavo orale, che è possibile testare per individuare quale funzionino meglio per il paziente, scegliendo in base alla condizione clinica. In generale, le

Table 3: Oral Cavity Mucositis Guideline

Modified from MASCC/ISOO Clinical Practice Guidelines for Oral Mucositis [3] (level of evidence for each recommendation is in brackets following the recommendation statement).

Diagnosis	Therapy	Prevention/ treatment	Intervention
Cancer of any kind	All cancer treatment modalities	Prevention	*Oral care protocols:* The panel *suggests* that oral care protocols be used to *prevent* oral mucositis in all age groups and across all cancer treatment modalities (III).
		Treatment	*Doxepin mouthwash:* The panel *suggests* that 0.5% doxepin mouthwash may be effective to *treat* pain due to oral mucositis (IV).
	Bolus 5-fluorouracil chemotherapy	Prevention	*Oral cryotherapy:* The panel *recommends* that 30 min of oral cryotherapy be used to *prevent* oral mucositis in patients receiving bolus 5-fluorouracil chemotherapy (II).
	Bone marrow transplant	Prevention	*Pentoxifylline:* The panel *suggests against* that systemic pentoxifylline, administered orally, be used to *prevent* oral mucositis in patients undergoing bone marrow transplantation (III).
	Conventional and high-dose chemotherapy, with or without total body irradiation	Treatment	*Transdermal fentanyl:* The panel *suggests* that transdermal fentanyl may be effective to *treat* pain due to oral mucositis in patients receiving conventional and high-dose chemotherapy, with or without total body irradiation (III).
	Stem cell transplant	Prevention	*Low-level laser therapy:* The panel *recommends* that low-level laser therapy (wavelength at 650 nm, power of 40 mW, and each square centimeter treated with the required time to a tissue energy dose of 2 J/cm^2), be used to *prevent* oral mucositis in patients receiving HSCT conditioned with high-dose chemotherapy, with or without total body irradiation (II).
			GM-CSF: The panel *suggests against* that granulocyte–macrophage colony-stimulating factor (GM-CSF) mouthwash be used to *prevent* oral mucositis in patients receiving high-dose chemotherapy, for autologous or allogeneic stem cell transplantation (II).
			Pilocarpine: The panel *suggests against* that systemic pilocarpine, administered orally, be used to *prevent* oral mucositis in patients receiving high-dose chemotherapy, with or without total body irradiation, for HSCT (II).
			Glutamine: The panel *recommends against* that i.v. glutamine be used to *prevent* oral mucositis in patients receiving high-dose chemotherapy, with or without total body irradiation, for HSCT (II).
			Iseganan antimicrobial mouthwash: The panel *recommends against* that iseganan antimicrobial mouthwash be used to *prevent* oral mucositis in patients receiving high-dose chemotherapy, with or without total body irradiation, for HSCT (II).
		Treatment	*Morphine:* The panel *recommends* that patient-controlled analgesia with morphine be used to *treat* pain due to oral mucositis in patients undergoing HSCT (II).
	Chemotherapy	Prevention	*Sucralfate mouthwash:* The panel *recommends against* that sucralfate mouthwash be used to *prevent* oral mucositis in patients receiving chemotherapy for cancer (I)
	Radiation therapy	Treatment	*Sucralfate mouthwash:* The panel *recommends against* that sucralfate mouthwash be used to *treat* oral mucositis in patients receiving radiation therapy (II).

■ RECOMMENDATIONS IN FAVOR OF AN INTERVENTION, i.e. strong evidence supports effectiveness in the treatment setting listed.
■ SUGGESTIONS IN FAVOR OF AN INTERVENTION, i.e. weaker evidence supports effectiveness in the treatment setting listed.
■ SUGGESTIONS AGAINST AN INTERVENTION, i.e. weaker evidence indicates lack of effectiveness in the treatment setting listed.
■ RECOMMENDATIONS AGAINST AN INTERVENTION, i.e. strong evidence indicates lack of effectiveness in the treatment setting listed.

MASCC/ISOO, Multinational Association of Supportive Care in Cancer and International Society of Oral Oncology; HSCT, hematopoietic stem cell transplantation; Gy, grays; BCoG, bacitracin, clotrimazole, gentamicin.

