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## **THE CURRENT STATE OF THE HEALTH PROBLEM OF THE CHILDREN CONCEIVED USING ASSISTED REPRODUCTIVE TECHNOLOGIES**

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Assisted reproductive technologies are widely used now for solving the problems of infertile couples. There is no doubt about the relevance of the infertility problem, despite the improvement of methods for correction of fertility disorders, and preparation of the couple. It is caused by the growing influence of technological, environmental and social factors on the processes of human reproduction. Current achievements of embryology and genetics determine the development of biomedical technologies to realize the reproductive potential of the couple in the case when an alternative medical treatment was ineffective.

In the past two decades, a lot of attention is paid to pregnancy outcomes, occurring after the treatment of infertile marriages with the use of IVF. Repeatedly it was noted that the use of this method leads to an increased risk of preterm delivery (especially in multiple pregnancies) and as a result, to prematurity and immaturity of children and increased perinatal mortality.

The aim of the work was to study the current state of the problem of children's health that were born with the use of assisted reproductive technologies. Studies were carried on the base of the City Clinical Maternity Hospital №2.

Results of the research. 34 women were surveyed and 40 stories of the development of the children that had conceived using assisted reproductive technologies (IVF) were analyzed.

The study found that in IVF group women's infertility was associated with severe gynecological diseases (97.1%).

In the majority of cases, pathological current of pregnancy in women (70%), which was associated with gestosis (32.4%), fetal hypoxia (14.7%), and multiple pregnancy (17.7%), threat of termination of pregnancy (5.9%) was observed.

Pathological current of pregnancy led to complications during labor (37%), which was accompanied by intranatal fetal hypoxia (16.4%) and preterm delivery (20.6%).

The studying of the children's health found that most were full-term (70%), but 35% had low birth weight associated with intrauterine growth retardation. 30% of children from the group were born in the result of preterm delivery.

In children of IVF group hypoxic conditions, intrauterine growth retardation were observed. Early neonatal period was complicated by neurological disorders and infectious diseases.

Evidence suggests that children conceived using assisted reproductive technologies, have a higher risk of various pathological conditions.

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## **THE INFLUENCE OF LOW-INTENSITY LASER IRRADIATION ON THE LEVEL OF GLUCOSE IN BLOOD OF HEALTHY PEOPLE**

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The investigation of of healthy people in the applications of low-intensity laser irradiation (LILI) of different wave-lengths has been conducted in the research work.

Blood sampling was made from male research volunteers at the age of 20 – 24 in fasting state and also 10 minutes and 1 hour after the laser irradiation exposure. The level of glucose in blood was measured with the help of portable glucometer Bionime GM100 and capillary test-strips Rightest. Diode laser has been used in the research work. Dermal exposure was carried out on the bend of elbow region. The characteristics of laser exposure were as follows: wave lengths 635, 785 and 960 nm, laser power 1,1 mW, frequency 50–60 Hz.

We have found that marked impact on donors' level of glucose in blood generated irradiation with wave length 635 nm only, namely, 1 hour after LILI blood glucose level declined from 4,7 to 4,5 mmol/l ( $p < 0,01$ ). There were no differences of this indicator compared with baseline levels in all other variants of exposure.

It is known that irradiation with wave length of 635 nm corresponds to the red light. Redox enzymes, enzyme-substrate complexes, erythrocytes, hemoglobin, oxygen can play a role of primary photoreceptors of laser irradiation of the red light.

Positive influence of LILI on rheological properties of blood has been elucidated: the decrease of erythrocyte aggregation and the increase of erythrocyte capacity to deformability. Tissue microcirculation improves due to enhancement of oxygen delivery zone and activation of aerobic metabolic processes as a result.

The impact of laser on blood is accompanied by conformational alterations of hemoglobin molecules and modification of the oxygen delivery function of blood. Oxygen affinity of hemoglobin is increased which promotes better tissue oxygenation, too.

Being photoacceptor of red laser radiation oxygen goes into singlet (excited) state thus stimulating oxidation processes in tissues. