



Dental characterization of colombian children with non syndromic cleft lip and palate

Caracterización dental de niños colombianos con hendiduras labio palatinas no sindrómicas

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ABSTRACT

Introduction: When compared to general population, subjects afflicted with cleft lip and palate present alterations in craniofacial growth and development as well as high incidence of dental anomalies which vary according to studied population; agenesis, presence of supernumerary teeth, abnormal crown morphology and taurodontism can be counted amongst them. Objective: To assess prevalence of dental anomalies found in Colombian children with non syndromic cleft lip and palate sequels, being treated at health providing institutions. **Methodology:** A cross-sectioned descriptive, observational study was conducted on a sample of 258 medical histories and panoramic X-rays of Colombian children treated at different health providing institutions in the city of Bogota, Colombia. The sample was composed of 156/258 males (60.55%) and 102/258 (39.5%) females. Average age was 9.8 years (\pm 3.3 years). **Results:** Based on studied X-rays, it was determined that 38.4% (99/258) children presented full left unilateral cleft lip and palate sequels, 31.0% (80/258) exhibited bilateral cleft and 30.6% (79/258) suffered right unilateral cleft lip and palate. Most frequent dental anomalies found were; dental agenesis, supernumerary teeth and size anomalies. Prevalence for said anomalies were: dental agenesis, over 90%; supernumerary teeth: 40% and size anomalies: 30%. **Conclusion:** High prevalence of dental anomalies was found in children with cleft lip and palate in Bogota in concordance with information reported in scientific literature.

Key words: Cleft lip, cleft palate, dental agenesis.

Palabras clave: Labio hendido, paladar hendido, agenesis dental.

INTRODUCTION

Cleft lip and palate cases (CLP) are the most common craniofacial malformations; they constitute congenital structural deficiencies caused by defects in the fusion of cranio-facial processes which form primary and secondary palate.^{1,2} They possess multifactorial etiology and varied frequency, according to environmental and socio-cultural factors. Thus, prevalence has been reported as 1 out of 800 live births in South America, 1,8 in 1,000 live births in Europe, 1 in 750 in Asia and 1 in 1200 in Africa. In

RESUMEN

Introducción: Comparados con la población general, los sujetos con labio y paladar hendido presentan alteraciones en su crecimiento y desarrollo craneofacial y una alta prevalencia de anomalías dentales, que varía según la población estudiada, entre ellas: agenesias, presencia de dientes supernumerarios, morfología coronal anormal y taurodontismo. Objetivo: Evaluar la prevalencia de anomalías dentales encontradas en niños colombianos con secuelas de hendiduras labio palatinas no sindrómicas, atendidos en instituciones prestadoras de salud. **Metodología:** Se realizó un estudio observacional descriptivo transversal en una muestra de 258 historias clínicas y radiografías panorámicas de niños colombianos de diferentes instituciones prestadoras de salud de la ciudad de Bogotá-Colombia. De los cuales 60.5% (156/258) eran hombres y 39.5% (102/258) mujeres. El promedio de edad fue 9.8 (\pm 3.3) años. **Resultados:** De las radiografías evaluadas se determinó que 38.4% (99/258) de los niños presentaban secuelas de labio y paladar hendido unilateral izquierdo completo, 31.0% (80/258) bilateral y 30.6% (79/258) con unilateral derecho. Las principales anomalías dentales encontradas fueron: agenesias dentales, dientes supernumerarios, anomalías de tamaño. La prevalencia encontrada para cada una de ellas fue: agenesias dentales: mayor del 90%. Dientes supernumerarios: 40% y en anomalías de tamaño estuvo alrededor del 30%. **Conclusión:** Se encontraron altas prevalencias en anomalías dentales en los niños con labio y paladar hendido en Bogotá, similar a lo reportado en la literatura científica.

