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Research of Immunological Parameters of Homeostasis at Women after Obstetric Hemorrage

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Abstract: The postnatal period as a final stage of gestational process is characterized by a number of features. A number of systems including and the immune status of the woman in childbirth is exposed to considerable changes in the postnatal period. The immune system is one of integrative systems of an organism which together with nervous and endocrine systems provides maintenance of a homeostasis in the conditions of continuous change of nature of influences of factors of the external and internal environment. If the nervous system provides immediate adaptation to change of conditions and the reply of endocrine system will stretch in time and can last months and years, the immune system provides permanent control of maintenance of an anti-gene homeostasis during all human life.

INTRODUCTION

The condition of immunological reactivity substantially defines a current and an outcome of many diseases. The immune system is the major factor directed on preservation of a homeostasis of an organism at various pathological states including at bleeding. Among various obstetric complications arising in childbirth and the early postnatal period, bleedings continue to occupy one of the leading places[1-3].

Frequency of bleedings in afterbirth and early postnatal the periods fluctuates from 2.5-8%[3]. Bleedings in the early postnatal period are observed in 2.2% of cases at primipara women bleedings develop in 0.3% of supervision at the multigiving birth women in 4% of cases and more. At postnatal bleedings the hysterectomy is made in 0.1% of cases in 0.27% after operation of Cesarean section[2].

In 2003 the frequency of bleedings during pregnancy in Almaty made 1.2-1.5%, the frequency of postnatal bleedings-1.0-1.2%, the specific weight of massive bleedings-27%. In population of women of reproductive age of Almaty in 15.5% of cases obstetric complications (atonic bleedings, placenta pathology, a hem on a uterus, gap/perforation of a uterus, heavy hestosis were the reason of radical operations.

Sharp massive blood loss in childbirth develops at a boundary of important immunological reorganization in an organism of the pregnant woman: transition from an immuno suppression to immune stimulation. In turn sharp blood loss and its treatment are capable to influence immunological system[4, 5].

Assessment of a fenotypic profile of immune competent cages in circulation, processes of their activation, dynamics of research allow to open more deeply possible violations of the immune status that will

give the chance of an objectivization of application of the corresponding methods of correction. Therefore, perspective studying of immunological reactivity at women after obstetric bleedings was presented to us.

MATERIALS AND METHODS

For studying of clinic-laboratory characteristics of postnatal process at the women who had massive obstetric bleedings we examined 30 women who had massive postnatal bleedings with a surgical hemostasis (the main group), 30 women who had massive postnatal bleedings with a conservative hemostasis (group of comparison) and 30 women in childbirth with physiological blood loss (control group) for 5-6 days after the delivery by the end of the postnatal period in 6, 12 and 18 months after the delivery. Material of research was the peripheral blood taken sterilely from a vein under heparin/physiological solution. Lymphocytes allocated on density gradient ficol/triombrast g/mL P = 1.077.

RESULTS AND DISCUSSION

In the analysis of age structure of women in childbirth of the main group of 75% of women were optimum reproductive age, 30% of pregnant women were primipara, 10%-multi giving birth. About 70% of women had the burdened obstetric and/or gynecologic anamnesis. Various extragenitally diseases were noted at 55% of pregnant women. The 80% of women childbirth were allowed by operation Cesarean section, from them a half prematurely. Almost at 90% of percent of women pregnancy proceeded against various complications (Table 1).

Apparently from the presented table hypertensive states (60%), an abnormal arrangement of a placenta (30%), antenatally death of a embryo (15%), a premature peeling of normally located placenta (20%) were the most frequent complications of pregnancy.

The main indications to an operational childbirth were allowed pathology from a placenta (65%), a hem on a uterus (10%), clinically narrow basin (5%) and the combined indications (age, OAA, the induced pregnancy, a large embryo, etc.) -20%. About 85% to women the hysterectomy from them 15%-bandaging internal the ileal of arteries is made.

Outcomes for newborns were the following: most of newborns (68.9%) were born in a satisfactory condition. Early neonatal mortality made 10% (the reason-prematurity, asphyxia of heavy degree, fruit SDR). At 10% of women are registered postoperative complication in the form of a hematoma of a postoperative bed.

For studying of pathogenetic mechanisms of violations of a somatic state at women after obstetric bleedings we determined immunological parameters of a homeostasis in dynamics of supervision. Investigated a fenotypic profile of lymphocytes for 5-6 day of the postnatal period, by the end of the postnatal period (42 day) in 6 months of supervision in 12 and 18 months.

