

ційно здатних сполук. Епіхлоргідрин – це мономер епоксидів та найтоксичніша складова, що постійно присутня як вихідний продукт для синтезу у вигляді незаполімеризованих залишків у готовій продукції.

Однією з життєво важливих систем органів є шлунково-кишковий тракт (ШКТ), тому вплив на нього епіхлоргідрину є актуальним питанням, яке потребує вивчення. Особливу увагу слід приділити морфофункціональним змінам різних відділів шлунку, а також вибору препаратів – коректорів, які змінюють вплив епіхлоргідрину на ШКТ. З цієї метою були обрані тіатриазолін та екстракт ехінацеї пурпурної.

Тіатриазолін підвищує компенсаторну активність анаеробного гліколізу, зменшує пригні-

чення процесів окислення в циклі Кребса зі збереженням резервів АТФ.

Екстракт ехінацеї пурпурної є імуномодуючим (впливає на процес фагоцитозу, функціонування клітин-кілерів та лімфоцитів), антиоксидантним, протизапальним препаратом, має протівірусну та антибактеріальну властивості.

В ході наших досліджень експериментальним шляхом було доведено, що епіхлоргідрин пригнічує протеолітичну активність шлункового соку, його секрецію (зменшення об'єму), впливає на електролітний склад, та в меншій мірі на рН шлункового соку.

Введення екстракту ехінацеї пурпурної (обраний коректор) зменшує вплив епіхлоргідрину на вище перелічені показники.

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## PARTICULARITIES OF OLIGODENDROCYTES OF THE CEREBRUM AT THE MAN

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The known that glial of the hutch there are in all division of the central nervous system [2, 8, 10]. Gliya executes the row main function - supporting, reparativ, fagocitosis. The offshoot gliya insulate the bodies a neuron and their dendrites, preventing hereunder influence upon them other nervous structures. As a whole without нейроглии neurons can not exist and function [4, 9]. The definite sign present in this connection study morphometric parameter oligodendrocytes.

**Aim of the research** - study the age particularities of the height and width oligodendrocytes layer III<sup>1</sup>2<sup>3</sup> and V1<sup>2</sup> cortexes of the field 10 frontal shares of the cerebrum beside person.

**The material and methods.** The material of the study were 72 preparations left and right hemispheres cerebrum beside person, as from fruit 10 moon months and from birth before 90 years. Kriteriyami selection of the material were an absence of the traumas and some brain organic processes. The material of the studies were split into groups age period's person, offered APN USSR (1965). The methods of the study were anatomical preparation, fixation piece of brain on S.B.Dzugaeva (3), neurogistological method (coloring by Nissl), cytometry on G.G.Avtandilov (1), variation-statistical processing on B.A.Nikituk (6).

**The results of the study** have shown that height oligodendrocytes (HOD) layer III<sup>1</sup> both hemisphere beside children 1-6 months, in contrast with fruit 10 moon months increases in 1,1 times (on the right - from 10,25±0,25 and before 11,35±0,25, on the left - from 10,1±0,22 before 11,25±0,21 micrometers) and these factors are saved

before the end young age (the tables 1 and 2), but at juvenile age decrease (accordingly: before 10,3±0,25 and before 10,9±0,27 mcm). In 1 mature age of HOD in both hemisphere newly increase (before 11,3±0,2 mcm), then gradually decrease and become the minimum age in old (on the right - 9,3±0,28, on the left - 9,65±0,17 mcm).

In layer III<sup>2</sup> in both hemisphere of HOD, commencing beside fruit 10 moon months before 1-6 months to life's, intensive increases moreover in right hemisphere she reaches its maximum importance (on the right - from 10,2±0,22 before 11,45±0,26, on the left - from 10,45±0,21 before 11,25±0,21 mcm).

At age 7-12 months to life's of HOD of the left hemisphere decreases before 10,85±0,29 mcm, then, increases by degrees, reaches its maximum in young age (11,3±0,26 mcm), in the following newly decreasing, becomes minimum by the end of elderly age (tab.1). In right hemisphere HOD 6-month child nearly does not change before the end young age, but as from 17 years gradually decreasing, reaches its minimum in old age (9,9±0,21 mcm).

