Ophthalmic research methods in traditional medicine. Publication 1. Diagnostic value of the correlation of gray color of the optic nerves in children the first half of life and the course of pregnancy and childbirth (ophthalmoscopic examination)

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Ophthalmological methods of research in traditional medicine

PART 1: DIAGNOSTIC VALUE OF CORRELATION BETWEEN GRAY COLOR OF THE OPTIC NERVES IN CHILDREN OF FIRST SIX MONTHS OF LIFE AND PECULIARITIES OF PREGNANCY AND BIRTH

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SUMMARY

The gray shade of the color of the optic discs in children during the first three months of life in most pediatric ophthalmology manuals was considered as a transient evidence of the “immaturity” of the nervous tissue, therefore it is interpreted as a variant of the norm. Comparison of the ophthalmoscopic picture of the fundus with an analysis of the course of pregnancy and childbirth, as well as the conclusions of neurologists, made it possible to establish that gray discs are a sign of hemodynamic and ischemic disorders of both the brain and the cervical spinal cord as a result of a pathological course of pregnancy or birth trauma.

Key words: gray coloration of the optic discs, children, first three months of life, diagnostic criterion, pathological course of pregnancy and childbirth, ante- or intranatal neurological disorders, ischemic injury, birth trauma.

RESUME

Gray tint of coloring of the discs of optic nerves in children during the first three months of life, in most of the guidances child ophthalmologic was considered as transient evidence of "immaturity" of the nervous tissue. Therefore's interpreted as a normal variant. Comparison of ophthalmoscope picture of the fundus with the analysis of pregnancy and childbirth, as well as the opinions of neurologists, has allowed to establish that the gray disks are a symptom of trauma, hemodynamic disturbances and ischemic damage both brain and cervical spinal cord as a result of pathological flow of pregnancy or birth injury.

Keywords: gray disks of optic nerves, first three months of life, diagnostic criteria, pathological course of pregnancy and delivery, ante- or intrapartum-related neurological disorders, ischemic damage, birth injury.

RELEVANCE

Growth frequencies perinatal pathology leading to To violation how neuropsychological development, and the health of children in general, requires the search for criteria for the earliest possible detection of ante or intranatal neurological disorders. Cerebral hemodynamic disorders and lesions in the area of the cervical spine in the first month of life may have a minimal degree of severity and a delay in the appearance of clinical signs. This is explained not only by the mosaic maturation of individual brain structures, but also by the delay in neuroontogenesis with a violation of the course of plastic structural rearrangements at all levels. First of all, this applies to children in whom the antenatal period proceeded against the background of chronic hypoxia [1]. Therefore, a timely diagnosis and timely complex treatment can allow

prevent possible long-term neurological damage.

Purpose: to study the nature of changes in the optic discs in children of the first months life and track their dynamics during the first six months of life, analyze the nature of the course of pregnancy and childbirth in their mothers, the conclusions of neurologist consultations and the results of neurosonography. To reveal the correlative relationship between the picture of the visual discs in children, their neurological status and the characteristics of the course of pregnancy and childbirth in their mothers.

MATERIALS AND METHODS

In accordance with the order of the Ministry of Health of Russia dated December 21, 2012 No. 1346n “On the Procedure for Underage Medical Examinations, including upon admission to educational institutions and during the period of study in them” [2], except for the examination of an oculist aged one year, a mandatory examination of a child at the age of one month has also been introduced.

RESULTS OF THE STUDY AND THEIR DISCUSSION

With the accumulation of statistics of such examinations in the study of the fundus of newborns, attention was drawn to the high frequency (in almost a third of the examined children) of the detection of gray discs and a wide ring of gray edging around them (Table 1). As a rule, upon re-examination after 3-6 months, a noticeable regression of the identified manifestations was noted - in 97% of children, the pink color of the discs was restored, in 99% of cases, the gray edging around them disappeared.

Table 1

Infant checkups

	Initial inspection (1–2 months of life)	Re-inspection (after 3-6 months)
Total examined children under the age of 3 months	287	255
Gray coloration of discs revealed	89 (31.0%)	6 (2.3%)
Gray edging of discs with gray coloration of discs revealed	74 (25.7%)	3 (1.1%)
Gray edging of discs with pink coloration of discs revealed	17 (5.9%)	2 (0.7%)
Disc edema detected	6 (2.09%)	0

It is believed that the grayish color of the optic nerve head is a variant of the normal picture of the fundus in young children and reflects the immaturity of the eye tissues. It is treated as a transient condition that has no diagnostic value, since it disappears in almost 100% of cases within a few months.

In order to identify patterns in the manifestation of such a sign, an analysis was made of the state of health of children, as well as the characteristics of the course of pregnancy and childbirth in their mothers. To do this, since 2013, children with a gray color of the discs or a wide gray edging of the discs with a preserved pink color, disc edema are registered and re-examined after three and six months. In a specially established journal, all the features of the course of pregnancy and childbirth are indicated, including the duration of the anhydrous period, birth weight, Apgar data, the conclusion of a neurologist and neurosonography data.

