scattered in the interior of the cerebellar nuclei between the large cells. Dendrites and axons of these cells are coloured light brown, they are short and branch near the dendrites of large neurons. The axons of the cells are covered by myelin in grey matter of the dentate nucleus and give collaterals, branching near the glial cells. The myelin sheathes of nerve fibers are colored in dark-black color and are good visible, making possible to trace the route and direction of a single nerve fiber. Muscular tissue is coloured rich red-brown, which contributes to the high differentiation of the vascular bed. The coats of blood vessels are differentiated by color, red blood cells take dark brown sometimes black colour. Connective tissue is coloured from pink to bright red. The nerve fibres devoid of myelin are coloured brown in the interior of the cerebellar nuclei and on the walls of the capillary bed. A microscopic study of the sections of the dentate nucleus shows an rich network of capillaries and different correlations of the nerve cell and the capillaries.

Comparative analysis of different histological methods of the colouring of the cerebellar nuclei to study their structural organization showed the expediency of the using histological method "Method of study of nerve fibers in the neurovascular bundles of different tissue structures" (Patent number 65245 from 25.11.2011g.).

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COMPARATIVE CHARACTERISTIC OF MYELINIZATION INDICATORS OF PERIARTERIAL OVARIAN NERVES DURING THE LATE STAGES OF ONTOGENESIS

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Age-related dynamics of myelinizated plexuses in nerves characterizes development of vegetative nerves in the whole and, in particular, ovarian nerves. Significant number of papers, concerning myeloarchitectonics investigation of both visceral and somatic nerves has been published [1–3]. Under comparison of these two investigations results , it should be noted, that along with similarity of myelinizated plexuses textures of these two nervous system divisions, there are essential differences [4, 5]. There are not numerous data concerning age-related changes of myelinizated textures of the ovarian nerves. Studying, and also comparative characteristic of myelin component of the periarterial ovarian nerves within different age-related groups and during all postnatal ontogenesis period offers new perspectives for prevention and treatment of female reproductive system diseases [6, 7].

The aim of the given investigation is the study and comparison of myeloarchitectonics of ovarian nerves of the mature, middle and old age women.

Material and methods. The investigation has been carried out on the 112 neurovascular complexes of the ovaries of the mature, middle and old age women. The material has been taken from the objects without pathology in the region of the pelvis. Histological methods have been used in the work: staining method of myelin textures: Krutsay myelin textures staining method, silver method and own (author's)[8].

The results of investigation. Marked age-related changes of the quantitative indicators of myelinizated textures along with transformation of their qualitative composition have been noticed in the nerves myeloarchitectonics of periarterial plexuses of the ovarian arteries.

The investigation results demonstrate that nervous connections of the ovaries undergo quantitative and qualitative changes with age.

The first stage, which includes embryonic development and postnatal period up to the preadult age is characterized by both total number of all myelinizated textures and the textures number of all separate categories increasing. Previously, within the frames of this period, we managed to observe the asynchronic innervation formation with definite nervous centers. The second stage is characterized by keeping of relatively numerous equilibrium of

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myelinizated textures of all categories; it is connected with fading of specific histotypic processes of neuron differentiation. The third stage is marked with aggravating decreasing in the number of nervous connections – phenomenon known as involution. Thus, nerves which form periarterial textures of the ovarian arteries are not a passive instrument for impulses carrying out, but represent a dynamic structure which has active impact on information process [1].

Functional significance of nerves, which form periarterial textures of the ovarian arteries, changes over a period of a woman's individual development, with derivative laws, nerves in the process of their and, in accordance development undergo certain philogenetic changes. In the period of postnatal ontogenesis the absolute number of the middle-diameter textures increases significantly, and, in most cases, the number of thick textures increases. In middle age women the total number of myelinizated textures is in 3 times less than in newborns, and in 5 times more than in fetuses. Myelinizated small diameter textures serve as a transient link for the development of thick myelinizated conductors. The number increase of differentiated myelinizated conductors of middle and thick diameter is connected with myelin accumulation in lymphocytes in the initial textures forms- in thin myelinizated textures. The absolute number of myelinizated textures of a middle diameter in periarterial nerves in middle and old age women is in 1,3 and in 2 times less, respectively, than in women of mature age (II period), at the same time, the number of the thick myelinizated textures decreases in 1,5 times and 3 times especially quickly. The absolute number of middle diameter myelinizated textures in middle and old age women is in 1,2 and 1,5 times less than in mature age women. Consequently, these textures category in the period of ovarian nervous connections involution turned out to be more resistant, if take into consideration, the change of absolute and relative number of myelinizated textures composition.