In layer III<sup>3</sup> cortexes field 10 right hemispheres of the cerebrum beside children of the first months to life's of HOD intensive increases (from 10,55±0,16 before 11,4±0,18 mcm), this factor beside children 7-12 months to life's and 1-3 years decreases, then newly increasing, reaches its maximum by the end of young of the age (11,50±0,22 mcm), at the following age, decreasing, minimum becomes in old age (10,0±0,18 mcm).

The studies have shown that HOD in layer III<sup>3</sup> cortexes of the field 10 left hemispheres, commencing beside fruit 10 moon months before the end of the breast age, intensive increases (with

10,35±0,18 before 11,15±0,24 mcm), but to 7 increasing, to 30 reach its maximum (11,3±0,24 decreases (10,9±0,24 mcm). As from 8 years, mcm), but at the following age decrease (tab.l).

**Table 1.** Age change morphometric parameter oligodendrocytes right hemisphere cortex of area 10 frontal shares of the cerebrum at the man (x±m, min-max, in micrometers)

Age	Layer Par-r	III			V	
		I	II	III	I	II
Field	H	10,25±0,2	10,2±0,2	10,55±0,16	10,45±0,22	10,1±0,22
	W	9,4±0,18	9,05±0,17	9,6±0,16	9,65±0,15	9,5±0,26
Birth	H	10,95±0,2**	10,55±0,2**	10,8±0,24**	10,85±0,2**	10,95±0,2**
	W	9,6±0,15*	9,7±0,17**	9,6±0,16**	9,65±0,15**	9,5±0,19**
1-6 months	H	11,35±0,2**	11,45±0,2**	11,4±0,18**	11,15±0,23**	11,1±0,23**
	W	9,85±0,2*	9,85±0,22**	9,95±0,2**	10,2±0,16**	10,15±0,1**
7-12 mon	H	11,35±0,3	11,2±0,24*	11,2±0,27	11,4±0,25*	11,2±0,2*
	W	10,35±0,2**	10,6±0,19**	10,35±0,22	10,6±0,19**	10,65±0,2**
1-3 year•w	H	11,1±0,3	11,15±0,2	11,25±0,28	11,35±0,24	11,1±0,2
	W	10,6±0,2**	10,9±0,21	10,95±0,23**	10,85±0,19	10,85±0,2*
4-7 year	H	11,3±0,24	11,2±0,23	11,2±0,2	11,1±0,2	11,2±0,22
	W	11,3±0,22**	11,05±0,2**	11,25±0,25**	11,05±0,25*	11,35±0,2**
8-12 year	H	11,25±0,2	11,45±0,2	11,25±0,24	11,25±0,24	11,4±0,18
	W	11,2±0,3	11,1±0,3	11,2±0,3	11,0±0,3	11,3±0,4
13-16 year	H	11,3±0,24	11,45±0,2	11,5±0,22	11,35±0,25	11,3±0,21
	W	11,05±0,2	11,1±0,16**	11,05±0,22	10,85±0,2	10,95±0,2
17-21 year	H	11,25±0,2	11,1±0,27	11,15±0,22	11,25±0,2	11,15±0,2
	W	11,05±0,2	11,1±0,26	11,3±0,3*	11,15±0,24	11,35±0,2
22-35 year	H	11,3±0,3	11,1±0,22	11,15±0,3	11,55±0,21*	11,45±0,2
	W	11,2±0,21*	11,6±0,16	11,4±0,2	11,1±0,28	11,4±0,25
61-74 year	H	10,65±0,1**	10,9±0,2*	10,6±0,18**	11,0±0,2*	10,8±0,16*
	W	11,0±0,27	10,7±0,27**	10,65±0,24**	11,6±0,35	10,7±0,33*
After 75 year	H	10,5±0,2**	10,35±0,2**	10,35±0,18*	10,5±0,25*	10,45±0,2*
	W	11,0±0,26	10,55±0,2	10,7±0,24	11,0±0,28	10,7±0,21

**Note:** H - height, W – width. \*\* - P<0,01; \* - P<0,05; without star - P<0,05

**Table 2.** Age change morphometric parameters oligodendrocytes right hemisphere cortex of area 10 frontal shares of the cerebrum at the man (x±m, min-max, in micrometers)

