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Medicine**AGE FEATURES OF CRANIOMETRICAL INDICATORS OF ORBIT
IN SOME STAGES OF HUMAN POSTNATAL DEVELOPMENT****N.A. Mustafayeva**

(Presented by Academician of NAS of Azerbaijan B.A. Agayev)

Studying of age features and craniometrical orbit indexes on different stages of human postnatal development was the purpose of this work. Age and individual morphometric indexes on the skulls are investigated with the help of craniometrical methods. Results of this research have shown that the skulls of children have some characteristic features. So, by consideration in front of skulls of 1st children's age the differences in the cerebral part of skull are found in comparison with facial skull. The facial skull is wide; orbits are well developed in it. From all parameters of the orbit the length most intensively increases by age. The superior wall of the orbit had the greatest length in the earliest periods of development.

Keywords: Postnatal development, orbit, age features, craniometrical indicators

Introduction

Recently development of ophthalmologic and neurosurgical technologies, demanding an individual approach in each operative intervention, has caused of detailed elaboration of all spectrum of individual variability of the orbital morphology taking into account skull typology [2,3,7].

However, in the majority of scientific works including the orbit morphology, there are general, same data's about structure of the orbit which do not consider all possibilities of modern methods of the treatment used in practical ophthalmology [4,5,9]. Development of the surgical and diagnostic technologies demanding the special individualization of operative interventions has caused of obtaining of more exact data on a spectrum of variability of the orbital morphology [3,7].

Considering all above, the aim of this work to study age differences of the form and dimensional indexes of orbit in some stages of human postnatal development.

Materials and research methods

As a material for research served skulls of the people of 1st children's, teenage, youthful, 2nd mature and elderly ages of a postnatal ontogenesis. All measurements on skulls have been executed by the help of the special tools

widely used in modern craniology (caliper, compasses - a counter and ruler with scale interval of 1 mm). The standard classical dimensions of the orbit and facial skull (the superior height of the facial skull, dacial width, height and width of the orbit), offered by R.Martin (1926), have been measured on each of skulls. [8]. The data of measurements is brought in the craniometrical form.

The corrosion method (filling an orbit cavity by stomalgin, applied in stomatology in quality mould material) has been used besides craniometric procedures. After extraction of a mould from the orbital cavity we received a print from gyps or self-hardening plastic materials. The structural dimensions have been defined on the moulds received from the orbits in such way.

The data received during research were exposed to statistical processing. Thus the general recommendations for medical and biological researches were observed. Average values received selections (M), standard errors (m), minimum (min), maximum (max) values of rows are calculated. Comparison was made between groups (P), consistently in groups (Po), in group with the first parameter (P1), in group with a maximum (P2).

Results of research

According to our data, the skull of children has some characteristic features. So, the form and the dimensions of the skull, an interrelation of its parts at the children of 1st children's age considerably differ from a skull of the adult person. By consideration these skulls in front we noted some development of brain part of the skull in comparison with the facial part of the skull. Facial skull is wide; orbits are well developed in it. The orbit has the form of a quadrangular pyramid.

In 1st children's age the height interrelation to length of the orbit is less expressed (width 29.9 ± 0.6 mm, height 28.2 ± 0.5 mm). In more adult groups of postnatal development the

orbit had the low and long form which is characterized by the greatest width varied in limits from 37.7 to 40.1 mm, in a combination to the minimum dimensions of height from 31.8 to 34.3 mm (Table 1).

According to our data, the orbit height has 3/4 sizes of height of the facial skull at children. Whereas the orbit height has about half of height of the facial skull at teenagers. So, height of an orbit at children of 1st children's age compounded 28.2 ± 0.5 mm, and the superior height of the facial skull - 43.5 ± 0.9 mm. Height of an orbit at teenagers was 31.8 ± 1.1 mm, and the superior height of the facial skull 62.0 ± 3.1 mm (Table 2)

Table 1

Height and width of the orbit of people at different age

Age	n	Orbit's height	Orbit's width
1st children's period	6	28.2 ± 0.5 26.4-29.2	29.9 ± 0.6 28.2-31.9
The teenage period	7	31.8 ± 1.1 28.1-36.6	37.7 ± 1.3 30.5-40.8
The youthful period	7	35.5 ± 0.9 33.2-38.3	40.7 ± 0.6 39.2-43.2
2nd mature period	7	35.3 ± 0.9 31.6-38.1	40.4 ± 0.6 38.2-42.4
The elderly period	8	34.3 ± 0.5 32.8-36.8	40.1 ± 0.7 38.1-44.1

Table 2

Orbit's height and facial skull's superior height of the people different age

Age		Orbit's height	Facial skull's superior height
1st children's period		28.2 ± 0.5 26.4-29.2	43.5 ± 0.9 41.7-47.3
The teenage period		31.8 ± 1.1 28.1-36.6	62.0 ± 3.1 47.5-70.8
The youthful period		35.5 ± 0.9 33.2-38.3	69.8 ± 1.3 64.1-73.2
2nd mature period		35.3 ± 0.9 31.6-38.1	72.6 ± 1.4 68.7-79.2
The elderly period		34.3 ± 0.5 32.8-36.8	68.5 ± 1.6 62.4-73.5

We defined the communication between parameters of the orbit and the dimensions of the facial skull (Tab. 2). The superior height of the facial skull in adults on our preparations varied in limits from 43.5 to 72.6 mm, and the height of the orbit measured at the aditus varied from 28.2 to 35.5 mm. The greatest height of the orbit more often was marked on skulls which had the maximum height of the facial skull. So, the highest height of the orbit (36.3 ± 0.9 mm) and the superior height of the facial skull (72.6 ± 1.4 mm) have been noted at people of 2nd mature age.

