

AAO Foundation Award Final Report

Type of Award: Biomedical Research Award

Name of Principal Investigator: Sunjay Suri

Title of Project: Growth pattern of soft tissue profile in children with complete Unilateral Cleft Lip and Palate (UCLP) and identification of clinically relevant predictors of profile development from childhood to maturity

Period of AAOF Support: 07-01-13 to 06-30-14

Amount of Funding: USD 25,000

Summary/Abstract

In this retrospective longitudinal study, we aimed to study differences in the soft-tissue profiles in growing children with clefts in comparison with controls through the period of facial growth from 7 to 18 years. Lateral cephalometric measurements made at 7 years (T1), 11.1 years (T2), and 17.9 years (T3) of age of 70 white children (35 boys, 35 girls) with complete unilateral cleft lip and palate (UCLP) who received primary lip and palate repair surgeries at The Hospital for Sick Children, Toronto, were compared with those of a control group of similar ages, sexes, and racial backgrounds, and having skeletal Class I facial growth, selected from the Burlington Growth Study. Between-group comparisons were made at each time point using generalized linear models adjusted for age and sex effects. Longitudinal comparisons across all time points were conducted using the mixed model approach, adjusting for these effects and their interactions with time.

Results revealed that bimaxillary retrognathism, progressive maxillary retrognathism, and increasing lower anterior face height with downward and backward growth rotation of the mandible in the UCLP group were seen. The upper lips in the UCLP group were shorter, whereas their lower lips were longer. A reduced upper lip to lower lip length ratio resulted. Their upper lips were progressively relatively retruded, and their lower lips were progressively relatively protruded. Nose depths and columellar length were shorter. Their columellae and nose tips rotated downward with growth, with the most significant rotations experienced from T2 to T3.

To conclude, we identified key attributes of the imbalance in the soft-tissue profile in children with repaired UCLP in their lip and nose regions. Although many profile differences were visible as early as 7 years of age, they became more apparent by 11 years of age and increased in severity thereafter.

Response to the following questions:

1. Were the original, specific aims of the proposal realized?
Yes, the aims have been realized: Of the 6 specific questions we targeted to investigate, 4 have been completed and published, and the other two are being studied currently.
2. Were the results published? If not, are there plans to publish? If not, why not?
One major paper has already been published: Soft-tissue profile growth in patients with repaired complete unilateral cleft lip and palate: A cephalometric comparison with normal controls at ages 7, 11 and 18 years. Moreira I, Suri S, Ross B, Tompson B, Fisher D, Lou W. Am J Orthod Dentofacial Orthop. 2014 Mar;145(3):341-58.
Other aspects of the study are in progress and data analysis, which will be published in due course.
3. Have the results of this proposal been presented? If so, when and where? If not, are there plans to do so? If not, why not?
A part of our primary data collection was presented at the 12th International Congress on Cleft Lip/Palate and Related Craniofacial Anomalies, May 5-10, 2013; Orlando, Fla. Comprehensive results that are now available will be presented at future meetings.
4. To what extent have you used, or how do you intend to use, AAOF funding to further your career?
There are very few funding sources for clinical research studies and therefore, AAOF funding is of immense value in making many such clinical research projects possible that otherwise may suffer due to lack of resources available to conduct them. In my studies which have been supported by the AAOF, funds have helped to pay for remunerating research associates and assistants, equipment, and costs related to publication and dissemination of findings as well as for participation in conferences. The true measure of an academicians' career is the quality of their work published in peer reviewed scholarly journals and presentation in scientific conferences. AAOF funding that supports research endeavors strengthen the quality of work to allow meeting high standards. I hope to continue to use these precious funds to support such endeavors.

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