The conducted immunological research for 5-6 day after the delivery (Table 2) revealed characteristics of formation of an immunoreactivity at women in childbirth which childbirth was complicated by bleeding. Thus it was revealed that in the main group of women in childbirth which childbirth was complicated in addition by operation, authentically significant decrease in quantity of mature CD3+ of cages, immuno regulatory help erno-inductor (CD4+) and supressorno-cytotoxic (CD8+) T-lymphocytes ($p<0.05$) took place. IRI (CD4 +/CD8+) was raised at the expense of immune-suppression of the T-cellular link and made 1,52 against 1,18 and 1,15, respectively. Also, in the main group statistically reliable increase in quantity of CD16+ of lymphocytes ($p<0.05$) in relation to group of comparison that found reflection in increase in a ratio of CD16+/CD3+($p<0.05$) was noted.

The received results testify to an essential quantitative immune imbalance in the main group of

Table 1: Complications of pregnancy at women of the main group (the transferred massive obstetric bleedings, %)

Variables	Values (%)
Multiple pregnancies	5
placenta prelying	20
Swelling caused by pregnancy	15
Light pre-eclampsia	20
Difficult pre-eclampsia	25
Isthmic cervical incompetence	5
The scar on uterine	10
Low location of the placenta	10
Polyhydramnios	5
A fetus distress	10
Antenatal fetal death	15
Premature detachment of normally located placenta	20
Placental insufficiency	5
Lateral position of a fetus	5
Prenatal amniorrhea	5

Table 2: A subpopulation profile of lymphocytes in the studied groups for 5-6 day after childbirth

Parameters (%)	Main group	Comparative group	Control group
CD3+	54.6±1.5*#	63.5±1.2**	67.8±2.1
CD4+	29.0±1.2*#	39.9±1.3**	39.0±1.2
CD8+	19.2±1.3*#	33.6±1.6**	33.7±1.7
CD16+	19.2±1.4**#	10.5±0.8*	17.6±1.2
CD25+	7.0±0.7*	7.0±0.7*	5.1±0.5
CD95+	25.5±1.6*#	4.0±0.2*	10.5±0.9
HLA-DR	20.5±1.3**#	10.2±0.8*	16.8±1.6
CD16+/CD3+	0.35±0.06**#	0.16±0.05**	0.26±0.06
ИРИ (CD4+/CD8+)	1.51±0.01*#	1.18±0.06**	1.16±0.05
CD95+/CD25+	3.63±0.02*#	2.57±0.06*	2.06±0.01

*p<0.05; **p>0.05-in relation to control group; # p<0.05-the main group and group of comparison

Table 3: A subpopulation profile of lymphocytes in the studied groups in 6-8 weeks after the childbirth

Parameters (%)	Main group	Comparative group	Control group
CD3+	58.8±3.2*	65.7±3.5**	72.1±4.2
CD4+	32.7±2.1*#	43.4±3.4**	45.3±3.2
CD8+	24.7±2.3**#	35.8±3.1*	27.2±2.6
CD16+	17.3±2.4**	16.4±2.6**	14.1±2.2
CD25+	4.9±1.6**	5.6±1.7**	7.5±1.5
CD95+	7.9±1. 9**	6.0±1.2**	7.6±1.8
HLA-DR	28.8±2.9*#	10.9±1.9**	11.7±1.8
CD16+/CD3+	0.29±0.03**	0.25±0.05**	0.19±0.06
CD4+/CD8+	1.32±0.06**	1.21±0.05*	1.67±0.08
CD95+/CD25+	1.61±0.05*#	1.07±0.05**	1.01±0.07

*p<0.05; **p>0.05-in relation to control group; #p<0.05-the main group and group of comparison

women in childbirth for 5-6 day after the delivery (Table 2). It concerned quantitative deficiency of mature T-lymphocytes, immunoregulatory helper-inductor and supressorno-cytotoxic T-lymphocytes, increase natural the killer of cages.

The analysis of an expression of markers of early and late activation of lymphocytes and also marker of a gistosovmestimost of the II class (HLA-DR) of a locus allowed to reveal increase in quantity of the cages which are in a stage of early activation (on Cd25+markeru), sharp increase in number of the cages ready to apoptosis (on Cd95+markeru), increase in an index of apoptosis (CD95+/CD25+) and also increase of quantity of lymphocytes with HLA-DR a marker in comparison with group of comparison (p<0.05) (Table 3).

It is known that the main function of anti-genes of his to compatibility of a HLA II class consists in representation of an anti-gene after its processing in an anti-gene-the representing cages T-helpers. HLA II-a marker is presented on V-cages, the activated T-lymphocytes and monocytes. In this regard it also as well as CD 25+and CD 95+anti-genes treats “activation” markers, i.e., actually characterizes functions of cages. Increase of number of cages with HLA-DR a marker reflects the active immune answer on the alien anti-gen.

