

[9] develops. Results of complex clinical trials demonstrate that similar changes happen in primary and secondary visual centers of a brain at an amblyopia of different genesis and in person. The method of ultrasonic doppler sonography has revealed the violation of regional hemodynamics of brain which is shown increase in mezhpolutsharny asymmetry and decrease in blood level of cerebral vessels, increase in a vascular tone, difficulty of venous outflow, reduction of speed of a brain blood-groove, increase in the index of resistance. In children with a refractive amblyopia at ametropia of high degree deterioration in blood supply of retina is revealed that is shown by low high-speed indicators of a blood-groove and high indexes of peripheral resistance. Results of ultrasonic Doppler research of children with refractive amblyopia demonstrate change of indicators of blood-groove in vessels, feeding retina. On this basis researchers have assumed a certain role of hemodynamic changes in pathogenesis of amblyopia. According to modern representations, the amblyopia is considered as display of the pathology of the visual analyzer caused disgenesis both touch, and motor links of P-and M-channels of retinocortical communications owing to inadequate visual stimulation during development of various departments of retina of both eyes (foveal, macular, paramacular, peripheral) and their representations within one or both hemispheres of brain. The complex of symptoms of visual functions violations is define by extent of touch and/or motor violations [8].

Despite numerous researches, the problem of amblyopia remains until the end of not studied. Where there is the main pathological link: in the field of bark, in retina or external cranked bodies and what structures are surprised initially at amblyopia? On all these questions concerning thin neurophysiological mechanisms of violation and restoration of visual functions, the modern science still should give the answer.

References

1. Barequet I.S. Laser in situ keratomileusis improves visual acuity in some adults with amblyopia / I.S. Barequet, T. Wynanski-Jaffe, A. Hirsh // J. Refract. Surg. – 2004. – Vol.20. – P. 25-28.
2. Botabekova T. K. Optical coherent tomography in diagnostics of amblyopia / T.K. Botabekova, N.S. Kurgambekova//the Messenger of ophthalmology. - 2005. - Vol. 5. – P. 28-29.
3. Kee S.Y. Thickness of the fovea and retinal nerve fiber layer in amblyopic and normal eyes in children / S.Y., Kee S.Y. Lee, Y.S. Lee // Korean J. Ophthalmol. – 2006. – Vol. 20. - № 3. – P. 177-181.
4. Markosyan G.A. Retina thickness in macular area in children with the congenital and acquired shortsightedness of high degree according to optical coherent tomography / G.A. Markosyan, E.P. Tarutta, M.V. Ryabina//the Russian ophthalmologic magazine. - 2010. - Vol. 3. – P. 21-24.
5. Zislina N.N. A complex electrophysiological research of visual system at children and teenagers with congenital short-sightedness, diseases of retina and optic nerve / N.N. Zislina [etc.]//the Messenger of ophthalmology. – 1996. - Vol. 1. – P. 20-23.
6. Slyshalova N.N. Bioelectric activity of retina at am-

blyopia / N.N. Slyshalova, A.M. Shamshinova//the Messenger of ophthalmology. - 2008. - Vol. 4. – P. 32-39.

7. Ponomarchuk B.C., Terletskaia O.Yu., Slobodyanik S.B. et al. Electrostimulation in ophthalmology. Experience of functional methods of research laboratory of organ of vision//News of medicine and pharmacy, Ophthalmology (363). 2011. (thematic number) / Original researches.

8. Brutsky L.A. Etiopatogenetic mechanisms amblyopia. A. Brutskaya//Messenger of ophthalmology. - 2007. - Vol. 3. – P. 48-51.

9. Von Noorden G.K. Factors involved in the production of amblyopia / G.K. Von Noorden // Br. J. Ophthalmol. - 1974. - Vol.58. - №3. - P. 158-164.