Head & neck cancer	Moderate dose radiation therapy without concomitant chemotherapy	Prevention	*Benzydamine mouthwash:* The panel *recommends* that benzydamine mouthwash be used to *prevent* oral mucositis in patients with head and neck cancer receiving moderate dose radiation therapy (up to 50 Gy), without concomitant chemotherapy (I).
	Radiation therapy	Prevention	*Chlorhexidine mouthwash*: The panel *suggests against* that chlorhexidine mouthwash be used to *prevent* oral mucositis in patients receiving radiation therapy for head and neck cancer (III). *Misoprostol mouthwash:* The panel *suggests against* that misoprostol mouthwash be used to *prevent* oral mucositis in patients receiving radiation therapy for head and neck cancer (III). *Pilocarpine:* The panel *suggests against* that systemic pilocarpine, administered orally, be used to *prevent* oral mucositis in patients receiving radiation therapy for head and neck cancer (III). *PTA and BCoG:* The panel *recommends against* that PTA (polymyxin, tobramycin, amphotericin B) and BCoG antimicrobial lozenges and PTA paste be used to *prevent* oral mucositis in patients receiving radiation therapy for head and neck cancer (II).
		Treatment	*Morphine mouthwash*: The panel *suggests* that 0.2% morphine mouthwash may be effective to *treat* pain due to oral mucositis in patients receiving chemoradiation therapy for head and neck cancer (III). *Sucralfate mouthwash*: The panel *recommends against* that sucralfate mouthwash be used to *treat* oral mucositis in patients receiving radiation therapy (II) for head and neck cancer.
	Radiation therapy or concomitant chemoradiation	Prevention	*Iseganan antimicrobial mouthwash:* The panel *recommends against* that iseganan antimicrobial mouthwash be used to *prevent* oral mucositis in patients receiving radiation therapy or concomitant chemoradiation for head and neck cancer (II). *Sucralfate mouthwash*: The panel *recommends against* that sucralfate mouthwash be used to *prevent* oral mucositis in patients receiving radiation therapy (I) or concomitant chemoradiation (II) for head and neck cancer.
	Radiation therapy, without concomitant chemotherapy	Prevention	*Low-level laser therapy:* The panel *suggests* that low-level laser therapy (wavelength around 632.8 nm), be used to *prevent* oral mucositis in patients undergoing radiotherapy, without concomitant chemotherapy, for head and neck cancer (III).
Haematological malignancy	Stem cell transplant *revised from 2014 MASCC/ISOO Guidelines based on current labeling indication*	Prevention	*KGF-1/palifermin:* The panel *recommends* that recombinant human keratinocyte growth factor-1 (KGF-1/palifermin) be used to *prevent* oral mucositis (at a dose of 60 μg/kg per day for 3 days before conditioning treatment and for 3 days after transplant) in patients… • **Original MASCC/ISOO guideline:** receiving high-dose chemotherapy and total body irradiation, followed by autologous stem cell transplantation, for a hematological malignancy (II). • **Updated ESMO guideline:** …with hematological malignancy treated with chemotherapy and/or targeted agents, and/or HSCT with or without total body irradiation (TBI) (local–regional radiotherapy alone not included), and who are anticipated to develop grade 3 or grade 4 oral mucositis [41]. *Oral cryotherapy:* The panel *suggests* that oral cryotherapy be used to *prevent* oral mucositis in patients receiving high-dose melphalan, with or without total body irradiation, as conditioning for HSCT (III).
Oral cancer	Radiation therapy or chemoradiation	Prevention	*Zinc supplements:* The panel *suggests* that systemic zinc supplements administered orally may be of benefit to *prevent* oral mucositis in oral cancer patients receiving radiation therapy or chemoradiation (III).

■ RECOMMENDATIONS IN FAVOR OF AN INTERVENTION, i.e. strong evidence supports effectiveness in the treatment setting listed.
■ SUGGESTIONS IN FAVOR OF AN INTERVENTION, i.e. weaker evidence supports effectiveness in the treatment setting listed.
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MASCC/ISOO, Multinational Asociation of Supportive Care in Cancer and International Society of Oral Oncology; HSCT, hematopoietic stem cell transplantation; Gy, grays; BCoG, bacitracin, clotrimazole, gentamicin.

LLLT: LOW LEVEL LASER THERAPY

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PLOS ONE

Effect of Prophylactic Low Level Laser Therapy on Oral Mucositis: A Systematic Review and Meta-Analysis

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Abstract

Background: Objective was to determine whether prophylactic low level laser therapy (LLLT) reduces the risk of severe mucositis as compared to placebo or no therapy.

Methods: MEDLINE, EMBASE, and Cochrane Central Register of Controlled Trials were searched until February 2014 for randomized controlled trials (RCTs) comparing prophylactic LLLT with placebo or no therapy in patients with cancer or undergoing hematopoietic stem cell transplantation (HSCT). All analyses used random effects models.

Results: Eighteen RCTs (1144 patients) were included. Prophylactic LLLT reduced the overall risk of severe mucositis (risk ratio (RR) 0.37, 95% confidence interval (CI) 0.20 to 0.67; $P = 0.001$). LLLT also reduced the following outcomes when compared to placebo/no therapy: severe mucositis at the time of anticipated maximal mucositis (RR 0.34, 95% CI 0.20 to 0.59), overall mean grade of mucositis (standardized mean difference −1.49, 95% CI −2.02 to −0.95), duration of severe mucositis (weighted mean difference −5.32, 95% CI −9.45 to −1.19) and incidence of severe pain (RR 0.26, 95% CI 0.18 to 0.37).