I.e., research of activation markers in the main group allowed to establish that at obstetric bleedings for 5-6 days the increased expression of receptors of an a chain interleykina-2, increase of quantity of the cages ready to apoptosis and also development of the active immune answer to alien anti-genes unlike control group was after the delivery noted.

In group of comparison for 5-6 days some features of formation of the immune status different from the similar data obtained in the main group and in group with physiological childbirth are after the delivery revealed. In comparison with control the number of mature CDs 3 of lymphocytes practically didn’t change (p>0.05) but was more than in the main group (p<0.05). It also belonged and to regulatory helperno-inductor (CD4+) and suppressively/to cytotoxic (CD8+) T-lymphocytes and also to IRI (R<0.05).

The quantity natural the killer (CD16+) of lymphocytes and also the relation of CD16+/CD3+ was sharply reduced in comparison with the data obtained in 2 other groups of women (p<0.05). I.e. sharp quantitative deficiency of NK cages in group of women with blood loss but with the kept genital body was noted. Activation markers in this group of women authentically increased in comparison with control on Cd25+markeru (p<0.05), coming nearer to similar data of the main group but were authentically lowered concerning CD95+ and HLA-DR+ markers in relation to control and to the main group. The apoptosis index thus authentically accrued in comparison with control but was less, than in the main group (p<0.05).

I.e., at the women in childbirth who transferred pathological blood loss in childbirth but with the kept genital body, in comparison with normal childbirth for 5-6 day of the postnatal period the quantitative subpopulation imbalance which is characterized by deficiency of the relative content in blood natural the killer of cages, increase of early activation of the lymphocytes with simultaneous decrease in level of the

cages ready to apoptosis and also bearing HLA-DR compatibilitymarker was noted. Thus, research of a subpopulation profile of lymphocytes at women in childbirth with pathological blood loss and kept or quickly remote genital body, surveyed for 5-6 days of the postnatal period in comparison with norm allowed to establish the developing quantitative and functional imbalance of immune system of an organism, expressiveness which degree directly depended on the volume of blood loss and the performed operation on removal of a uterus.

Dynamics of immune shifts was characterized for this period of inspection of women in childbirth depending on the size of blood loss and expeditious intervention by gradual decrease in percentage number of mature T-immunoregulatory herpernously/inductor and suppressorly/cytotoxic T-lymphocytes; falling and then increase of level natural the killer of cages and also increase in number of the activated lymphocytes with simultaneous sharp decrease and then the same sharp increase of percentage quantity of the cages ready to apoptosis (premature death) and at first decrease and then development of the active immune answer to alien anti-genes. The revealed changes actually reflected disbalance of quantitative and functional indices of cages of immune system of an organism of the women in childbirth who postponed pathological blood loss and surgery to 5-6 days of the postnatal period.

Results of research of a subpopulation profile of lymphocytes at women of the main group in dynamics in 6-8 weeks are after the delivery presented in Table 3. By the end of the patrimonial period the quantitative immune imbalance at women in childbirth with the complicated course of childbirth remained in comparison with control group that was expressed in decrease in relative number of T-cages, characteristic for an immunodeficiency. Reliable decrease suppression/is noted cytotoxic (SD8+) and helper-inductor (CD4+) lymphocytes. Increase of a marker of a his to compatibility of HLA-DR and index of apoptosis ($p<0.05$) is registered.

Increase of a marker of activation of HLA-DR reflects the active immune answer to alien anti-genes in the main group by the end of the postnatal period. And increase of an index of apoptosis of SD95+/SD25+by this period is caused by a tendency to decrease in early activation of lymphocytes and increase the apoptosis index of the processes though which don't have reliable differences ($p>0.05$). I.e. in the main group of women by the end of the postnatal period, unlike physiological at restoration of an organism the quantitative immunodeficiency of mature SD3+ of cages, SD4+, SD8+of lymphocytes and violation of functional activity of cages of the activation (HLA-DR, SD25+, SD95+) investigated on markers remained.

In group of comparison on this term of the postnatal period the increased level of supressorno-cytotoxic (SD8+) lymphocytes and decrease in IRI ($p<0.05$) was tested. The last is connected with authentically significant increase of SD8+ of lymphocytes in this group of women in comparison with the similar data revealed in the main group ($p<0.05$). It should be noted that in group of comparison (in relation to the main group) reliable decrease in HLA-DR of a marker ($p<0.05$) and index of apoptosis of SD95+/SD25+($p<0.05$) that reflects smaller in comparison with the main group, anti-gene loading and readiness of cages for death (apoptosis) also came to light.