Colombia, according to the III National Study in Oral Health (1988) ENSAB III, prevalence close to 0.2% has been reported, (13-17). Reports in ENSAB IV for

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2014 revealed 0.07%, although margins of error were high due to the sample's characteristics.³⁻⁶

CLP sequels generate esthetic, psychological and functional alterations. Esthetic alterations are mostly related to lack of continuity in the upper lip as well as scars from surgical interventions. Psychological alterations are caused by disorders in the feelings of subjects with CLP sequels as well as frame of mind disturbances and lack ability to relate to other people. Lastly, functional alterations are within the framework of phonation, deglutition and mastication disorders.

When compared to general population, CLP subjects exhibit alterations in craniofacial development and growth^{1,2,7} as well as high prevalence of dental anomalies (agenesis, presence of supernumerary teeth, abnormal crown morphology and taurodontism,^{5,8} which varies according to studied population. In general, in this type of population a 90% increase of dental anomalies is observed when compared to non-affected subjects.⁹

Within reported frequencies of dental anomalies for this population, we can find the following; microdontia: 37%, dental agenesis: over 20%.^{8,10,11} K uchler¹² reported a 15.2% taurodontism frequency. Likewise, higher presence of supernumerary teeth has been reported for CLP population when compared to general population.

Within this context, the target of the present research project was to assess prevalence of dental anomalies found in Bogota in children with sequels of non syndromic palate and lip clefts, who were treated in Health Care providing institutions in that city.

MATERIAL AND METHODS

A cross-sectioned, descriptive and observational study was conducted in children with sequels of cleft lip and palate treated in public and private health care institutions. Children's ages ranged from 5-15 years, children had not received definitive oral rehabilitation or restorative care, and were equally lacking pre-existent orthodontics and/ or maxillary orthopedic treatment. Sample size was 258 children and was calculated by way of approximation to expected frequencies (CLP) prevalence and dental anomalies.

All patients attending dental services in selected institutions and within aforementioned age ranges were accepted to form the sample. HPI statistical records were assessed in order to obtain the names of all these patients which met inclusion criteria; they had at least been subjected to first care clinical examination at the dental service; panoramic x-rays were examined at the time of attending the service

as well as patients' full medical history taken at each institution

In the study, independent variables were: socio-demographic characteristics of the child and type of cleft, result variables were dental characteristics of number, size and root development.

Based on state-of-the art circumstances, a data collecting instrument was designed in the study. Before application, the instrument was subjected to a pilot test; according to test results, adjustments were undertaken until achieving the final instrument.

X-rays were selected according to criteria of suitable sharpness, density and contrast. X-rays should lack stains, double images, marks or scratches. X-rays which were deteriorated to the point of preventing analysis of number and shape of teeth to be assessed were discarded.

Dental development was assessed according to Nolla methodology,¹³ referenced by Infante.¹⁴ Congenital tooth absence and supernumerary teeth presence were determined according to Na-Youngkim¹⁵ study, which examined congenital absence of upper lateral incisors or presence of supernumerary teeth.

In 27 patients the size of teeth adjacent to the cleft was assessed. This procedure was conducted in two ways: one with study models, assessing integrity of each model; considering as integrity the fact that represented dental tissues did not exhibit fissures or lack of continuity. A fine-point digital gauge with 0.01mm precision was used. This gauge was employed to measure the greatest mesio-distal and buccal-palatal dimension of each tooth in the arch, especially teeth which were adjacent to the cleft.

In order to collect data for the study, researchers were trained and qualified, radiographic and clinical criteria tests were undertaken, an intra-class correlation coefficient was obtained, with kappa superior to 0.8 (it was conducted with an N which corresponded to 10% of the total sample (± 25 subjects) where X-rays of subjects which were different to the final sample were assessed.

Research teams recorded information of gathering instruments. During information collection typing, quality control was assessed by means of filters, checkers and program checking lists. Gathered information was included in a database designed in Access format. It was then exported to Stata version 11.0 for analysis and procedure. Before analysis, data were checked and cleansed. Whenever inconsistencies were found the instrument was selected and compared with the appropriate diagnostic aid in order to minimize errors.

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