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Research Article

The Structure of Oral and Maxillofacial Illness among Mongolian Children

Purevsuren B[1], Narantuya I[2], Ayanga GN[3], Norovpil Ts[1]

[1]"Ach" medical university

[2] School of Nursing, Mongolian National University of Medical Science

[3]National Center for Maternal and Child Health of Mongolia

[*]**Corresponding author:** Narantuya I, School of Nursing, Mongolian National University of Medical Science, Bayangol, Ulaanbaatar, Mongolia; E mail: narantuya.i@mnums.edu.mn

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Abstract

Introduction: The Department of Pediatric Maxillofacial Surgery of the National Center for Maternal and Child Health (NCMCH) has a nationwide tertiary medical service on the patients who is with congenital oral and maxillofacial anomalies, facial injury, nonmalignant tumors of this area, and inflammations of maxillofacial area following dental caries and other reasons as well. For the last years nationwide the number of inpatient of the department has been growing constantly meaning that the necessity of medical care for our countries for population is also growing. Therefore by studying and analyzing the structure of the illness of the department will be able to determine the most frequent orofacial illness among children in Mongolia, to prevent them, define the treatment plan.

Aim: To clarify what disease in the maxillofacial area mainly occurs for children in Mongolia.

Materials and Method: We included all patients who underwent emergency and planned surgery in the Department of Pediatric Maxillofacial Surgery, NCMCH between 2014-2017.

Result: The most of patients, who involved in this study were with the inflammation of maxillofacial area (60.43%) and the congenital orofacial clefts (23.14%).

Keywords: Cleft lip and palate and orofacial clefts; Inflammation of maxillofacial area; odontogenic periostitis; Structure of disease

Introduction

Maxillofacial surgery is considered to be a widely recognized surgical specialty treating cleft lip and palate and other congenital facial disorders, microtia and other facial deformities, head, face, jaw and neck injuries, inflammations, Temporo-Mandibular Joint (TMJ) disorders, facial nerve, tooth eruption disorders and performing surgeries on various benign pathologies and tumors of head and neck area [1,2]. The Department of Pediatric Maxillofacial surgery of the National Center for Maternal and Child Health (NCMCH) is providing tertiary medical care for children nationwide. Today at the department total 44 types of illness among which congenital deformities, odontogenic and nonodontogenic maxillofacial nonspecific inflammation, maxillofacial trauma, bone and soft tissue benign tumor, TMJ disorders and maxillofacial neurological disorders are being diagnosed, given ambulatory and inpatient medical care.

According to the studies [3-6] made by the specialists of this field and statistical data of the department [7] we can see that nationwide the necessity of medical help and care of maxillofacial surgery field has been crowing constantly meaning the frequency of morbidity of this field is growing as well. Based on the study of Dr.Bayasgalan R and colleagues the number of caries complication as orofacial inflammation among all inpatients of the Department of Pediatric Maxillafacial Surgery, NCMCH in 1999 was 29.1%, 2000 was 32.0%, 2006 was 30.6%. And according to the study by Dr.Turbold B and others during 2014-2016 years from all inpatients

36.77% was caries complication as orofacial inflammation.

There had been made not a few studies of maxillofacial surgery diseases, their prevalence, treatment methods in our country. Though there is no study about the structure of disease of this field thus this made the rationale of our study.

Aim

To study the diseases of maxillofacial surgery and its occurence depending on various factors.

Intention

- To examine and define the occurence of illness among inpatients of Department of Pediatric Maxillofacial Surgery, NCMCH.
- To analyze the most frequent diseases considering child's age, sex and residency.

Material and Method

We used descriptive and case-control method based on the medical record between January 1, 2014 and December 31, 2017 at the Department of Pediatric Maxillofacial Surgery, NCMCH and using our own-designed, pre-screened survey card. Considering the recidency all participants are devided into Ulaanbaatar and rural provinces. Ulaanbaatar is subdevided into 9 main districts: Baganuur, Bagakhangai, Bayangol, Bayanzurkh, Nalaikh, Songinokhairkhan, Sukhbaatar, Khan-Uul and Chingeltei. The 21 provinces are subdevided into 4 geographical zones as western, central western, central eastern and eastern, which comprise the following provinces respectively:

- Western zone: Bayan-Ulgii, Govi-Altai, Zavkhan, Uvs, Khovd provinces;
- Central western zone: Arkhangai, Bayankhongor, Bulgan, Orkhon, Uvurkhangai, Huvsgul provinces; Darkhan-Uul
- Central eastern zone: Govisumber, Darkhan-Uul, Dornogovi, Dundgovi, Umnugovi, Selenge, Tuv provinces;
- Eastern zone: Dornod, Sukhbaatar, Khentii provinces.
- We defined the results of children's age by age period considered to be suitable for healthcare and pedagogical use confirmed by The International Symposium of 1965. The age periods:
- 0-2 years (childhood – infant/toddler)
- 3-5 years (preschool age)
- 6-9 years (primary school age)
- 10-13 years (secondary school age)
- 14-18 years (high school age)