Thus, by the end of the postnatal period (in 6-8 weeks) in the main group of the women who transferred a hysterectomy against massive blood loss, disbalance of immune indicators remained rather accurately and lasted more long, than in group of comparison. In group of comparison reliable decrease in IRI and increase of quantity of CD8+ of cages ($p<0.05$) was tested.

Statistically doubtful increase in quantity of mature CD3+ of cages, immune regulatory helper-inductor (CD4+) and supressorno-cytotoxic (CD8+) T-lymphocytes ($p<0.05$) is noted. The tendency CD16+ of lymphocytes ($p>0.05$), statistically doubtful to decrease in quantity that found reflection in reduction of a ratio of CD16+/CD+in the main group is observed.

The analysis of an expression of markers of early and late activation of lymphocytes and also marker of a his to compatibility of HLA-DR allowed to reveal a tendency to reduction of quantity of the cages which are in a stage of early activation (on Cd25+markeru) $p>0.05$), a tendency to decrease in number of the cages ready to apoptosis (on Cd95+markeru), reduction of an index of apoptosis (CD95+/CD25+) and also increase of quantity of lymphocytes with HLA-DR a marker of a gistosovmesti most $p<0.05$) in the main group.

The following (Table 4) allowed to reveal the research of quantitative parameters of immune system conducted in 6 months of supervision.

In the main group of women in comparison with the control relative deficiency of mature SD3+of lymphocytes ($p<0.05$) that is noted in group of comparison where the quantity of SD3+of lymphocytes didn't differ from data of control group ($p>0.05$) was tested. Also, the immune answer to alien anti-genes (on increase in HLA-DR of a marker of gisto-compatibility) was strengthened ($p<0.05$) and the index of apoptosis ($p<0.05$) testifying to prevalence in this group of women on this term of supervision of strengthening of death of cages is increased. It is characteristic that IRI (SD4+/SD8+) was also authentically lowered ($p<0.05$) in comparison with control ($p<0.05$). It was lowered and in group of comparison ($p<0.05$). These data most likely were connected with a tendency to increase in both groups of number suppressorno/cytotoxic (SD8+) lymphocytes and

Table 4: Research of a subpopulation profile of lymphocytes in the studied groups in 6 months of supervision

Parameters (%)	Main group	Comparative group	Control group
CD3+	60.5±3.8*	68.4±3.2**	74.3±3.1
CD4+	45.2±3.0**	44.9±3.1**	50.8±3.4
CD8+	27.3±2.7**	26.2±2.7**	25.1±2.9
CD16+	16.1±2.5**	14.8±2.8**	12.8±3.0
CD25+	4.3±1.3**	6.1±1.8**	8.7±2.0
CD95+	4.4±1. 2**	5.8±1.7**	7.0±1.5
HLA-DR	17.1±2.6*	13.9±2.1**	10.2±2.0
CD16+/CD3+	0.27±0.05**	0.22±0.06**	0.17±0.08
CD4+/CD8+	1.66±0.04*	1.71±0.06*	2.02±0.07
CD95+/CD25+	1.02±0.06*	0.95±0.04**	0.80±0.08

*p<0.05; **p>0.05- in relation to control group; # p< 0.05 -the main group and group of comparison

lower values helperno/inductor (SD4+) cages in comparison with control (p>0.05) that characterizes violation of immune regulation in an organism of the women who transferred blood loss.

On this term of supervision the tendency to increase in number natural the killer (SD16+) of cages remained, bigger in the main group and it is slightly less in group of comparison (p>0.05). I.e. the quantity of the cages mediating the hypersensitivity of the slowed-down type (HSDT) on this term of supervision of women with blood loss had property to increase. This increase was big in the main group that was tested by higher ratio of SD16+/SD3+ (p>0.05).

The expression of markers of early and late activation of lymphocytes (SD25+, SD95+) in both groups of women, though didn't reveal reliable distinctions with control group and also when comparing among themselves (p>0.05) but nevertheless had a big tendency to decrease in indicators in group of women with a hysterectomy and massive blood loss.

The received results testify that in 6 months after a hysterectomy, owing to massive blood loss, the immune system of women was practically not restored that found reflection in disbalance of immune indicators in comparison with physiological restoration.

Thus in 6 months after the hysterectomy connected with massive blood loss, after the delivery the quantitative immune imbalance was shown in decrease n supressorno-cytotoxic (CD8+) T-lymphocytes (p<0.05).

