Streamlining Mucositis at the University of Rochester Medical Center: A retrospective chart review and pilot study

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Abstract

Purpose: Determine if the University of Rochester Pediatric Hematology/Oncology Division's clinical practice aligns with current recommendations and evidence-based research in the prevention and/or treatment of mucositis. This project served as a pilot study to aid development of protocols to improve mucositis prevention and treatment outcomes at URMC.

Methods: A retrospective chart review of all pediatric oncology patients who presented with mucositis over the span of 24 months was completed. Grade of mucositis, completion of dental consult, completion of mucositis education, and type of supportive care administered were collected. We sought to compare how URMC's current standard of care compares to the recommended guidelines by MASCC (Multinational Association of Supportive Care in Cancer) /ISOO (International Society of Oral Oncology).

Results: Seventy-nine percent of patients that were seen at URMC's pediatric oncology division did not receive a dental consult and seventy-five percent of patients did not have mucositis teachings from the medical or dental team. Grades of mucositis seen inpatient and outpatient varied from one to four based on the World Health Organization (WHO) mucositis scale.

Conclusions: Based on our findings, URMC failed to meet current standards for prevention and care of mucositis. Thus, a protocol including the dental team for clearances prior to cancer treatment, education, and involvement throughout cancer treatment is needed. Teachings with the nursing team will need to be established for daily care.

Introduction and Background

Oral mucositis (OM) is defined as erythema and/or ulcerations of the oral mucosa secondary to chemotherapy, radiation, or hematopoietic stem cell transplantation. It is one of the most common complications following cancer treatment in children, occurring in approximately 52 to 80% of patients.[3,5] The mucosal damage can present with a range of mild atrophy to severe ulcerations.[4] Patients with mucositis can experience severe pain causing pain while eating, drinking, and swallowing affecting the overall quality of life. The pain from the mucositis might require the usage of opioids and constant monitoring as life-threatening infections can occur.[1,4] Oral mucositis can lead to restrictions in dosing and delay future cancer treatment.[3] Intensive oral care is critical during immunosuppression periods as it reduces the risk of developing moderate or severe mucositis.

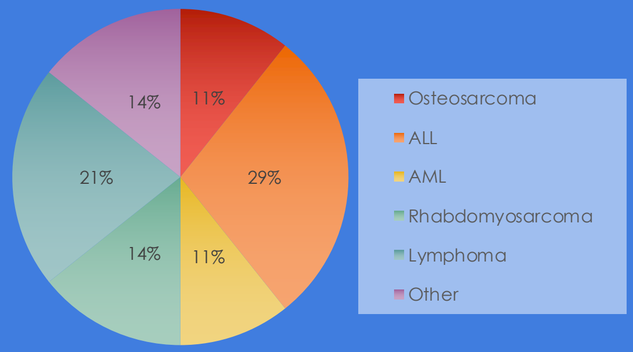
The objective of this study was to determine if URMC's clinical practice followed guidelines by MASCC (Multinational Association of Supportive Care in Cancer) /ISOO (International Society of Oral Oncology) regarding dental consultation, mucositis education, and supportive care. Findings from this project will be used to support development of protocols for mucositis prevention and treatment at URMC.

Methods

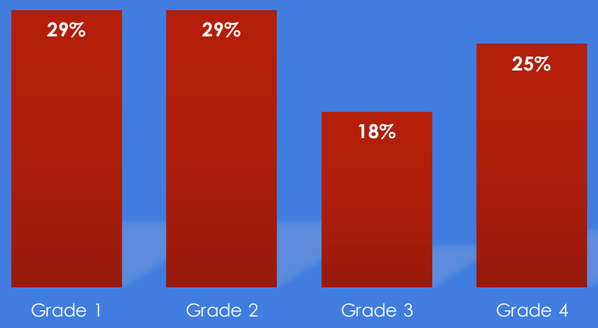
Pediatric oncology patients aged 0 to 18 years old who presented to Golisano Children's Hospital (GCH) with incidence of mucositis from January 2020 to December 2021 were included in the chart review (n=28). Charts were retrospectively reviewed to determine type of cancer, treatment setting (inpatient or outpatient), oral care rendered, supplemental care provided, dental consultation rate, and oral sores presentation. Grade of mucositis was determined through chart review based upon clinical examination findings and patient symptoms following the WHO classification guidelines.