DOI 10.22448/AMJ.2019.2.93-94

THE EFFECTIVENESS OF ACUPUNCTURE IN WOMEN WITH INSUFFICIENT LUTEAL PHASE OF THE MENSTRUAL CYCLE DURING PREGNANCY

Stokoz K.Yu, Lysyak D. S., Bystritskaya T.S.

The Amur state medical Academy, Russia, Blagoveshchensk

ABSTRACT 80 women of reproductive age who planned pregnancy were tested, of which 40 women with primary oligomenorrhea in the puberty and luteal phase insufficiency (LPI) of the menstrual cycle (main group) and 40 women with the correct rhythm of menstruation and full luteal phase (FLP) of the menstrual cycle (control group). The echographic parameters of ovaries before treatment and after acupuncture were research. It is established that after the application of acupuncture in women with ovulatory menstrual cycle and identified LPI of the menstrual cycle found a significant increase in the size of the corpus luteum (19.07 ± 1.21 mm before treatment, 26.21 ± 0.79 mm – after acupuncture). In women with the persistence of the preovulatory follicle in the ovary after the use of acupuncture, a two-phase menstrual cycle was established, the size of the corpus luteum corresponds to normal values (24.80 ± 0.47 mm).

Key words: primary oligomenorrhea, anovulatory menstrual cycle, luteal phase insufficiency, acupuncture.

In women with primary oligomenorrhea in the pubertal period, lutein phase of the menstrual cycle was established as one of the factors of female infertility [1, 2, 3].

In connection with infertility caused by LPI of the menstrual cycle in women with primary oligomenorrhea in the puberty period, the use of acupuncture is pathogenetic method [4, 5].

Research objective Research the effectiveness of acupuncture in women with LPI of the menstrual cycle in planning pregnancy.

Materials and methods The research involved 80 women of reproductive age. 40 women with primary oligomenorrhea in puberty and LPI of the menstrual cycle (main group) and 40 women with the correct rhythm of menstruation and PLF menstrual cycle (control group). In the main group, there were 2 subgroups: 1 subgroup - 32 women with hypofunction of the corpus luteum and 2 subgroup - 8 women

with anovulatory menstrual cycle. When planning a pregnancy, women of the main group had acupuncture. Women of the main and control groups received iodine and folate.

Criteria for inclusion in the study:

1. Women with LPI of menstrual cycle are included in the main group

2. Signing of informed consent for examination and treatment.

Exclusion criteria: obesity, early age of menarche (up to 11 years), endocrine gland disorders, confirmed by clinical and hormonal studies, severe somatic pathology, congenital anomalies and chromosomal disorders, inflammatory and non-inflammatory diseases of the female pelvic organs, taking combined oral contraceptives during the last 6 months before the study.

Echography of the ovaries was carried out in the preovulatory period (11-12 day of the menstrual cycle) and in the flowering stage of the corpus luteum (20-22 day of the menstrual cycle) before the pre-ovulatory preparation (initial) and one month after its implementation. The study was performed by ultrasonic device "Mindray DC-7" with dopplerometric console (Mindray, China).

Statistical data processing was carried out using the package of statistical programs in Microsoft Excel 2010, Statistica 10.0. Differences were estimated as statistically significant at $p < 0.05$.

Results and discussion The average age of women in the main and control groups was 25.42 ± 0.74 and 24.09 ± 0.65 years ($p > 0.05$) and, respectively, was between 22 and 28 years. Menarche age in women of the main group was 12.78 ± 0.25 years, the control group was 12.75 ± 0.18 years ($p > 0.05$). In 1 subgroup, 32 menstruations established the correct rhythm of women, 8 2 subgroups had oligomenorrhea. Female infertility was revealed in 32 (80.0%) women of the main group, in 1 subgroup in 24, in 2 - in 8 women. In the control group, the reproductive function is not impaired. In the initial echography, polycystic ovaries in women of the examined groups were not visualized. The initial size of the preovulatory follicle in women of the main group and subgroup 1 (13.15 ± 1.22 and 14.49 ± 0.67 mm respectively) did not differ significantly from the control group (15.81 ± 0.38 mm). In women with anovulatory menstrual cycle (subgroup 2), the diameter of the preovulatory follicle (11.27 ± 0.88 mm) was significantly less than in the control group ($p < 0.05$) and in 1 subgroup ($p < 0.05$). After the acupuncture in women of the main group and 2 subgroups, a significant increase in the diameter of the preovulatory follicle was established (15.23 ± 0.54 and 14.99 ± 0.46 mm respectively).