Reduction of quantity of the cages which are in a stage of early activation (on Cd25+marker), sharp decrease in number of the cages ready to apoptosis (on Cd95+markeru), reduction of an index of apoptos is (CD95+/CD25+) and also increase of quantity of lymphocytes with HLA-DR a marker of ahito compatibility (p<0.05) is revealed.

At the studied women statistically reliable increase of level of immune regulatory helper-inductor lymphocytes (CD4+) and decrease in quantity of cages ready to apoptosis- CD95+(p<0.05) was observed. The tendency to increase of quantity of mature (CD3+), supressorno-cytotoxic T-lymphocytes (CD8+) and decrease in number of natural killers-CD16+(p>0.05) is revealed.

The analysis of an expression of markers of early and late activation of lymphocytes and also marker of a his to compatibility of HLA-DR allowed to reveal reduction of quantity of the cages which are in a stage of early activation (on Cd25+markeru) (p>0.05), sharp decrease in number of the cages ready to apoptosis (on Cd95+marker) (P<0.05),reduction of an index of apoptosis (CD95 +/CD25+) (p>0.05) and also increase of quantity of lymphocytes with HLA-DR a marker of a his to compatibility (p>0.05).

The subpopulation profile of lymphocytes in the surveyed groups in dynamics in 12 months of supervision is presented in the study. Reliable decrease in mature CD3+of lymphocytes and increase in an index of apoptosis of CD95+/CD25+due to decrease and CD95+ and CD25 + activation markers is noted. In this study, research of a subpopulation profile of lymphocytes in the studied groups in 12 months of supervision.

The analysis of data allowed to reveal in comparison with control and group of comparison decrease in percentage quantity of mature SD3+ of lymphocytes in the main group (p<0.05). I.e. massive blood loss in childbirth and a hysterectomy even in 12 months of supervision didn't fill a cellular immunodeficiency. The quantity immune regulatory helper/inductor (SD4+) and supressive/ cytotoxic (SD8+) lymphocytes both basically and in group of comparison practically was identical with control group (p>0.05). The immuno regulatory index (SD4+/SD8+) also in all compared groups was within identical values (p>0.05).

The quantity natural the killer (SD16+) of cages didn't reveal reliable distinctions between the compared groups (p>0.05) but nevertheless in the main group the level of these cages tended to increase (p>0.05). SD16+/SD3+ratio reflecting quantity natural the killernykh of cages among mature T-lymphocytes also testifies to it. In group of comparison and control this indicator corresponded to identical values (p>0.05). In the main group it tended to increase, despite the lack of a reliable difference (p>0.05).

Research of markers of activation (SD25+, SD95+, HLA-DR) revealed in the main group some decrease in activation on SD25+and SD95+to markers in comparison

with other studied groups and also increase in an expression of HLA-DR in the main group though distinctions and weren't reliable ($p>0.05$). It specifies that nevertheless in the main group the active immune answer to alien anti-genes was observed and it doesn't exclude development of autoimmune process in 12 months after massive bleeding and a hysterectomy. Besides the increase in an index of apoptosis (SD95+/SD25+) in the main group of women in comparison with other studied groups ($p<0.05$), indicates prevalence in the main group of women of death of cages over their proliferation and the apoptics mechanisms testifies to violation.

Thus, dynamics of research of an immune reactivity of the women who transferred massive blood loss and a hysterectomy allowed to establish deep violations in immune system in 12 months of supervision that was tested by deficiency of mature T-lymphocytes, breakage the apoptotic of mechanisms and development of an autoimmunization of cellular type.

In 18 months of supervision over women with massive loss of blood and a hysterectomy the following allowed to reveal research of a subpopulation profile of lymphocytes:

The main group and group of comparison in the main group in comparison with control and group of comparison quantitative deficiency of mature SD3+of lymphocytes ($p<0.05$) while in group of comparison this indicator corresponded to similar results of control ($p>0.05$, Fig. 1) remained.

The quantity of immune regulatory SD4+and SD8+lymphocytes in the main group authentically didn't differ from the corresponding indicators of other compared groups ($p>0.05$) but was tended to some reduction in the main group as SD4+and increase in SD8+of lymphocytes ($p>0.05$, Fig. 2 and 3).

IRI at these women was also slightly lower than the similar data revealed in 2 other groups of women ($p>0.05$). These results testify to that as in 18 months of supervision immuno regulatory processes at these women weren't restored completely and disbalance of quantitative indices of an immunogramma unambiguously wasn't eliminated.

Natural killer cages (SD16+) were also a little increased, though reliable differences from other studied groups of women (Fig. 4 and 5) aren't tested. The tendency to increase in SD16+ of cages can testify to existence of autoimmune damages to an organism of the women who transferred massive blood loss and a hysterectomy. It is confirmed by a high index of a ratio of SD16+/SD3+.