Conclusion: Prophylactic LLLT reduced severe mucositis and pain in patients with cancer and HSCT recipients. Future research should identify the optimal characteristics of LLLT and determine feasibility in the clinical setting.

LLLT: LOW LEVEL LASER THERAPY

Lasers Med Sci (2016) 31:1231–1236
DOI 10.1007/s10103-016-1975-y

ORIGINAL ARTICLE

Low-level laser therapy for treatment of chemotherapy-induced oral mucositis in childhood: a randomized double-blind controlled study

Francesca Amadori[1] · Elena Bardellini[1] · Giulio Conti[2] · Nicola Pedrini[1] · Richard Fabian Schumacher[3] · Alessandra Majorana[1]

This study has demonstrated the efficacy of LLLT in reducing pain due to chemotherapy-induced oral mucositis. The lack of a unique, standardized protocol for using laser therapy in treatment of OM and relief pain is to be noted; however, further randomized controlled trials with different laser application schedules in children are still needed.

Il Dolore

Monitoraggio giornaliero e al bisogno

Grading secondo Scala NRS

Lieve 1-3 NRS	Emollienti, lenitivi topici (lidocaina,doxepina)
Moderato 4-6 NRS	Terapia di Prima Linea (fentanil transdermico, Tramadolo, Paracetamolo, morfina ad orari) Terapia BTP
Severo 7-10NRS	Morfina Infusione Continua BTP Eventuale Seconda Linea

Oral Graft-Versus-Host Disease

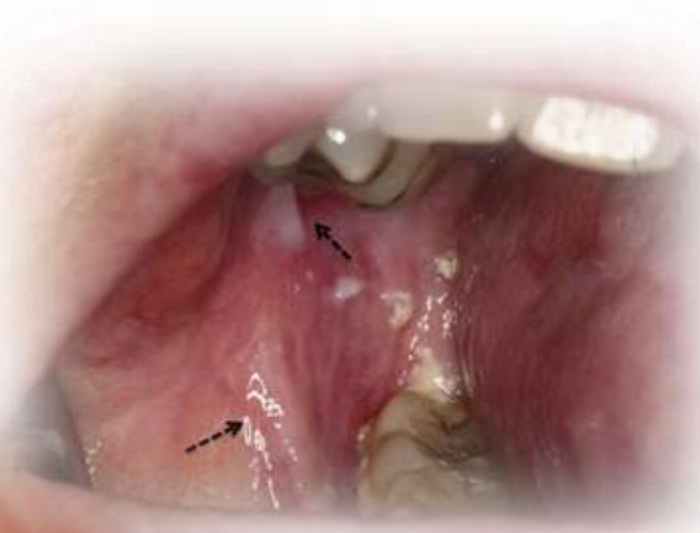
Michal Kuten-Shorrer, DMD[a], Sook-Bin Woo, DMD, MMSc[b], Nathaniel S. Treister, DMD, DMSc[b,*]

2014. Dent Clin N Am 58 (2014) 351–368

Prima Linea……Corticosteroidi topici

Table 4
Topical treatment of oral GVHD

Formulation	Treatment (Dosage Per Use)	Instruction for Use
Corticosteroids		
Solutions	Dexamethasone 0.1 mg/mL (5 mL) Budesonide 0.3–0.6 mg/mL (10 mL) Prednisolone 3 mg/mL (5 mL) Triamcinolone 1% (5 mL)	Hold solution and swish in mouth for 4–6 min before expectoration Wait 10–15 min after topical therapy before eating/drinking or brushing teeth Repeat up to 4–6 times per day
Gels, creams, and ointments	Fluocinonide 0.05% gel, cream, ointment Clobetasol 0.05% gel, cream, ointment Betamethasone dipropionate 0.05% gel Triamcinolone 0.1%–0.5% ointment	Apply to lesions 2–4 times per day Gels can be applied with gauze and left in place 10–15 min
Nonsteroidal immunosuppressives		
Solution	Tacrolimus 0.1 mg/mL (5 mL)[a]	Hold and swish in mouth for 4–6 min before expectoration Repeat up to 4–6 times per day
Ointment	Tacrolimus 0.1% ointment	Apply to lesions 2–4 times per day