In the flowering stage of the corpus luteum in women of the main group and 1 subgroup the size of the corpus luteum (19.07 ± 1.21 and 19.07 ± 1.21 mm respectively) was significantly less than in the control group (26.15 ± 0.64 mm; $p < 0.01$), which was one of the signs of hypofunction of the corpus luteum. In women of subgroup 2, the corpus luteum was not visualized and the persistence of the preovulatory follicle was revealed, the average diameter of which was 19.64 ± 1.35 mm. After the acupuncture all women in the main group and in the subgroups were visualized the corpus luteum. The size of which was 25.35 ± 0.46

mm for main group, 26.21 ± 0.79 mm for subgroup 1 and 24.80 ± 0.47 mm for subgroup 2. This size did not differ significantly from the control group, which is a favorable condition for the onset and development of pregnancy.

Conclusion. After the acupuncture in women with ovulatory menstrual cycle and LPI of the menstrual cycle, a significant increase in the size of the corpus luteum was established. After the course of acupuncture in women with preovulatory follicle persistence in the ovary, a two-phase menstrual cycle was established, the size of the corpus luteum corresponds to normal values, which indicates the effectiveness of acupuncture in planning pregnancy in women with LPI of the menstrual cycle.

Financing The research was supported by a grant of the President of the Russian Federation for state support of young Russian scientists in 2018 (MD-4758.2018.7).

References

1. Buralkin, N. The parameters of ovarian reserve in adolescent girls with violation of menstrual rhythm / Buralkin N. A. Uvarova E. V. // Reproductive health of children and adolescents. - 2013. - Vol. 50, №3. - P. 42.
2. Lysyak, D. S. Reproductive function in women with primary oligomenorrhea in puberty / Lysyak D. S., Bystritskaya T.S., To Stokoz.Yu. // Amur medical journal. - 2016. - №1 (13). - P. 70-73.
3. Age of menarche and time to pregnancy. / Guldbrandsen K. [et al.] // Buzz. Human reproduction. - 2014. - Vol. 29, №9. - P. 2058-2064.
4. The use of transcutaneous electrical acupuncture stimulation in reproductive medicine: a Group consensus. / Li R. [et al.] // Human reproduction. Contraception. - 2016. - Vol. 7, №36. - P. 211-219.
5. The use of electroacupuncture and transcutaneous electrical acupuncture-stimulation in reproductive medicine: the consensus of the group. / Qu F. [et al.] // Journal of Zhejiang University SCIENCE. - 2017. - Vol. 18, №3. - P. 186-193. DOI 10.22448/AMJ.2019.2.94-95

DECELLULARIZATION OF RAT LUNG TISSUES FOR TISSUE ENGINEERING

Yatsenko A.A., Ustinov E.M., Leonov D.V., Kushnarev V.A.

Amur State Medical Academy, Blagoveschensk, Russian Federation

NextGene Biosystem, Blagoveschensk, Russian Federation

Abstract Regenerative medicine is a rapidly developing branch of translational medicine, aimed at the restoration of lost or damaged tissues and entire organs. We studied a method of chemical decellularization of lung tissues to obtain 3D scaffolds suitable for the subsequent cultivation of cells. Our results confirm that the preparation of scaffolds consisting of extracellular matrix requires the decellularization of a tissues of an organ.

Key words: tissue engineering, lung tissue, chemical decellularization.