



# Table Clinic Winners

Each year, the California Dental Association invites dental and dental hygiene students from across the state to enter the Table Clinic Competition at the Anaheim Scientific Session. The first-place finishers in each category receive certificates, cash awards, and an invitation to write an abstract of their work to appear in the *Journal of the California Dental Association*. Following are the winners of the 2004 competition.

## Dental Student Winners

### *The Development of an Oral Cancer Pain Mouse Model*

S.Y. Liu, and B. Schmidt, University of California at San Francisco School of Dentistry, Department of Oral and Maxillofacial Surgery

**Objectives:** For patients with oral cancer, pain is the primary determinant of a poor quality of life. To date, little research has been done to understand the pain associated with oral cancer. The purpose of this study was to develop a mouse model of oral cancer pain.

**Methods:** The hind paw reflex of mice was used as the nociceptive assay. HSC3 squamous carcinoma cells were injected in the hind paws of Foxn1nu mice. Quantification of acute allodynia was performed by calculating the 50 percent withdrawal threshold using Dixon's method. Ongoing allodynia was assessed by measuring the amount of non-weight bearing time for a paw with tumor within a two-minute period. The experimental group was comprised of mice inoculated with HSC3 cells in the right hind paw (n=10). The control groups consisted of mice injected with media in the right hind paw (n=4) and mice with no inoculation (n=6). Nociceptive testing was performed over 28 days at 11 time points. At Day 30, the anti-nociceptive effects of systemic morphine were measured.

**Results:** In the carcinoma group, the paw with tumor (right) exhibited significantly lower pain threshold than left paws after Day 9 (Wilcoxon,  $p < 0.01$ ). No significant differences between paws were observed within the control and sham-operated groups. When comparing the right paws of the



CDA Executive Director Peter DuBois, left, and Dr. Russell Webb, right, congratulate Stanley Liu, a dental student at the University of California at San Francisco. Liu, along with and B. Schmidt, developed an oral cancer pain mouse model.

carcinoma group to those of the control and sham-operated groups, a significant decrease in pain threshold was observed after Day 9 (Mann-Whitney,  $p < 0.01$ ). A significant increase in pain threshold (Wilcoxon,  $p = 0.005$ ) was observed in the paw with tumor 15 min after morphine administration.

**Conclusion:** This is the first demonstration of an oral cancer pain mouse model. Acute and ongoing mechanical allodynia were demonstrated in the mouse model and were reversible with systemic morphine administration.



***The purpose of this study was to determine if stem cells aspirated from bone marrow in combination with collagen matrix provide a preferable alternative method to repairing the alveolar ridge by restoring bone as well as reducing morbidity.***

## *Evaluating Closure of Alveolar Cleft Defects with a Resorbable Collagen Matrix*

Manisha Sisodia<sup>1</sup>, Catherine O'Hara<sup>2</sup>, and James P. Bradley, MD<sup>2</sup> (<sup>1</sup>University of California at Los Angeles School of Dentistry; <sup>2</sup>UCLA School of Medicine, Division of Plastic and Reconstructive Surgery)

**Introduction:** Reconstruction of alveolar defects in cleft patients is commonly accomplished using secondary alveolar bone grafts to stabilize the maxilla before a definitive orthodontic and restorative dental treatment. Bone grafting not only improves support for the lip and nose by restoring continuity of the dental arch, but also facilitates in spontaneous eruption of the permanent teeth adjacent to the cleft. Several reports suggest that bone harvested from iliac crest is the current gold standard to which all other types of alveolar grafts should be compared. However, there are considerable limitations and complications associated with the use of autograft, including high degree of postoperative morbidity. The purpose of this study was to determine if stem cells aspirated from bone marrow in combination with collagen matrix provide a preferable alternative method to repairing the alveolar ridge by restoring bone as well as reducing morbidity.

**Methods:** Patients with alveolar cleft defects were prepared orthodontically and randomly divided into two equal treatment groups: 1) iliac crest bone graft or 2) bone marrow aspirate seeded onto a collagen matrix. Preoperative and follow-up evaluations, intraoral photographs, panorex, and NewTom Volumetric scans were used to compare the two groups. Wound and bone healing, tooth eruption and volu-



*Manisha Sisodia is flanked by DuBois and Webb, in recognition of the winning table clinic entry she submitted with Catherine O'Hara and James P. Bradley, MD.*

metric closure of the alveolar defect were assessed.

**Results:** There was better wound healing and comparable volumetric bone healing noted in the group that received collagen matrix supplemented with bone marrow aspirate. Also, there was significant reduction in hip pain and reduced infection at the donor site compared to traditional iliac bone graft.

**Conclusions:** Our study concludes that bone marrow derived stem cells seeded appropriately on a collagen matrix heal alveolar cleft defects better and significantly minimize the donor site morbidity associated with the iliac bone graft.

## Dental Hygiene Student Winners

### *Chlorhexidine Unplugged*

Dina Mikhail and Jennifer Ivers, Cerritos College Dental Hygiene

**Abstract:** You may think you know everything there is to know about Chlorhexidine, but there are some recent studies that may have you doubting yourself. Chlorhexidine is currently the most widely used bactericidal agent, and until today has been thought to have substantivity even when in the presence of other agents. Recently, research studies have shown there are certain agents that deactivate Chlorhexidine and therefore should not be used in conjunction; they are sodium laurel sulfate, fluoride, and nystatin. Each agent interferes with the ability of Chlorhexidine to attach itself to bacteria, making both Chlorhexidine and the agent used ineffective. Hygienists should be cautious of these agents when using or prescribing Chlorhexidine to patients in order to maximize its therapeutic properties.



*Dina Mikhail and Jennifer Ivers, dental hygiene student winners, take a moment with DuBois and Webb during the Spring Session in Anaheim.*