Age	Layer Par-r	III			V	
		I	II	III	I	II
Field	H	10,1±0,22	10,45±0,21	10,35±0,18	10,40±0,22	10,4±0,20
	W	9,3±0,18	9,25±0,16	9,5±0,12	8,7±0,24	8,95±0,2
Birth	H	11,05±0,26	10,8±0,26	11,05±0,24	10,85±0,19	10,8±0,21
	W	9,5±0,18*	9,65±0,19**	9,9±0,22**	8,7±0,2	9,4±0,16**
1-6 mon	H	11,25±0,21	11,25±0,21	11,15±0,21	11,4±0,37	10,9±0,27
	W	10,0±0,18**	9,85±0,17	10,0±0,16	9,8±0,21**	9,7±0,12**
7-12 mon	H	11,1±0,25	11,35±0,29	11,15±0,24	11,0±0,28	11,0±0,25
	W	10,35±0,24**	10,4±0,27**	10,4±0,21**	10,25±0,24**	10,25±0,2**
1-3 year	H	11,15±0,27	11,25±0,25	11,0±0,26	10,85±0,27	10,85±0,3
	W	10,95±0,19*	10,7±0,18**	10,8±0,2	10,55±0,21**	10,8±0,21**
4-7 year	H	11,25±0,26	11,0±0,24	10,9±0,24	11,0±0,25	11,2±0,2
	W	11,15±0,19	11,15±0,21**	10,9±0,19	10,65±0,21	10,9±0,22
8-12 year	H	11,2±0,26	11,15±0,26	11,1±0,22	10,85±0,29	10,8±0,19
	W	11,15±0,19	11,15±0,21	10,9±0,19	10,65±0,21	10,9±0,22
13-16 year	H	11,15±0,26	11,13±0,26	11,15±0,22	10,78±0,29	10,73±0,2
	W	11,1 ±0,23	11,05±0,23	11,05±0,27	10,9±0,18	11,15±0,2
17-21 year	H	10,9±0,27	10,7±0,29	11,15±0,22	11,05±0,22	10,9±0,24
	W	11,0±0,24	10,95±0,19	10,9±0,22	10,8±0,18	11,2±0,19
22-35 year	H	11,3±0,24	11,3±0,24	11,30±0,21	11,45±0,25	11,35±0,2
	W	11,15±0,21	11,1±0,24	11,2±0,25*	10,85±0,24	11,1±0,25
61-74 year	H	9,3±0,28	9,5±0,26	10,0±0,25	10,2±0,3	10,4±0,1
	W	11,15±0,21	11,0±0,25	11,05±0,22	10,65±0,24	10,9±0,18
After 75 year	H	10,4±0,23	10,75±0,21	10,95±0,26	10,7±0,28	11,0±0,23
	W	10,95±0,22 *	10,65±0,21**	11,05±0,28	10,6±0,26	10,9±0,23

H - height, W – width. \*\* - P<0,01; \* - P<0,05; without star-P<0,05

The got data has shown that HOD layer V1 commencing from fruit 10 moon months before the end of the breast age intensive increase (on the cortexes of the field 10 both hemispheres,

right - from  $10,45 \pm 0,25$  before  $11,40 \pm 0,25$  mcm, on the left - from  $10,40 \pm 0,22$  before  $11,0 \pm 0,28$  mcm), but to 1-3 newly decrease. As from 4 years of HOD increases by degrees, reaches its maximum to 1 mature age (on the right -  $11,55 \pm 0,25$ , on the left -  $11,45 \pm 0,21$  mcm), but in old age HOD in both hemisphere decrease before minimum factors (tab. 1, 2).

HOD layer V2 cortexes of the field 10 both hemispheres, as from fruit 10 moon months before the end of the breast age, increase (on the right - from  $10,1 \pm 0,20$  before  $11,2 \pm 0,22$ , on the left - from  $10,4 \pm 0,20$  before  $11,05 \pm 0,25$  mcm), at the following age of the factors decrease (tab. 1,2), but at the first mature age increase before maximum values (on the left -  $11,35 \pm 0,24$  and on the right -  $11,45 \pm 0,2$  mcm), in old and senile age of HOD newly decrease.

