

Assessment of Oral Mucositis, Oral health Outcomes, and Implementation of a
Standardized Oral Health Care Protocol for a Pediatric Inpatient Population
Receiving Cancer Treatment

By

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A thesis submitted in fulfillment for the requirement of the degree of
Doctor of Clinical Dentistry (Pediatric Dentistry)

Faculty of Health Sciences

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The University of Adelaide

October 2013

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Abstract

Rationale: Oral mucositis can compromise cancer treatment, reduce quality of life, and lead to debilitation among childhood cancer patients. Recent clinical trials have recognized oral care to prevent oral mucositis, however, few studies have reported oral health outcomes of children receiving cancer treatment. Aim and Objectives: This research was undertaken to assess oral mucositis incidence and oral care outcomes, and to explore possible risk factors for oral mucositis among inpatient children receiving cancer treatment at the Women's and Children Hospital, Adelaide, Australia. The objectives were to investigate the evidence on oral mucositis prevention, assess and validate the combined use of the Children's International Mucositis Evaluation Scale (ChIMES) and the World Health Organization (WHO) oral mucositis scale in recording oral mucositis incidence, develop and implement a standardized hospital oral care protocol, and to record prospectively oral mucositis incidence, oral health outcomes, and possible risk factors. Methods: A systematic review was conducted to assess the current evidence on oral mucositis prevention among children. Results of a previous retrospective study were used to design a prospective pilot study. The pilot study was carried out for seven months during which the new oral care protocol was implemented and the ChIMES and the WHO oral mucositis scale were validated through daily recording of oral mucositis in the oncology ward. Measures of reliability and compliance were assessed among nurses and dental staff involved in recording oral mucositis and oral health status. The pilot study was followed by a prospective clinical observational study and recorded measures of oral mucositis (12 months) and oral health status (24 months). Measures of oral health outcomes were assessed initially and then every three months through clinical examination to record dental caries and oral hygiene while

measures of oral mucositis was recorded daily during the hospital stay of recruited children. The incidence of oral mucositis, oral health outcomes, and dental treatment utilization were then analyzed to explore possible risk associations. Results: The systematic review supported the benefit of implementing a standardized oral care protocol to prevent oral mucositis among children. Thirty-eight children were conveniently sampled during the pilot study during which high levels of reliability and compliance (87%) in using ChIMES and WHO oral mucositis scales were achieved. Dental referrals increased from 53% to 100% after adopting the comprehensive oral care protocol. Sixty-seven children were recruited during the prospective part with oral mucositis incidence similar to that of the pilot study (33% versus 34%). Dental caries prevalence was 28% with absence of new carious lesions throughout the 24 months follow up. Regular dental reviews were significantly related to shorter duration of oral mucositis (adjusted rate ratio=0.94; 95% CI=0.89-0.99; P-value=0.026) and hence fewer days of hospital stay. On the other hand, an increase in days of hospital stay was significantly related to oral mucositis incidence (adjusted rate ratio=1.64; 95% CI=1.002-2.69; P-value=0.049). Conclusion: Implementing a comprehensive oral care protocol and consistent recording of oral mucositis have resulted in low rates of oral mucositis and dental caries incidence among inpatient children receiving cancer treatment.

Thesis declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Date: October 14, 2013

Dedication

I dedicate the knowledge provided in this thesis and the benefits that can come out of it to the pure soles of the children who participated in this study and lost their battle to cancer. May Allah's blessings surround their soles in heavens, where they will have a prosperous and suffer-free eternal life in paradise.

I also dedicate this work to all children who are still fighting cancer. May Allah almighty grant them the strength, patience, and bravery throughout their treatment. May Allah almighty grant their families the capacity to accommodate this hardship and to see the smiles of their little angels shine on their faces for years to come.

I hope that Allah almighty accepts from me and counts this work as a good deed

Acknowledgments

My utter gratitude goes to my creator Allah almighty who blessed me with limitless support and guided me during difficult times.

I send my love to my parents Fareed Qutob and Fawziah Bakhsh, to my beloved wife Kholoud Fakiha, and to my three little angels Maryam, Malak, and Talah who without their unconditioned moral support, kind words, smiles, and love I wouldn't have the determination to go through my postgraduate studies in Australia.

Limitless appreciation and thanks goes to my respected supervisors A/Prof. Sumant Gue, Prof. Tamas Revesz, Prof. Richard M. Logan, and Prof. Dorothy Keefe who all did not reserve any capacity to help, guide, encourage, and support; and without their insightful advice this thesis could not have been produced.

Special thanks to Dr. Gabrielle Allen for her fundamental contribution of the retrospective study and to the staff at the Department of Clinical Hematology/Oncology and the Department of Pediatric Dentistry at the Women's and Children's Hospital, Adelaide, Australia, who helped make this work a reality.

Last but not least are thanks to my colleagues Dr. Mohammed El-Kishawi, Dr. Abdul Rahman Al-Azri, Dr. Abdulaziz Al-Majed, Eng. Abdulrahman El-Kishawi, and their lovely families for providing the best social support that I could ever have.