Developmental features of the orbit are also displayed in postnatal changes of dimensions of its separate structures. So, for example, from all walls of the orbit, the superior wall had the greatest length in 1st children's period of development. The average length of the superior wall at children of this age, according to our data composed 39.5 ± 0.14 mm. On the contrary, inferior wall of the orbit had the least length from all walls. Its length corresponded on the average 27.4 ± 0.16 mm. The width of the superior wall at the child of this age on the average was 28.4 ± 0.11 mm and the inferior 16.2 ± 0.14 mm. These proportions and their interrelations change differ slightly by age.

Discussion of the obtained data

The complex morphometric research of the orbit and its components has shown the presence of the expressed individual distinctions defined by several factors among which the great value is bound to features of development and constitution of the organ of vision [5].

First of all age features of the orbit are shown, that in the earliest periods of postnatal development, it considerably advances all other osteal structures of the facial skull. Possibly, it is necessary to explain this fact by early formation of the visual analyzer [5].

Our data confirms opinion I.Kirykov (1983), noticing that from all walls at newborns is better the superior wall is developed [6]. Besides the dimensions of the superior wall of orbit at children, as well as at adults, the shape of its contour is characteristic which is arch-like with upward and lateral convexity. We cannot

agree with V.N.Verbitskaya data (1977) which considers that the relief of all walls of orbit has no any convexities or concavities [1].

It is necessary to carry to age changes of orbit constitution not only the increasing of general dimensions, but also growth indexes of its separate walls. This data confirms also by Y.A.Quseva (2005) which considers that definitive orbit formation finished in youthful age [5].

Results of this research have shown that the skulls of children have some characteristic features. So, by consideration in front of skulls of 1st children's the differences in the cerebral part of skull are found in comparison with facial skull. The facial skull is wide; orbits are well developed in it. From all parameters of the orbit the length most intensively increases by age. The superior wall of the orbit had the greatest length in the earliest periods of development.

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**İNSANIN POSTNATAL İNKİŞAFININ MÜXTƏLİF DÖVRLƏRİNDƏ GÖZYUVASININ
KRANIOMETRİK GÖSTƏRİCİLƏRİNİN YAŞ XÜSUSİYYƏTLƏRİ****N.A.Mustafayeva**

Apardığımız tədqiqat işinin məqsədi insanın postnatal inkişafının müxtəlif dövrlərində gözyuvasının kranio-metrik göstəricilərinin və yaş xüsusiyyətlərinin öyrənilməsi olmuşdur. Kəllələrdə yaş və fərdi morfometrik göstəricilər kranio-metrik metodların köməyi ilə müəyyənləşdirilmişdir.

Tədqiqatın nəticələri göstərdi ki, uşaq kəllələri bir sıra xarakter xüsusiyyətlərə malikdir. Belə ki, I uşaqlıq dövrünə aid uşaq kəllələrinə öndən baxdıqda kəllənin beyin hissəsinin üz hissəsi ilə müqayisədə daha çox inkişaf etdiyi nəzərə çarpır. Onlarda üz kəlləsi enli olub, gözyuvaları yaxşı inkişaf etmişdir. Yaşla əlaqədar olaraq gözyuvasının bütün parametrləri arasında onun uzunluğu daha intensiv artır. İnkişafın ən erkən dövrlərində gözyuvasının yuxarı divarı daha uzun olur.

Açar sözlər: postnatal inkişaf, gözyuvası, yaş xüsusiyyətləri, kranio-metrik göstəricilər

**ВОЗРАСТНЫЕ ОСОБЕННОСТИ КРАНИОМЕТРИЧЕСКИХ ПОКАЗАТЕЛЕЙ ГЛАЗНИЦЫ
НА НЕКОТОРЫХ ЭТАПАХ ПОСТНАТАЛЬНОГО РАЗВИТИЯ ЧЕЛОВЕКА****Н.А.Мустафаева**

Изучение возрастных особенностей и краниометрических показателей глазницы на разных этапах пост-натального развития человека явилось целью данной работы. На черепях возрастные и индивидуальные мор-фометрические показатели исследованы с помощью краниометрических методов.

Результаты проведенного исследования показали, что черепа детей имеют некоторые характерные чер-ты. Так, при рассмотрении черепов детей 1-го детского возраста спереди отмечается некоторое развитие мозго-вой части черепа по сравнению с лицевой. Лицевой череп широкий, в нем хорошо развиты глазницы. Из всех параметров глазницы с возрастом наиболее интенсивно увеличивается ее длина. В наиболее ранние периоды развития, наибольшую длину имела верхняя стенка глазницы.

Ключевые слова: постнатальное развитие, глазница, возрастные особенности, краниометрические показатели