The results of the study have shown that width oligodendrocytes (WOD) in layer III1 in both hemisphere, commencing from fruit 10 moon months before the end first childhood, intensive increase and reach its maximum (on the right - from  $9,4 \pm 0,18$  before  $11,3 \pm 0,22$ , on the left - from  $9,3 \pm 0,18$  before  $11,15 \pm 0,19$  mcm), but at the following age WOD decreases (tab.1,2). In layers III2'3 right hemispheres beside children 4-7 years, in contrast with fruit 10 moon months, WOD is increased in 1,2 times (III2 - from  $9,05 \pm 0,21$  before  $11,05 \pm 0,25$ , III3 - from  $9,35 \pm 0,17$  before  $11,25 \pm 0,25$  mcm). At the following age WOD little changes, but in 1 mature age, increasing, reaches its maximum (III2 -  $11,6 \pm 0,16$ , III3 -  $11,40 \pm 0,2$  mcm), at the following age WOD decrease. In lion hemisphere WOD, commencing beside fruit 10 moon months, intensive increases in подслое III2 before 7 years, reaching its pica (from  $9,25 \pm 0,16$  before  $11,15 \pm 0,21$  mcm), in layer III3 - before the end young age (from  $9,5 \pm 0,12$  before  $11,05 \pm 0,27$  mcm). At juvenile age of the factors WOD decrease, but in 1 mature age newly intensive grow moreover in layer III3 is defined maximum (III2 - from  $10,95 \pm 0,19$  before  $11,10 \pm 0,24$ , III3 - from  $10,90 \pm 0,2$  before  $11,20 \pm 0,25$  mcm), in the following WOD decrease.

In layers V1'2 cortexes of the field 10 right hemispheres, commencing from fruit 10 moon months before the end first childhood, WOD intensive increases (V1 - from  $9,10 \pm 0,22$  before  $11,05 \pm 0,25$ , V2 - from  $9,05 \pm 0,26$  before  $11,35 \pm 0,22$  mcm), then before the end young age is abbreviated. Since 17 years, commencing increase,

WOD in layer V1 reaches its maximum by the end of juvenile age, but in V2 - in 1 mature age (V1 -  $11,25 \pm 0,24$ , V2 -  $11,40 \pm 0,25$  mcm), but in old age - decrease.

In layers V1'2 cortexes of the field 10 left hemispheres WOD intensive increases before the end early childhood (V1 - from  $8,70 \pm 0,24$  before  $10,75 \pm 0,21$ , V2 - from  $8,95 \pm 0,2$  before  $10,80 \pm 0,21$  mcm), gradually growing, in young age reach its maximum (V1 -  $10,90 \pm 0,18$ , V2 -  $11,15 \pm 0,23$  mcm), but at the following age decrease.

**Discussion.** Above specified intensive growing morphometric parameter oligodendrocytes on layer III and V cortexes of the field 10 in current first poles months to life's, probably, are connected with change angioarhitectonic brain. So, as of F.H.Nizamova (1996), Kimelberg H.K. (1984) beside children length container of the cerebrum increases for the first year of the life's, in the first place increase of her(its) diameter, vastly increases the area of the cross-section of the container (7).

The specified involutes of the change to morfometric parameter in old and senile age, on statement of these authors are connected with reduction of the quantitative factors of the capillary riverbed and reduction of the volume shelters in container of the brain.

**Resume:** 1. In postnatal ontogenesis height oligodendrocytes in layers III1'2 in both hemisphere reach its maximum to 6 months to life's, in III3 - in right hemisphere to 16, in lion - to 35, in V1'2 - to 35.

2. For studied period of the life's width oligodendrocytes in layers III1'2'3 in both hemisphere reach its maximum importance to 7, in V1 - in both hemisphere - to 21 and in V2 - to 16.

3. The intensive growing of the height oligodendrocytes exists in all studied layer at period birth and in the first half-year; but widths: in layer III1 in both hemisphere, in III2 in lion and III3 in right - at period birth, breast, early and the first childhood, in layer V1 in right hemisphere - from birth before 3 years, in layer V2 right hemisphere - for the first year and in the first childhood, in layer III2 in right and III3 in lion hemisphere - at period birth, in second half-year and infancies, in layers V1 in lion hemisphere - in the first, second half-year and infancies, but in V2 - from birth before the end 3 years.