The conductor link of the ovaries' innervations represented by periarterial nerves in the ovarian arteries turned out to be unstable in the process of postnatal ontogenesis. The number of myelinizated textures changes, and the number of their definite classes along with absolute number of textures of each group in the sum of all myelinizated conductors changes too. Such age variability of the conductor link structure reflects different qualitative measure of innervations relations of the organ with different nervous centers. The process of staging is characteristic in the tendency of quantitative composition of myelinizated textures: the first stage is characterized by intensive production of myelinizated nervous textures, the final stage is characterized by less intensive decreasing of their number. The decrease of myelinizated textures number is connected with trophic centers degeneralization of the given conductors. According to our mind, the point of view, which explains the reasons of age-related transformations of myelinizated textures transformation is rather reasonable; and also it can be used for the explanation of the given investigation results. Increase or decrease of the myelinizated textures number in the nerves of periarterial nervous plexuses in the ovarian arteries is connected and synchronized with changing of the ovaries functional activity.

Thus, in the process of postnatal development the periarterial nerves in the ovarian arteries, as many other nerves of visceral organs, undergo a series of stages; in the course of these stages their integral nature changes: from the system possessing bigger reliability, bigger reserves and compensatory abilities to the system of less organization capability with limited plastic reserves in fetuses and in middle age women to increasing probability of information distortion [1-5]. This stage is characterized by the presence of highly differentiated textures of larger and middle diameters. In the old age the degree system ordering increases again. This process takes place due to the summary number of myelinizated textures decreasing in periarterial nerves of the ovarian arteries and changing within the definite groups of arteries. The portion of thick and middle diameter conductors reduces sharply, e.g. the system becomes as

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uniform as the system of newborns due to the relative composition of thin textures increasing. Natural denervation, which occurs due to the highly differentiated conductors decreasing, gives to the ovarian connections system the features of degradation.

The total number of myelinizated textures in nerves of periarterial nervous plexuses of ovarian arteries in women (I and II mature age period) on average makes 146,31 - 151,61 and 144,39 - 147,32 of the texture under high variation coefficient; it indicates to the high individual variability of this indicator due to the marked individual variability. It makes 41,8 % of the total number of nervous textures in all periarterial nerves of the ovarian arteries in mature age women. In the spectrum of nervous textures in mature age women, studied in the experiment, nonmyelinizated conductors are prevalent. Among myelinizated conductors 94-95 % have small diameter, 3,5 - 4 – middle diameter, 1,5 - 2 % - big diameter.

In old age women the total number of myelinizated textures decreases to 112, 80 ± 10.51 . The number of myelinizated textures decreases to 98.3 ± 18.1 , middle textures – 5.20 ± 2.11 , thick – $1,10\pm0,05$. Against the background of decreasing of different diameter myelinizated textures, the percentage ratio of thin textures reduces to 3,1 and 1,2 %, respectively. Significant decreasing of myelinizated textures in nerves up to 82 % from the total number of myelin textures in the mature age occurs. At the same time, the percent ratio of a big diameter myelinizated textures decreases up to 1,1%, and the middle diameter textures – 33% and the content of the thin myelinizated textures increases up to 95,6%. In the old age women the total number of myelinizated textures and also the number of thin, middle and thick ones significantly decreases: the total number of myelinizated textures decreases to 92.50 ± 9.33 . The number of thin myelinizated textures decreases to $88,6 \pm 15, 4$, middle textures – $4,70 \pm 1,88$, thick – $0,90 \pm 0,55$.

While summary indicators considering for the Ist and II periods of mature age (the differences between them are not inadequate statistically) in the ovarian nerves, the reduction of the total number of myelinizated conductors of all size groups have been established. At the same time , the content of thin myelinizated textures increases to 93,1 - 93,6 % and the content of middle and thick textures reduces to 4,4 and 1,7 - 2 %, respectively.

In middle and old age women the involutive changes of myelin component in ovarian nerves is expressed in decreasing of all myelinizated textures groups in nerves in comparison with their number in mature age women decreases in almost 20 - 25 %. In middle and old age reliable decrease of the total number of myelinizated textures in nerves has been reported.

The myelin component stabilization stage in periarterial nerves of ovarian arteries comprises the end of the preadult and mature age period. Phenomena of myelin component degeneration in segmentory nerves, expressed in both the total number of myelinizated textures and quantitative indicators of different modality decreasing, which begin to appear distinctly at the end of mature age period (II stage).

Conclusions: Significant reduction of the total number of myelinizated conductors of all size groups occurs in periarterial nerves of ovarian arteries of mature age women (I and II period). At the same time the content of thin myelinizated textures increases up to 93,1 - 93,6 %, and content of middle and thick textures reduces to 4,6 and 1,7 - 2 %, respectively.

In nerves of middle and old age women reliable reduction of the total number of myelinizated textures has been noted. Under decreasing of textures number of all size groups, significant content increase of thin myelinizated textures up to 95,4 - 95,8 % and reduction of middle and thick myelinizated textures to 3,1 - 3,7 and 0,9 - 1,4 % takes place, respectively.

The above mentioned facts give ground to suppose that involutive processes tend to appear earlier in thick myelinizated textures.

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