lesion characteristic features formation, which is dependent on many factors such as conditions of traumatic impact, power of the impact vary variable if made by obtuse objects with limited and unlimited surfaces and others.

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Comparative characteristic of fetometrycal indicators of cerebrospinal fluid system of the fetal brain in the second trimester of gestation

Abstract: It was conducted a comparative characteristic of regional fetometrycal indicators of CSF system of the fetal brain in the second trimester of pregnancy of women living in the Chernivtsy region with similar data of Great Britain and Kharkov (Ukraine).

Keywords: fetus, cerebrospinal fluid system, fetometry.

Introduction. The most important problem of obstetric service is improving of quality and effectiveness of prenatal diagnostics of fetal growth and development. One of the key components of this diagnostics is ultrasound photometry — measuring of various anatomical structures of the fetus, which is a compulsory component of the ultrasound examination in obstetrics [1, 15–16]. Comparison of fetometrical findings with standard data of specific region allows to determine conformity of the size of fetus and its gestational age, estimate the rate of growth and clarify the pregnancy term [3, 16–17].

In modern literature on ultrasound diagnostic in obstetrics are described numerous of fetometrycal indicators which are developed by domestic and foreign authors for their populations using Percentile approach [2, 86–87].

Analysis of literature shows that differences between the nomograms of fetometrycal ultrasound indicators may be associated with ethnic features of anthropometric indices [5, 183–184].

In Ukraine as a whole and in its separete regions fetometriycal regional standards are not available, and using of foreign authors normohram often leads to a large number of false positives and false negative results of delay of intrauterine development. Therefore, the actual problem is the development of regional standards of ultrasound fetometry, because their use will ensure a correct assessment of fetal growth dynamics and increase the effectiveness of prenatal diagnostic of congenital anomalies [4, 113–115].

Purpose — to provide a comparative analysis of fetometrycal indicators of Chernivtsy region fetuses in the second trimester of gestation with those of other regions.

Materials and Methods. Studied 164 results of the ultrasound examination of pregnant women in the second trimester of physiological gestation who are living in Chernivtsy region. Ultrasound examination was performed on the base of Medical Genetic Center (MGC) of Chernivtsy Regional Diagnostic Center (ChRDC).

Retrospective analysis of 2004–2008 years was conducted by studying of ultrasound examination conclusions of pregnant women in different periods of gestation. Estimated fetometrycal normal size of circumventricular system. A comparative analysis of the size of the anterior and posterior horns, the body of lateral ventricles, a large cistern and subarachnoid space of the brain was made with the same data of other regions.

There were used general statistical methods for biomedical research.

Discussion of the research results.

Weight and growth parameters of newborns and, consequently, fetuses in different countries and even in different regions of the same country, differ significantly. Genetic, ethnic, natural — this is not the whole list of factors that affect on the growth, weight and rate of intrauterine fetus development [5, 183–184].

Therefore, different regions have their own peculiarities of fetometrycal indicators.

Absence of developed regional indicators of fetal development forces doctors to choose particular normohrams, which are acceptable for this area, or use the one included in the using ultrasound software. Not knowing and not analyzing accuracy of normohram for specific region, some perinatologists carrying the fetometry are using multiple normohrams of different authors, with the following computer processing of the parameters and calculation of some «average» period of gestation [7, 79].

Disagreement on this problem leads to the fact that in the same region or in the same city investigations are conducted by various normohrams, which leads to a lack of sequence, a significant reduction of accuracy and quality of fetometrycal research [6, 80].

In modern literature there are a large number of standard fetometrycal parameters. In our country the most widely used are V. N. Demidov et al. (2001, Moscow), E. A. Yakovenko (1994, Kharkov), N. V. Medvedev et al. (2000, Moscow) norms.

On the result of our study as a basis for the development of regional fetometrycal indicators of CSF system of brain was taken data of observation of fetal development in Chernivtsy region and was performed a comparison with those of other regions.

Estimation of CSF system size was carried out in transventricular plane. The structure and size of the lateral ventricles of the brain and its vascular plexus were analyzed (table 1). The measured parameters were compared with those in other regions.

As shown in Table 1 regional indicators are very different from those rates in the UK, and are compared with those in Kharkiv.

In transcerebellum plane were evaluated dimensions of subarachnoid space and a large tank, whose diameter is normally not exceed 10.0 mm. (table 2).

Table 1. – Normative values of brain structures measured in transventricular plane

Duration of pregnancy (weeks)	ChR	UK	ChR	UK	ChR	Kh
	Anterior horn (mm.)		Posterior horn (mm.)		Body of the lateral ventricle (mm.)	
17–18	4.61 ± 0.45	7.1 ± 0.10	5.39 ± 0.47	7.05 ± 0.31	5.20 ± 0.41	5.1 ± 0.24
19–20	5.19 ± 0.97	7.3 ± 0.12	6.05 ± 0.99	7.20 ± 0.22	6.08 ± 0.82	5.65 ± 0.42
21–22	5.51 ± 0.52	7.6 ± 0.13	6.42 ± 0.16	7.35 ± 0.10	6.40 ± 0.51	6.25 ± 0.33
23–24	5.79 ± 0.49	7.85 ± 0.09	6.68 ± 0.65	7.55 ± 0.23	6.63 ± 0.74	6.70 ± 0.45
25–26	5.88 ± 0.36	8.15 ± 0.14	6.75 ± 0.39	7.70 ± 0.24	7.25 ± 0.66	7.05 ± 0.25
27–28	6.86 ± 0.52	8.35 ± 0.74	7.57 ± 0.53	7.85 ± 0.53	7.71 ± 0.62	7.74 ± 0.63