The "Diagnosis and Treatment Guidelines" confirmed by NCMCH board meeting used at the department of maxillofacial surgery is used for the research. The guideline consists of 6 main chapters:

1. Cleft lip and palate and other maxillofacial congenital anomalies
2. Inflammation of maxillofacial area
3. Trauma of maxillofacial area
4. TMJ diseases
5. Salivatory gland diseases
6. Benign tumor of maxillofacial area

We processed the data using Microsoft Office-2017 and SPSS, and descriptive statistics are shown. The survey indentified the incidence and frequency of each disease classification, and analyzed the characteristics of the child's age, sex and residency.

Result

Total of 7456 children of ages between 0-18 admitted at the department of Maxillofacial surgery and infants study department for maxillofacial surgery treatment during 2014-2017 were surveyed in the study among which 4118 (55.2%) are male and 3338 (44.8%) are female (Figure 1).

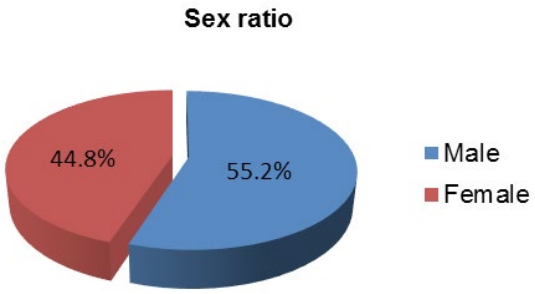

Figure 1: Sex ratio of study participants.

Regarding the residency, 5701 children among all the participates reside in Ulaanbaatar making 76.5%, the rest 1755 (23.5%) reside in the province and mostly in the central area with 743 (42.3%) children.

In terms of the age composition of the participants, 2391(32.1%) are infants, 1942 (26.0%) participants are of preschool age, 1781(23.9%) of primary school age, 809 (10.9%) of secondary school age, and 533 (7.1%) belong in the high school age group (Figure 2).

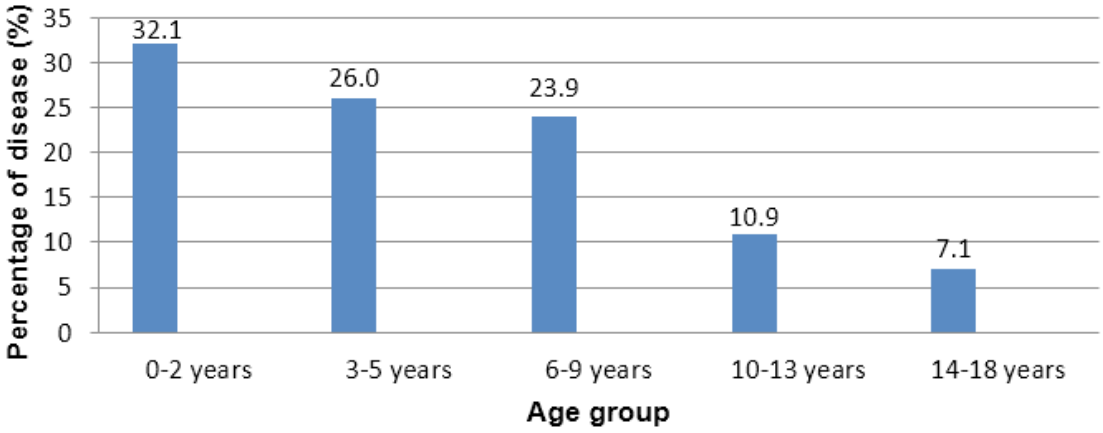

Figure 2: Age index of study participants.

Among all the 7456 participants 4506 children are diagnosed with an inflammation of maxillofacial area, 1725 children with cleft lip and palate and other maxillofacial congenital anomalies, 430 children with benign tumor of maxillofacial area, 465 children with trauma of maxillofacial area, 234 children with salivatory gland diseases, one child with TMJ disease, and the remaining 95 children with other diseases (Figure 3).