The analysis of an expression of activation markers in the main group of women in comparison with control revealed a tendency (statistically doubtful ($p>0.05$) to decrease in number of cages with a marker of early activation (SD25+) and increase in quantity of cages with

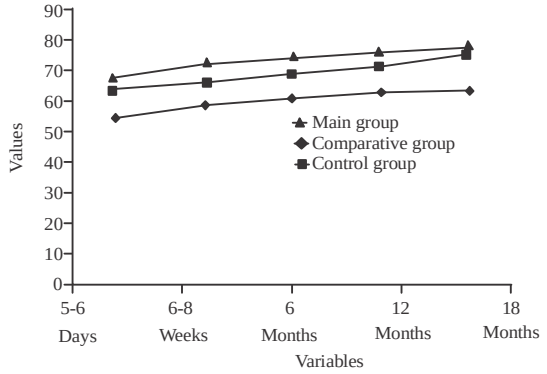

Fig. 1: The changes of the mature CD3+cells in the groups studied

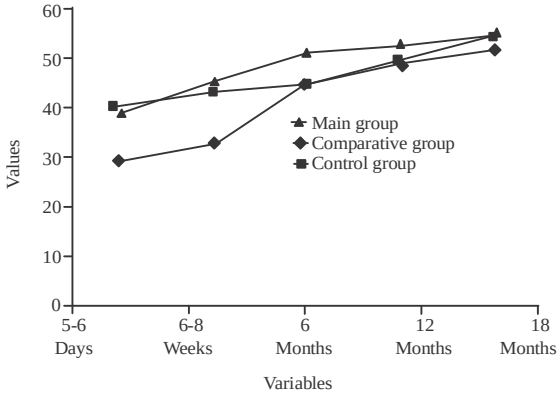

Fig. 2: Dynamics of an indicator of CD4+ of cages in the studied groups

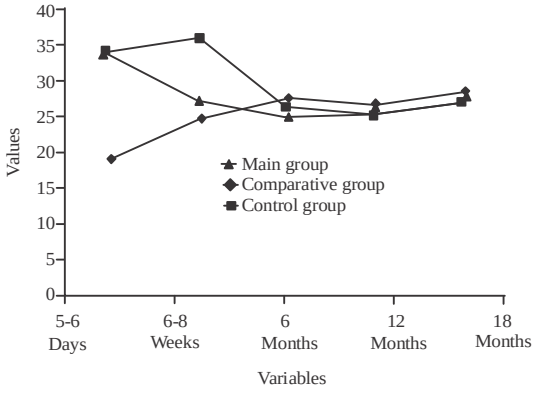

Fig. 3: Dynamics of an indicator of CD8+ of cages in the studied groups

HLA-DR a marker ($p>0.05$). The expression of SD95+ of a marker was identical in all groups. The apoptosis index in the main group of women was authentically increased in relation to the similar data revealed in control and in group of comparison ($p<0.05$) that is perhaps caused by high death of T-cages, in particular T-helpers (Fig. 6).