Results

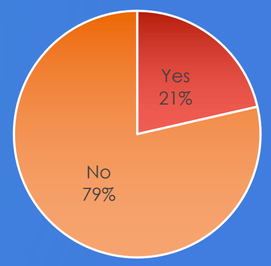
Cancer type in patients presenting with mucositis



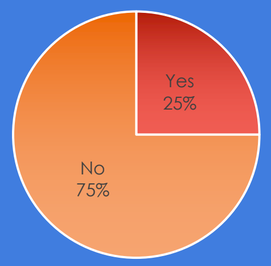
Grades of mucositis observed



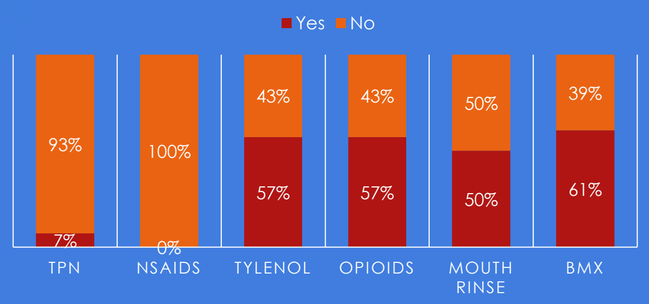
Dental Consult



Mucositis Teaching



Supportive care administered while having mucositis



Conclusions

- Most patients who presented with mucositis were diagnosed with leukemia (40%), more specifically ALL (29%)
- Each grade of mucositis (1-4) was found to affect overall quality of life including eating and drinking
- There were no recordings of daily oral hygiene in any of the patients' charts
- Main supportive care options for mucositis included Tylenol, opioids, mouth rinses (including chlorhexidine or saline), and BMX mouth rinse
- Over 75% of patients and their families did not receive a dental consult or have teachings regarding mucositis

Future Directions and Ongoing Progress

- Establishing a new pediatric oncology/dental protocol at Golisano Children's Hospital – including a dental clearance prior to starting cancer treatment
- Having the nursing team record daily oral care and grades of mucositis in patients' charts
- Having pediatric dental residents round with the oncology team for patients that present with mucositis or have an increased risk of mucositis
- Educational teachings with patients and their families with pediatric dental residents regarding oral care and mucositis at the beginning of cancer treatment
- Ongoing assessment of how these educational pieces impact the incidence and severity of mucositis seen at Golisano Children's Hospital
- Looking into new treatment methods such the usage of leptospermum honey and L-glutamine mouth rinses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References:

[1]Elad, S., Cheng, K. K. F., Lalla, R. V., Yarom, N., Hong, C., Logan, R. M., ... & Zur, E. (2020). MASCC/ISOO clinical practice guidelines for the management of mucositis secondary to cancer therapy. Cancer, 126(19), 4423-4431.

[2]American Academy of Pediatric Dentistry. Dental management of pediatric patients receiving immunosuppressive therapy and/or radiation therapy. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2020: 453-61

[3]Qutob, A. F., Allen, G., Gue, S., Revesz, T., Logan, R. M., & Keefe, D. (2013). Implementation of a hospital oral care protocol and recording of oral mucositis in children receiving cancer treatment. Supportive Care in Cancer, 21(4), 1113-1120.

[4]Spielberger, R., Stiff, P., Bensinger, W., Gentile, T., Weisdorf, D., Kewalramani, T., ... & Emmanouilides, C. (2004). Palifermin for oral mucositis after intensive therapy for hematologic cancers. New England Journal of Medicine, 351(25), 2590-2598.

[5]He, M., Zhang, B., Shen, N., Wu, N., & Sun, J. (2018). A systematic review and meta-analysis of the effect of low-level laser therapy (LLLT) on chemotherapy-induced oral mucositis in pediatric and young patients. European journal of pediatrics, 177(1), 7-17.

[6]Schartinger VH, Galvan O, Riechelmann H (2012) Differential re- sponses of fibroblasts, non-neoplastic epithelial cells, and oral carcinoma cells to low-level laser therapy. Support Care Cancer 20(3): 523–529. https://doi.org/10.1007/s00520-011-1113-0

[7]Kamsvåg, T., Svanberg, A., Legert, K. G., Arvidson, J., von Essen, L., Mellgren, K., ... & Ljungman, G. (2020). Prevention of oral mucositis with cryotherapy in children undergoing hematopoietic stem cell transplantations—a feasibility study and randomized controlled trial. Supportive Care in Cancer, 28(10), 4869-4879.