

REPAIRING CLEFT PALATES IN LMICS: ARE WE MISSING ISOLATED CLEFT PALATES?

Smerica, Abel M¹, Larry H Hollier, Jr.², Felicity V Mehendale³, Esther Njoroge⁴, Dan Poenaru⁵

¹ Baylor College of Medicine, Department of Texas Childrens' Hospital

² Baylor College of Medicine, Houston TX, USA, Texas Children's Hospital, Department of Surgery

³ The University of Edinburgh, Edinburgh, Scotland, Centre for Global Health, Usher Institute, Global Cleft Lip and Palate Research Programme

⁴ Smile Train, Smile Train Africa, Global Medical Programs

⁵ McGill University Health Centre, Canada, The Montreal Children's Hospital, Pediatric Surgery

Keywords: global surgery, cleft palate diagnosis

Background: While external orofacial clefts such as cleft lip with or without cleft palate are easily identified, isolated cleft palates (ICPs) often remain underdiagnosed or even unrepaired. Unrepaired cleft palates lead to morbidity (feeding, nutrition, growth, speech, hearing and airway problems) and mortality. While the diagnosis of ICPs is challenging in high- and low/middle-income countries (LMICs), LMICs are disproportionately affected.

Materials/Methods: Smile Train Express (STX), the electronic health record database developed by Smile Train, was retrospectively interrogated to identify ICP surgeries, as matched by both diagnosis and surgery type. Selection criteria specific to unique entries with hard and/or soft palate clefts without history of cleft lip or alveolus were identified by country. Each country's Human Development Index (HDI) and age at ICP repair were collected. Data were analyzed and crosschecked against documented surgery methods with a range of sensitivity and specificity.

Results: A total of 221,531 out of 1.6 million (13%) cleft surgeries were identified as ICPs across 80 LMICs. The ICP intervention fraction varied between 1.4% - 29%. Countries with the lowest ICP fractions (<5%, n=12) were all located in Africa and Central/South America. These included 2,653 ICP out of 86,902 interventions, with an average age at ICP repair of 6.7 years. Age at ICP repair correlated negatively with HDI ($p < 0.01$). The fraction of ICP surgery out of total clefts correlated positively with HDI ($p < 0.01$).

Conclusions: A significantly low fraction of primary cleft surgery was for ICP repair in countries with the lowest HDI. In high income countries, ICPs range from 25-50% of all clefts. In this analysis LMICs had very low numbers of ICP repairs, despite cleft palate with cleft lip being commonly repaired in these countries. Intensive efforts must be placed on ICP diagnosis and earlier surgery to prevent morbidity and mortality.

Images / Graph / Table

