Analysis of the surgical treatment of craniosynostosis with different sutures between 2017 and 2019

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ABSTRACT

Introduction: Craniosynostosis (CS) can be detected as a premature fusion of one or more sutures of skull bones, activating an abnormal cranial conformation, with variable consequences, from cranial hypertension to psychological disorders. Objective: To statistically analyze the occurrence of surgical treatment for craniosynostosis in the months of July 2017 to June 2019 at SUS. Materials and Methods: This is a descriptive, cross-sectional and retrospective study based on data from the Ministry of Health – SUS hospital information system (SIH / SUS). Results and Discussion: 19,175 cases of surgical procedure for cranial surgery were used during this period. According to the month, most surgeries took place between the final months of the year until the first months of October 2018 and March 2019 with 6124 cases (31.9% of the total). Conclusion: It is important to develop continuing education strategies not only for health professionals, but also for family members as genetic counseling. Thus, an informative manual on facial expressions has been proposed for patients and family members, in addition to studies on patients with a social history.

Keywords: Craniosynostosis, consequences, surgical treatment.

1 INTRODUCTION

Craniosynostosis can be defined as premature fusion of one or more flat skull bones sutures, resulting in abnormal cranial conformation, with variable consequences, from cranial hypertension to psychological disorders.

The incidence is about 1 every 2000 live births and the diagnosis, although clinical, can be investigated from the intrauterine stage, ultrasonographically, or fetal magnetic resonance, where you can observe cranial or craniofacial asymmetries.

According to the presence or not of other anomalies, craniosynostosis can be classified as either associated or isolated, the latter being more frequent. Isolated craniosynostosis can occur due to interference from environmental factors (mechanical and teratogenic), for example, the use of substances such as sodium valproate, retinoic acid and oxymethazoline during the gestational period.

Among the craniosynostosis associated with multiple abnormalities, those related to limb anomalies, known as acrocephalo sindactilias, are highlighted.

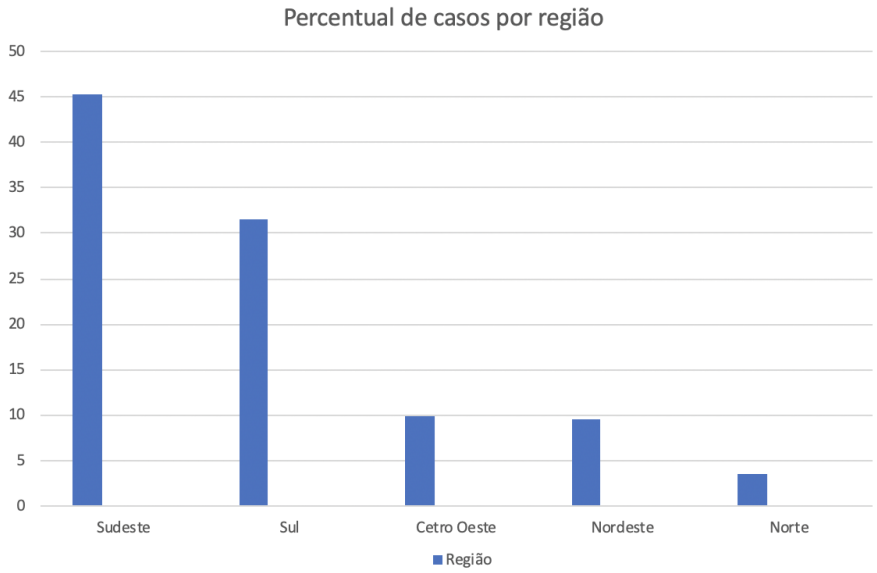
2 METHODES

This is a descriptive, cross-sectional and retrospective study developed from data from the Ministry of Health – hospital information system (SUS/SIH).

3 RESULTS

19.175 cases of surgical procedure for craniosynostosis were identified during this period, the southeast region being the most significant, with 8,695 notified cases (45,34%), followed by Southern regions with 6.062 cases (31,61%), Midwest with 1.899 cases (9,9%), Northwest with 1.829 cases (9,5%) and, the Northern regions with 690 cases (3,6%).

Percentage of cases by Region



Sudeste - Southeast
Sul - South
Centro-Oeste - Central-West
Nordeste - Northeast
Norte - North
Região: Region

Comparing 12-month periods (July to June) of the subsequent years, an increase in the number of notifications can be noted, 8.953 cases in 2017/2018 to 10.222, increase of 15% in the same period between the years 2018/2019.

The state with the highest number of procedures performed is São Paulo with 6,509 cases, followe by Paraná, Rio Grande do Sul, Distrito Federal and Minas Gerais. According to the month, most surgeries occurred between the end of the year and the first months of the following with an emphasis on October 2018 to March 2019 with 6124 cases (31,9% out of the total).

4 DISCUSSION

Regarding etiology, biomechanical forces, genetic alterations and local expressions of growth factors have been considered. Some hypotheses are put forward, such as metabolic disorders (rarely lead to CS, such as charitable rickets, described in cases of oxycephaly), use of some anticonvulsants during pregnancy, hyperthyroidism, maternal smoking during pregnancy, advanced age of parents in some CS (especially syndromic ones),twinning, positioning and presentation of the fetus, familial CS, chromosomal aberrations, idiopathic cause, among others (Jose Roberto et al, 2018).

Some explanations of the more related factors are:

Genetic

Due to alteration in fibroblast receptor genes.

Smoking during pregnancy

By vasoconstrictor action and reduction of placental blood flow.

Nutrition

Structural malformation due to lack of nutrients.

The consequences of craniosynostosis may be related to a change in skull shape, and consequent psychological disturbances for aesthetic reasons. Cranial dimorphisms can affect the orbits, skull base and face and lead to functional impairment, distortion of the airways and compression of the brain portion. There may also be restriction to the growth of the skull leading to decreased cranial volume, with consequent intracranial hypertension (ICH) and injury, to varying degrees to the child's brain (Jose Aloysio, 2013).

According to Jose Aloysio (2013), surgical treatment is indicated in significant portion of craniosynostosis carriers to avoid the consequences described above. It must be early, even in the first months of life, because it provides better aesthetic and functional results and avoids the compression of the brain. This early treatment requires even earlier diagnosis of the disease.

5 CONCLUSION

The study demonstrates a widely heterogeneous patient profile in clinical and geographical terms. The most important thing, however, is early diagnosis. It is important to develop continuing education strategies not only for health professionals, but also for relatives as genetic counseling. Thus, an informative manual on craniosynostosis has been proposed for patients and their families, as well as studies in patients with similar social profiles.

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