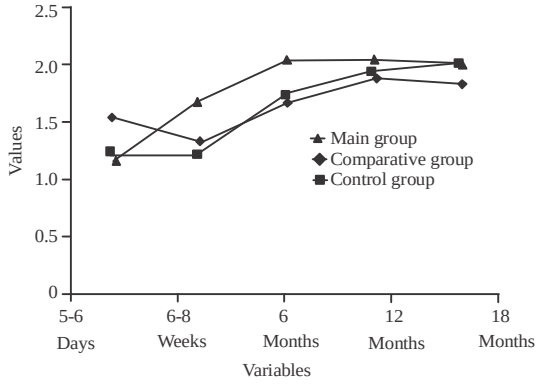

Fig. 4: The changes of the CD4+/CD8+cells in the groups studied

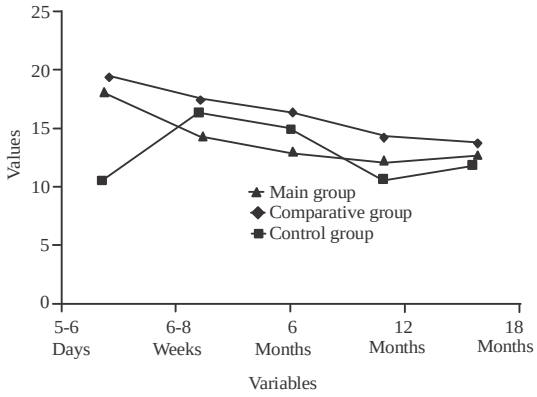

Fig. 5: Dynamics of an indicator of CD16+of cages in the studied groups

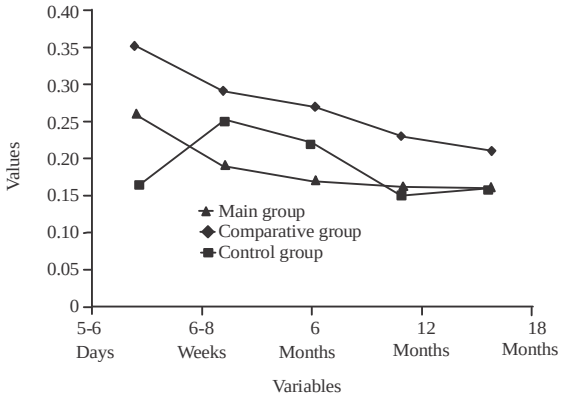

Fig. 6: Dynamics of an indicator of CD16+/CD3+of cages in the studied groups

As SD25+ a receptor is the general for all growth T-cellular factors (IL-4, IL-7, IL-9) decrease characterizes T-cellular deficiency (Residents of Simbirtsev of Ampere-second rather., 2002) that, we also observed in the main group of the women examined

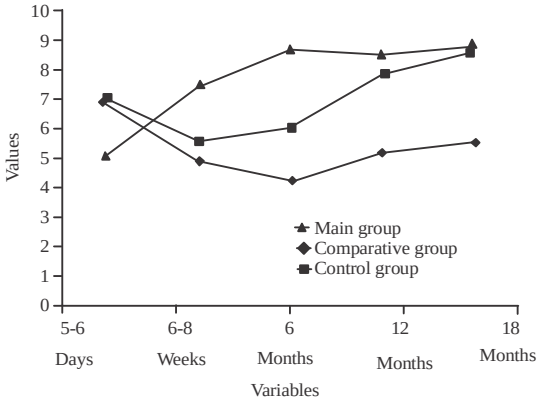

Fig. 7: Dynamics of an indicator of CD25+ of cages in the studied groups

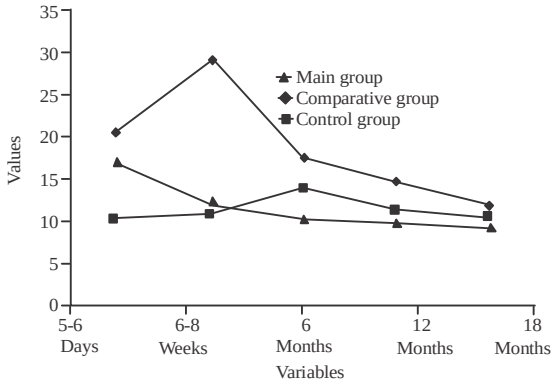

Fig. 8: Dynamics of an indicator of HLA-DR of cages in the studied groups

in 18 months of supervision (Fig. 7). The increase in number of cages with HLA-DR a marker can reflect the active immune answer to alien anti-genes at women of the main group (Fig. 8).

Thus, research of a subpopulation profile of lymphocytes at the women who transferred massive blood loss and a hysterectomy in 18 months of supervision revealed serious shifts of an immune reactivity that was tested by a quantitative immunodeficiency of mature T-lymphocytes, high readiness of cages for apoptosis and existence of autoimmune frustration.

Thus, even by 18 months after the delivery at the women who had massive obstetric bleedings with a surgical hemostasis some quantitative immune imbalance which is expressed in reliable decrease in mature CD3+of T-lymphocytes and an index of an apopotoz of CD95+/CD25+due to reduction of the cages which are in a stage of early activation and cages ready to apoptosis ($p>0.05$) remains. In group of comparison and control group doubtful distinction between all indicators of an immune grammas that speaks about alignment of the immunological status at the women who had massive