4. The growing morphometric parameter (the height and width) oligodendrocytes cortexes (the field 10) of the frontal share of the brain of the person after birth occur not simultaneously and with different intensity.

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## CHANGES GLIOARCHITECTONIC BARC OF HUMAN BRAIN Sodikova D.I.

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The studies of the structured change central nervous system astrocytes beside person in age aspect interested the many scientist (2, 7). However, up to the last time questions structured change glia on layer of the cortex field 44 frontal shares of the brain in postnatal ontogenesis little lit in literature.

**Aim of the research** - study the age structured transformations an astrocytes on layer of the cortex of the field 44 of the frontal share of the brain beside person.

**The material and methods.** The material of the study were 72 preparations left and right hemispheres cerebrum beside person, as from fruit 10 moon months and from birth before 90 years. The methods of the study were: anatomical preparation, fixation brain on S.B. Dzugaeva (1975), neurogisticalogical metod (coloring by Nissl), cytometry on G.G.Avtandilov (1990), statistical processing on B.A.Nikityuk (1985).

**The research** have shown that beside fruit 10 moon months and newborn in I-II layer of the cortex field 44 neurons little are differentiated, layer not wide, but clear. Exist small astrocytes with round kernel of the dark colour. Astrocity have a different forms - oval, round. On some area drawing astrocytes are situated single and around body neuron, such picture and III-IV layer. In V layer neuron - a clear location different astrocytes. At the same time, there are astrocytes, which lies in disorder and strewn, are seen some astrocytes with dark round kernel. Follows to note that beside fruit 10 moon months, at period birth, breast age and infancies in all layer of the cortex of the field 44 are noted astrocytes.

Us are noticed that in breast age, in contrast with period, astrocytes more differentiating and have a round, oval and starry forms, are situated single and group (on 3-4 astrocyti).

The amounts astrocytes in III-VI layer of the cortex of the field 44 in lion hemisphere, in contrast with breast age, increase, but in right - in all layer without essential change nearly.

In I, II layer of the cortex of the field 44 in infancies are noted protoplazmatic astrocytes, the forms round and oval. In III, IV layer basically protoplazmatic astrocytes, herewith they adjoin to

wall of the blood vessels. Alongside with these neuron big amount astrocytes and oligodendrocytes with dark colour kernel. The forms astrocytes in V-VI layer has basically rounded, starry. Astrocity are situated single and group, citoplazma astrocytes more light, kernel of the dark colour.

In second childhood glioarchitectonic layers cortexes field 44 frontal shares of the cerebrum beside person greatly does not differ from period first childhood.

In young and juvenile age I and II layer of the cortex field 44 are characterized presence maximal astrocytes, the forms astrocytes - has rounded-starry and oval-extended, painted, different amount and are in disorder located. In III-IV layer astrocytes are saved up in free zone, single, the forms - round, oval, kernel of the dark colour. In V-VI layer of the cortex field 44 glioarchitectonic, as in previous age period.

In the first and second mature age glioarchitectonical picture on layer of the cortex field 44 frontal shares of the cerebrum beside person greatly does not differ from juvenile age. However in III and V layer exist large astrocytes, neurons are located beside in disorder, strewn with dark round kernel. Us are noted that in III-IV-V layer of the cortex field 44 concentrations astrocytes near walls of the blood vessels.

In old age in all layer of the cortex field 44 in both hemisphere of minimal hatches increases else more, than in second mature age, in I particularly, II, V, VI layer. Herewith astrocytes, are basically located around neuron, in some area strewn in disorder.

At senile age in all layer of the cortex field 44 in both hemisphere of minimal hatches increases else more, than in old age, in I layer particularly. Herewith III, V layer in both hemisphere in studied field increase small and average astrocytes.

**Discussion.** Us are revealed that development astrocytes cortexes field 44 begins early, but ends late. This fact will with utterance E.P.Kononova (1965) that more new forming the cortex has a long period of the development, than formation filogenetic old.

As to the forms astrocytes then there are