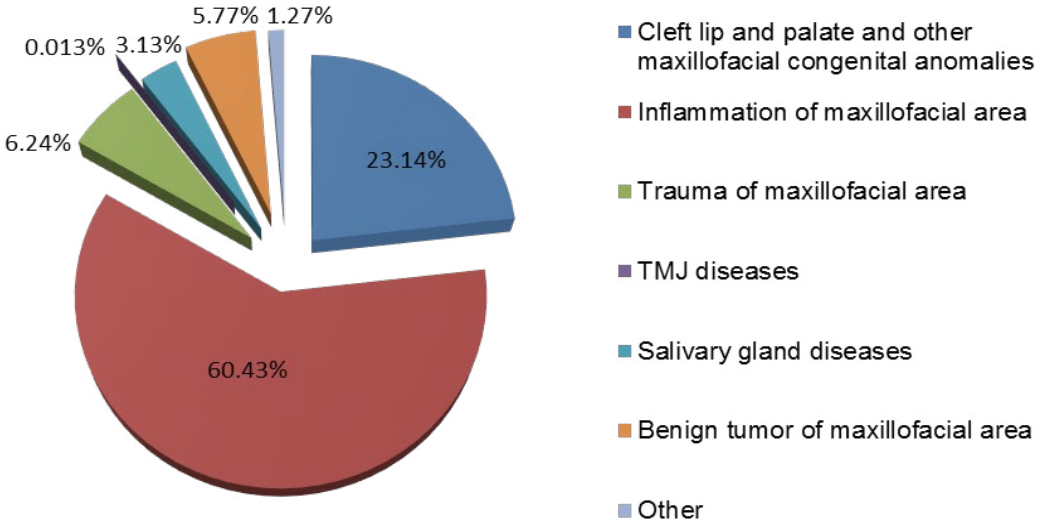

Figure 3: The structure of diseases.

Among 4506 inpatients diagnosed with an inflammation of maxillofacial area, which was the most common cause of hospitalization among the participants, 1797 children were registered to have developed odontogenic periostitis of maxillofacial area, 1397 children were acute lymphadenitis, 636 children were odontogenic phlegmon of maxillofacial area, 484 children were soft tissue abscess of maxillofacial area, and 192 children were osteomyelitis of maxillofacial area (Figure 4).

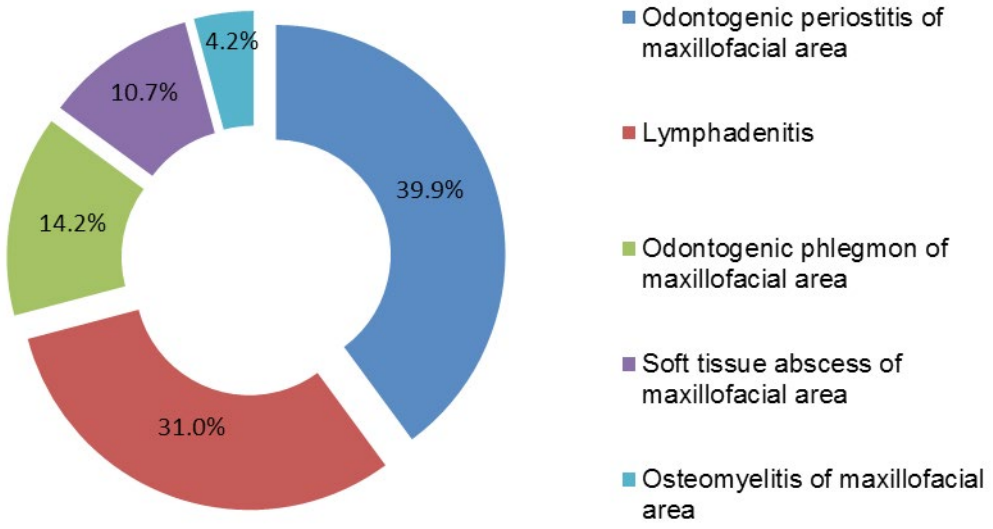

Figure 4: Structure of group "Inflammations of maxillofacial area".

Of 4506 patients with the group inflammation of maxillofacial area: 2453 are male, and 1963 are female. In terms of the geographic location, 3699 patients reside in Ulaanbaatar while the other 807 live in the rural provinces. Age decomposition of the patients with the "Inflammation of maxillofacial area" indicates that 1418 (31.5%) children were childhood age, 1407 (31.3%) preschool age, 970 (21.5%) primary school age, 443 (9.8%) secondary school age and 268 (5.9%) high school age (Figure 5).