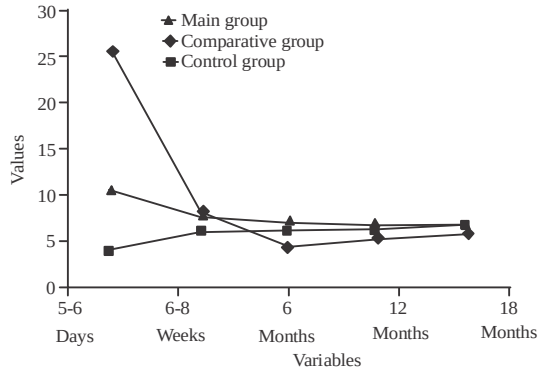

Fig. 9: Dynamics of index CD95+cells in the groups studied

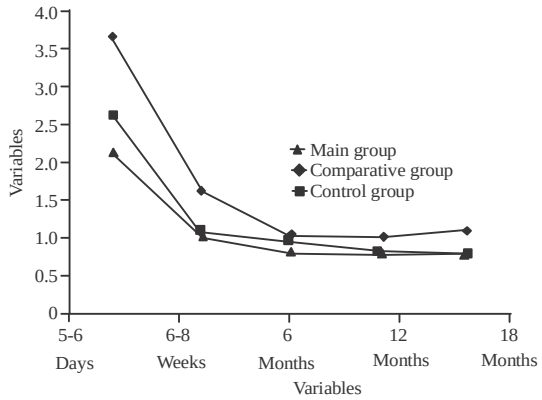

Fig. 10: Dynamics of an indicator of CD95+/CD25+ of cages in the studied groups

obstetric bleedings with the kept genital body and women with physiological blood loss is noted. Between the main group and group of comparison the quantitative immune imbalance which is expressed in reliable decrease in mature CD3+ of T-lymphocytes and an index of an apoptosis of CD95+/CD25+ is also noted. Decrease in relative number of T-cages happens both at an immuno deficiency and at sharp increase in a share of V-lymphocytes at Tkh2 answer type (Fig. 9 and 10).

CONCLUSION

The analysis of the conducted researches allowed to reveal deep violations of an immune reactivity at the women who had massive bleedings and a hysterectomy practically on all terms of inspection.

At the examination conducted for the 5-6th day of the postnatal period we revealed deep quantitative deficiency of population of mature T-lymphocytes, immune regulatory helper/inductor and supressive /cytotoxic su populations of T-cages, the increase of IRI caused by immune suppression of a cellular link of immunity, increase in quantity natural the killero f the cages mediating reactions of GZT and also increase in number of the activated lymphocytes, increase of quantity of the cages ready to apoptosis and development of the active immune answer to alien anti-genes. I.e., the quantitative and functional imbalance of an immune reactivity was noted, expressiveness which degree directly depended on the volume of blood loss and the performed operation on removal of a uterus.

At the women in childbirth who transferred pathological blood loss in childbirth but with the kept genital body, for the 5-6th day of the postnatal period disbalance of immune indicators affected only the reduced level natural the killer of the cages with parallel increase of early activation of lymphocytes, decrease in quantity of the cages ready to death and also bearing HLA-DR his to compatibility marker. The quantity of mature T-cages corresponded to quantity of SD3+ in control group. By the end of the postnatal period (42 day), in 6-8 weeks after the delivery at women of the main group unlike physiological restoration the disbalance of quantitative indices of population and subpopulations of T-lymphocytes tested by deficiency of mature T-supressive/cytotoxic, helper/inductor T-lymphocytes, saving of the available active immune answer to alien anti-genes and also prevalence of number of the cages ready to apoptosis remained. Degree of expressiveness of immune violations in the main group rather accurate also lasted more long, than in group of comparison. At the last normalization of quantity of mature T-cages, increase of suppressive/cytotoxic subpopulation of T-lymphocytes, more lowered, than in the IRI main group, less expressed immune answer to alien anti-genes and also decrease in circulation of the cages ready to apoptosis was noted.

Research of quantitative parameters of immune system at women with a hysterectomy against massive blood loss in 6 months of supervision established that the immune system of women in these terms was practically not restored completely, disbalance of quantitative indices of population and subpopulations of T-lymphocytes (quantitative deficiency of mature T-lymphocytes, immune regulation process violation, increase in number of the cages ready to apoptosis, the raised immune answer to alien anti-genes) remained.

In group of comparison on this term of supervision of IRI I was slightly higher, than in the main group, however its indicators nevertheless were authentically significantly below physiological control that is caused by immune regulation violations. In all other parameters indicators of an immune gramma didn't reveal reliable distinctions from norm.

Research of a subpopulation profile of lymphocytes in 12 months of supervision showed that massive blood loss in childbirth and a hysterectomy, even 1 year later after

operation, didn't fill a cellular immunodeficiency, decrease in percent of mature T-lymphocytes, violation the apoptotic of mechanisms (increase in number of the cages ready to death) was noted and the tendency to strengthening of an autoimmunization of cellular type is revealed. In group of comparison of reliable differences of indicators from norm it wasn't revealed.

Research of a fenotypic profile of lymphocytes of women in 18 months (1.5 years) after a hysterectomy owing to massive blood loss in childbirth testified to the available shifts of an immune reactivity that was tested by a quantitative relative immunodeficiency of mature T-lymphocytes, high readiness of cages for apoptosis and a tendency to an autoimmunization. In group of comparison all studied indicators of an immune gramma corresponded to similar indicators of control.

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