Project Number: CC025

Title: Exploring relationships between children's cleft type and their birth outcomes

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Approval Date: June 2020

Scientific Outline:

The developmental origins of health and disease (DOHaD) hypothesis proposes that early life experiences, including those in utero, can have short- and long-term health effects [1]. Birth weight, together with birth length and head circumference at birth, are important measures indicating the growth of infants in utero. Descriptions of these important measures and development of growth references are often conducted among general populations [2-4]. However, previous studies among children born with CLP are limited, have small sample sizes and show conflicting results in the differences of those measures by cleft types [5-9].

The aim of this study is to describe the profile of fetal growth of infants born with syndromic and/or non-syndromic CLP in the UK, and explore whether their profiles differ by cleft types. The specific questions that this project will investigate are:

Does (1) birth weight, (2) birth length, (3) head circumference, (4) gestational age, and (5) delivery method differ by cleft type?

Does (1) birth weight, (2) birth length, (3) head circumference, (4) gestational age, and (5) delivery method differ in a CLP population to a normative sample?

Methods

This project will use existing parental reported questionnaire data from the Cleft Collective Birth Cohort and 5-year-old Cohort. Children's birth weight, birth length and head circumference will be converted to sex-specific z-scores using UK-WHO reference [5]. Birth outcomes reported in healthy controls from a normative sample such as Avon Longitudinal Study of Parents and Children, Born in Bradford and The Millennium Cohort Study will be compared to the birth outcomes reported in The Cleft Collective. Preterm birth (gestational age < 37 completed weeks), low (i.e. <2500 grams)/high (i.e. >4500 grams) birth weight and small (i.e. <10th percentile)/large (>90th percentile) for gestational age can be derived. Differences in continuous variables between CLP cases versus controls and across cleft types will be compared using t-test/one-way ANOVA. Difference in the delivery method between CLP cases versus controls and across cleft types will be compared using Chi-square test. The analyses will be conducted using R version 3.6.1.

References

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[5] Miranda GS, Marques IL, de Barros SP, et al. *Cleft Palate Craniofac J* 2016;53:264-271.

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