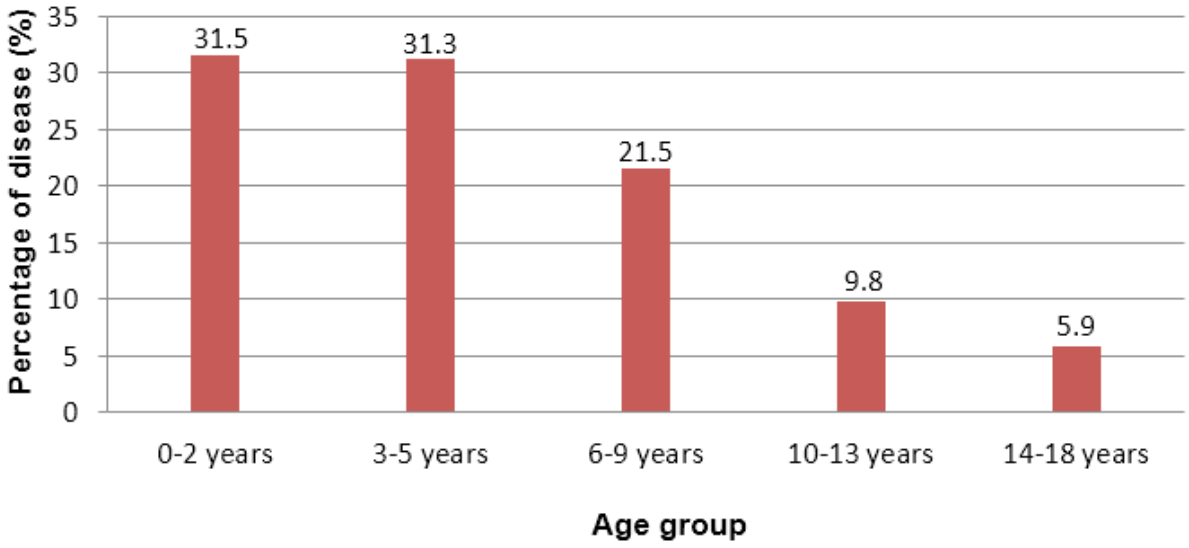

Figure 5: Age index of group"Inflammation of maxillofacial area".

Discussion

57% of all participants given medical care refer to "Inflammation of maxillofacial area" group where the majority of 38% are odontogenic periostitis of maxillofacial area. This makes 21.6% of all participants in this study indicating that dental caries complications are the most common of all maxillofacial diseases among children and juniors in Mongolia [8-11]. Especially infants and preschool age children had been hospitalized with dental caries complications which require organizing effective tooth caries preventions among children and early detection and treatment of caries during primary and mixed bites. According to our researchers dental caries prevalence and intensity among preschool age of children Ts.Norovpil (1986) [12] 77.7%, 3.6, L.Munkhtsetseg (2001) [13] 75.5%, 5.3, B.Oyuntsetseg (2005) [14] 96.1%, 8.1, J.Delgertsetseg (2014) [15] 92.9%, 8.2had been growing constantly every year. On this basis inflammation of maxillofacial area cases had been growing every year related to our study.

Based on the study of R.Bayasgalan and colleagues [8] the number of caries complication as orofacial inflammation among all inpatients of the Department of maxillafacial surgery, NCMCH in 1999 was 29.1%, 2000 was 32.0%, 2006 was 30.6%. And according to the study by B.Turbold and others during 2014-2016 years from all inpatients 36.77% was caries complication as maxillofacial inflammation [9]. As shown in some foreign studies oral biopsy records from pediatric patients between the ages of 0 and 15 years in the files of Faculty of Dentistry, Mahidol University, and the files of Faculty of Dentistry, KhonKaen University Thailand the largest number of lesions was odontogenic cysts and tumors, followed by inflammatory and reactive lesions, and salivary gland pathology. The results of our study were quite different [16]. In findings of 472 oral biopsies from patients, up to 15 years of age, received over an eight-year period in six pathology centers in Ankara, Turkey the majority with 49% of the lesions were in the category of reactive and inflammatory lesions, which was close to our study [17].

A retrospective study of biopsied oral lesions (N = 534) in a pediatric population (0-15 years old) in southern Taiwan performed from 1985 through 1996. The lesions were divided into three groups according to patients' ages, 0-5 years old; 6-10 years old and 11-15 years old. Samples were classified into four categories: inflammatory lesions, cystic lesions, tumor or tumor-like lesions and other lesions. The largest number of lesions occurred in the inflammatory lesion group (46%) [18].

Conclusion

- The study shows that diseases with highest frequency are inflammation of maxillofacial area with 60.43%, and cleft lip and palate and other maxillofacial congenital anomalies with 23.14%.
- Inflammation of maxillofacial area was registered mostly among children of ages 0-2 years old (31.5%) and boys are more likely to have developed it than girls.

In terms of the residency, 3699 children (82.1%) reside in Ulaanbaatar city, more specifically in Bayanzurkh district from where 903 (24.4%) of all the patients come.

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