At the same time, it was found that during the normal course of pregnancy and childbirth, gray discs were found only in 7.9% of cases, while in the pathological course

pregnancy and childbirth - in 70.7% of the examined children (Table 2).

table 2

Disk status dependency

on the characteristics of the course of pregnancy, childbirth and the postpartum period

	Primary inspection	Inspection after 3–6 months
Pathological course of pregnancy and childbirth	113	
Gray discs against the background of the pathological course of pregnancy and childbirth in the mother (FPI, intrauterine hypoxia, preeclampsia, threatened miscarriage, long anhydrous period, rapid labor, tight entanglement of the umbilical cord, prolonged labor, caesarean section)	80 (70.7%)	6 (5.3%)
Gray discs against the background of the normal course of pregnancy and childbirth	9 (7.9%)	0
Apgar below 8/9 in children with gray discs	29 (25.6%)	-
Neurological pathology detected in children with gray discs or gray disc edging, in the hospital or in the first three months of life (cerebral ischemia II III degree, intraventricular hemorrhages, muscular dystonia syndrome, hypertensive-hydrocephalic syndrome, ischemic-hypoxic encephalopathy)	43 (38%)	6 (5.3%)

Interestingly, in 9 cases, when gray discs were detected in a child, and according to the documents, the course of pregnancy and childbirth was smooth, a detailed survey made it possible to identify deviations in the course of childbirth in all cases. In three cases, childbirth was fast (during the first pregnancy, labor was 2.5 and 4.5 hours), in two cases, the anhydrous period was 9 and 12 hours, in one case, labor (second) lasted more than 14 hours, in three cases, the weight of the fetus exceeded 4300 g.

A high percentage of the presence of gray discs was noted in children after caesarean section - 18%, which is probably due to the insufficiency of the transverse incision of the uterus, which should correspond to the largest diameter of the head. The resulting circumference is 24-26 cm, while the circumference of the fetal shoulder girdle is 35 cm. Insufficient incision can lead to trauma to the cervical spine of the fetus during its extraction.

The high correlation of the detected gray discs with gray edging with various neurological pathologies (cerebral ischemia II III degree, intraventricular hemorrhages, ischemic-hypoxic encephalopathy, the consequences of perinatal CNS damage, muscular dystonia syndrome, hypertensive hydrocephalic syndrome) also attracted attention. Gray discs were detected in 38% of these children.

This is consistent with the dynamics of the picture of neurosonography. According to the results of NSG, 56 children with gray discs in the first month of life were found to have vascular plexus cysts, subepindemic cysts, signs of increased intracranial pressure, and ischemic changes in brain structures. In particular, subependymal and vascular cysts were found in 8 children, which resolved by 5–6 months. The reasons for their development may be

both hypoxic-ischemic antenatal damage to the central nervous system of the fetus, and damage to the germinal matrix against the background of infection with cytomegalovirus and herpesvirus infection [3]. Therefore, there is a need for an immunological examination and, possibly, appropriate therapy, both vascular and antiviral. At the age of 3 months, during neurosonography, pathology was detected in 13 out of 21 examined children, after 6 months - 0 out of 9 examined.

Observation of children suggested that such a picture is not a variant of the norm of the fundus in young children. Most likely, it indicates the presence of ischemia of the nervous tissue that occurred in the neonatal period (fetoplacental insufficiency, chronic intrauterine hypoxia, preeclampsia, anemia) or during childbirth (intrauterine asphyxia, prolonged anhydrous period, rapid labor, caesarean section), which is consistent with the work of Dubilei O.V. [4], who studied the condition of the fundus of newborns with birth injuries.

According to the results of the study by Ratner A.Yu. [5], antenatal or intranatal neurological disorders most often occur in the cervical spine (especially in the C4C7 zone) and are accompanied by damage to the vertebral arteries and ischemia of the segments of the cervical thickening, the brain stem, and the formation of intrathecal spinal hemorrhages. At the same time, with an insignificant degree of severity, such injuries practically do not manifest themselves clinically and, as a result, are not diagnosed. But the gray color of the discs in such cases may be the only sign of injury. This will allow you not to miss the time when you can still change something, and prescribe adequate treatment. Moreover, according to the data of various authors, almost 70% of the delay in the mental development of children is due precisely to the presence of a non-rough organic insufficiency of the nervous system of a residual nature [6].

The short period of observation of children does not yet allow us to make long-term predictions on the state of the visual analyzer and the nervous system, but we will continue our observations. The plan is to control the refraction, the position of the eyes and the vision of such children, the development of children, tracking the conclusions of a neurologist.

CONCLUSION

Thus, the detection in a child of the first months of life of gray discs and/or gray edging around them requires a thorough analysis of the course of pregnancy and childbirth, mandatory neurosonography and an in-depth examination by a neurologist; conducting immunological examination and vascular, neurotrophic treatment according to indications. Such a picture is proposed to be interpreted as one of the diagnostic criteria for the detection of ante or intranatal neurological disorders, which, due to minimal clinical severity, may pass by the doctor's attention.

CONCLUSIONS:

1. Gray coloration of the optic discs of a child during the first three months of life can be be regarded as a criterion for identifying ante and intranatal neurological disorders.
2. Detection of the described characteristic picture of the fundus requires control neurologist for the state of health of the child in the first six months of life.

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