

Oral Complications of Emerging Cancer Therapies

14-15 April 09

Bethesda, Maryland

This conference was designed to promote novel basic, translational and clinical research related to management of oral complications of those receiving cancer therapies, especially newer, molecularly targeted cancer treatments. The overall goal of this research long-term is to improve the oral and craniofacial health of cancer patients before, during and after cancer treatment.

Over the past decade, novel cancer treatments have improved cancer outcomes. However, emerging cancer therapies have created a new spectrum of complications including those involving the oral cavity. It is essential that researchers and clinicians develop new diagnostic, preventive and therapeutic approaches to address these toxicities, especially those related to treatment of oral and pharyngeal cancers.

One immediate conference goal was to bring together a unique group of investigators who could collectively address these problems by delineating new research directions through multi-disciplinary modelling. This goal was achieved. The 115 conference attendees had diverse professional expertise; many came from nations other than the United States as well. Included were 21 new and/or early stage investigators, all of whom contributed to the discussions. In addition, there were 40 senior faculty, as well as 20 NIH staff. This collective scientific expertise was important and synergistic relative to conference outcomes.

The program began by highlighting the successes and challenges of newer cancer therapies, with emphasis on the need for research that synthesizes a population-based database of cancer treatment-related oral toxicities. This was followed by an overview of the extent and quality of evidence for treatment of common oral toxicities such as mucositis, oral pain, oral graft-versus-host-disease, and radiation-induced salivary gland hypofunction.

These presentations set the stage for sessions covering individual oral complications of cancer therapy. Each session consisted of paired lectures covering the patho-biology and known treatments of the relevant complication. Knowledge gaps were identified during the talks and through end-of-session panel discussions. Examples of important research needs and opportunities addressed in the conference included:

- Further delineation of the pathobiology of oral mucositis in order to develop new therapeutics to treat this common, often clinically significant complication of radiation and/or chemotherapy.
- Systematic collection of patient-based outcomes in future trials that test therapies for pain management in head and neck cancer patients.
- Study of incidence, causation and severity of mucosal, dental, and periodontal bacterial infections during and following high-dose chemotherapy that in turn causes neutropenia.

- Research directed to long-term consequences of cancer treatment, especially patients treated for head and neck cancer or those receiving hematopoietic stem cell transplant therapy. Such research could include:
 - Clinical trials to determine best treatments for oral graft-versus-host-disease, a transplant complication that can persist for years and can cause significant morbidity.
 - Expansion of study of novel therapeutic approaches for protecting or restoring head and neck radiation-mediated injury such as (i) devising therapies to protect salivary glands during radiation and (ii) restoring salivary gland function via gene therapy strategies.
 - Further animal and human-based study of bisphosphonate-associated osteonecrosis, including risk factors, patho-biology and treatment.
 - Precise delineation of the potential role of hyperbaric oxygen treatment in the management of head and neck radiation-induced osteonecrosis.
 - Stem cell-based therapies to restore craniofacial form and function status/post head and neck cancer surgery.

Complete reviews of the full portfolio of oral toxicities addressed during the conference will be included in publications for which manuscripts are currently being designed.

The conference program and faculty roster are attached to this report. The publication plan is being finalized by 15 July 09, with manuscripts to be submitted by 15 November 09. Grant support for the conference from the NIH, including NIDCR and ORDR will be acknowledged.

Future research encouraged by this conference can be submitted in response to several existing NIDCR funding opportunity announcements. These are listed in the table below.

Nanoscience and Nanotechnology in Biology and Medicine (R21)	12/19/07	PA-08-053	Nadya Lumelsky 301-594-7703	1/08/11
Human Pluripotent Stem Cell (hPSC) Research Using Non-Embryonic Sources (R01)	12/13/07	PA-08-043	Nadya Lumelsky 301-594-7703	1/08/11
Human Pluripotent Stem Cell (hPSC) Research Using Non-Embryonic Sources (R21)	12/13/07	PA-08-044	Nadya Lumelsky 301-594-7703	1/08/11
NIH Exploratory/Developmental Research Grant Program (R21)	4/16/09	PA-09-164	Jane Atkinson 301-435-7908	5/08/12
NIDCR Clinical Trial Implementation Cooperative Agreement (U01)	7/9/08	PAR-08-196	Jane Atkinson 301-435-7908	09/08/11
NIDCR Clinical Trial Planning Grant (R34)	7/9/08	PAR-08-195	Jane Atkinson 301-435-7908	09/08/11
Clinical Studies of Bisphosphonate Therapy and Osteonecrosis of the Jaws (R01)	12/18/06	PA-07-185	Jane Atkinson 301-435-7908	11/06/09
Clinical Studies of Bisphosphonate Therapy and Osteonecrosis of the Jaws (R21)	9/20/06	PAR-06-556	Jane Atkinson 301-435-7908	1/08/10
Pathophysiology of Bisphosphonates-associated Osteonecrosis of the Jaw (R01)	12/07/06	PA-07-132	Lillian Shum 301-594-0618	9/08/09
Pathophysiology of Bisphosphonates-associated Osteonecrosis of the Jaw (R21)	7/31/06	PA-06-501	Lillian Shum 301-594-0618	9/8/2009
Pathophysiology of Bisphosphonates-associated Osteonecrosis of the Jaw (R03)	7/31/06	PA-06-502	Lillian Shum 301-594-0618	9/8/2009