http://www.eocc.co.uk/

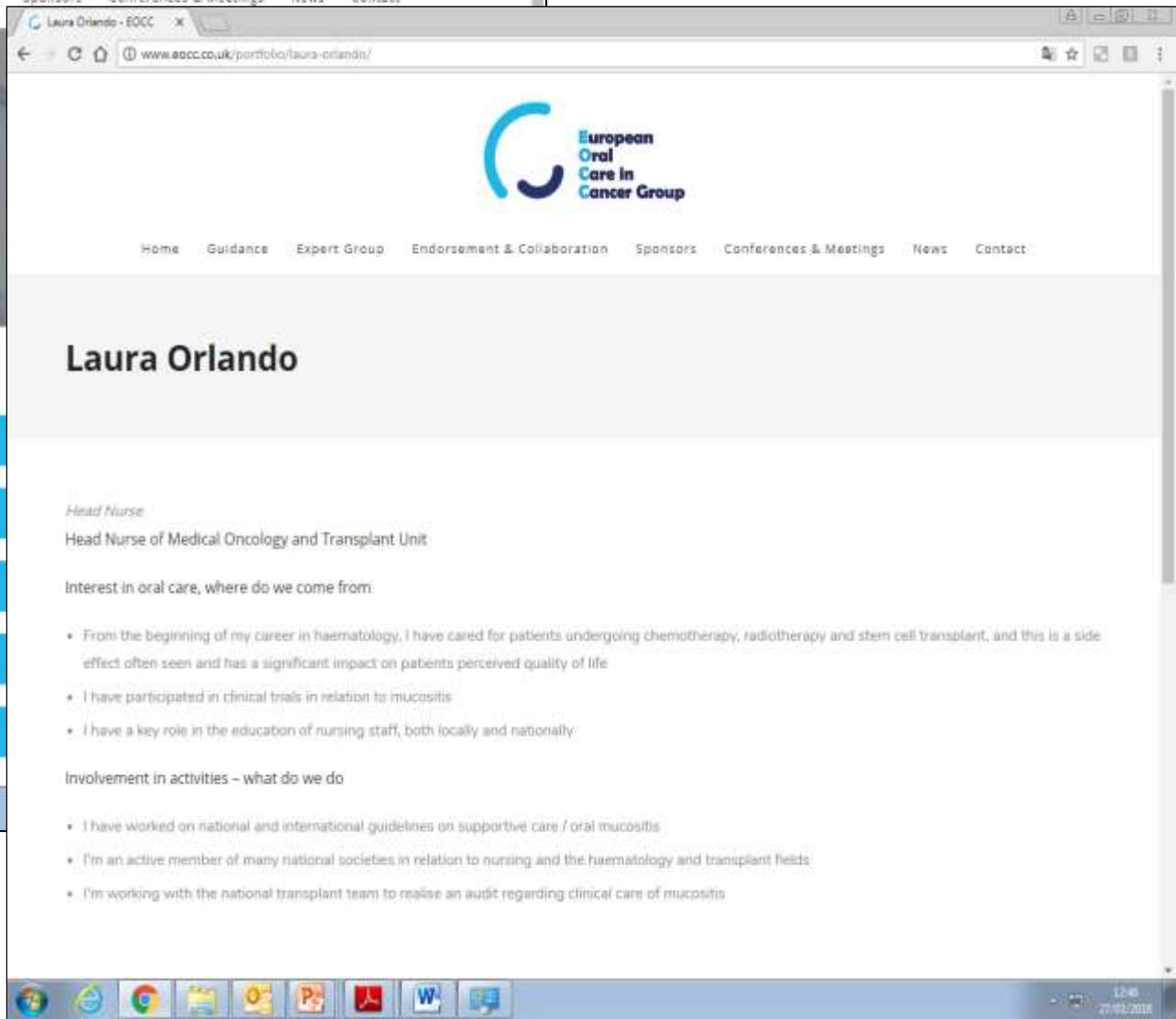
EOCC Guidance in English

EOCC Guidance in Italian

EOCC Guidance in Croatian

EOCC Guidance in Japanese

EOCC Guidance in Czech



Laura Orlando

Head Nurse

Head Nurse of Medical Oncology and Transplant Unit

Interest in oral care, where do we come from

- From the beginning of my career in haematology, I have cared for patients undergoing chemotherapy, radiotherapy and stem cell transplant, and this is a side effect often seen and has a significant impact on patients perceived quality of life
- I have participated in clinical trials in relation to mucositis
- I have a key role in the education of nursing staff, both locally and nationally

Involvement in activities – what do we do

- I have worked on national and international guidelines on supportive care / oral mucositis
- I'm an active member of many national societies in relation to nursing and the haematology and transplant fields
- I'm working with the national transplant team to realise an audit regarding clinical care of mucositis

Prima Edizione

European Oral Care in Cancer Group

Oral Care Guidance and Support

Guida e Supporto alla Cura del Cavo Orale – Versione Italiana

Contenuti

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