Note: ChR — Chernivtsy region, Kh — Kharkiv (E. A. Yakovenko, 1994), UK — United Kingdom (R. Snijders, 1994)

Table 2. – Normative values of brain structures measured in transcerebellum plane

Duration of pregnancy (weeks)	ChR	T	ChR	UK	Kh
	Subarachnoid space (mm)		Large tank (mm)		
17–18	7.06 ± 0.62	6.10 ± 0.10	5.39 ± 0.49	4.45 ± 0.31	4.90 ± 0.41
19–20	8.70 ± 1.40	6.50 ± 0.12	5.48 ± 0.53	4.90 ± 0.22	5.53 ± 0.82
21–22	5.76 ± 0.46	6.80 ± 0.13	5.71 ± 1.13	5.55 ± 0.10	6.10 ± 0.51
23–24	9.68 ± 1.22	7.10 ± 0.09	6.26 ± 1.37	5.95 ± 0.23	6.36 ± 0.74
25–26	10.63 ± 1.02	7.15 ± 0.14	7.5 ± 0.38	6.30 ± 0.24	6.75 ± 0.66
27–28	12.40 ± 1.03	7.25 ± 0.26	7.71 ± 0.62	6.70 ± 0.37	6.85 ± 0.42

Note: ChR — Chernivtsy region, Kh — Kharkiv (E. A. Yakovenko, 1994), T — Tomsk (A. M. Korostisheva, 2010), UK — United Kingdom (R. Snijders, 1994)

As shown in Table 2 regional indicators differ from similar figures in Tomsk and are compared with those in Kharkiv and the United Kingdom.

Conclusion. The results of the study allow us to recommend the use of regional settings of fetometrycal indicators of CSF system to improve the accuracy of diagnosis of hydrocephalus in Chernivtsy region.

Using of single regional fetometrycal parameters is a prerequisite for standardization of results of ultrasound monitoring of fetal development during 4–10 months.

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Refractometric value and echobiometric researches in progressive myopia

Abstract: we observed 507 patients (1002 eyes) with various degrees of progressive myopia. Echobiometric studies were supplemented by tonographic methods. The integrated study revealed discrepancy of clinical refraction and the size of the eyeball in 30 % of the patients. 42.4 % of the patients had clinical signs of juvenile glaucoma. Clinical manifestations of juvenile glaucoma with progressive myopia require detailed study of pathology and selection of medical therapy.

Keywords: juvenile glaucoma, progressing myopia.

The study of myopia pathogenesis, working out the methods of prevention of its progressing is still one of actual problems of the modern ophthalmology. According to the modern data the leading place in children and teenager's morbidity is taken by refraction abnormalities (33–75 % of detected pathologies); among the refraction abnormalities about 80 % is myopia [10]. Besides that, myopia is one of the main reasons in the nosologic structure of invalidity of vision, taking the third place in the structure of invalidity of vision and the second place in the structure of pediatric invalidity [8].

According to various authors, the spread of myopic refraction in patients with glaucoma varies from 6 to 34 % [5, 11]. It is notable, that the risk of glaucoma appearance increases with intensification of refraction from hyper metropia to myopia high degree [1, 7].

Juvenile glaucoma as one of clinical types of congenital glaucoma and its pathogenesis is conditioned by congenital defects of UPK or drainage system of the eye in the period of embryonic development. In spite of the relatively low frequency of morbidity among other eye pathologies in children (0.1 %) in the structure of blindness the congenital glaucoma is a factor of invalidity in 2.5–7 % cases.

Clinical aspects of progressing myopia and congenital glaucoma are presented in literature detail enough [9]. The unit — weakened sclera, hydro dynamic disorders, internal eye pressure — one of the basic segments in the mechanism of myopia development [6]. But the complexity of early diagnosis of glaucoma with myopia is conditioned, as a rule, by decreased ophthalmic tension in case of myopia [3].

Studying the literature dedicated to glaucoma in people with progressing high degree myopia, we were confirmed that polymorphism of anatomical-physiologic alterations, absence of differential-diagnostic criteria and serious prognosis of glaucoma with progressing myopia are not described clearly [4].

The aim of the research: is to detect clinical importance of refraction metering and echobiometric studies of progressing myopia for improvement of the efficiency of the existing diagnostic and therapeutic methods.

The materials and methods. We performed examination of 507 patients (1002 eyes) with various degrees of progressing myopia. The age of the patients was from 15 to 32 (24.8 ± 3.5 years), among them 155 men and 352 girls. There were 135 patients with light degree myopia (266 eyes), among them 36 (70 eyes) with astigmatism component; 264 with mild degree myopia (522 eyes) — 148 patients with astigmatism (293 eyes) and 108 patients with high degree (214 eyes), among which 85 (169 eyes) with astigmatism.

Some of thesepatient were supervised before by oculist-doctors in their residence districts with various degrees of myopia and they received ambulatory treatment several times.

We performed the checking of the patients using traditional ophthalmologic methods (visometering, tonometering, tonography, static and kinetic perimetering, biomicroscopy, gonioscopy with the help of three-mirror Goldman's gonioscope). Clinical refraction was detected with the help of Huvitz 3100 refractometer (South Korea). The examination of optic nerve disk was performed with the help of direct ophthalmoscopy and estimation of its parameters according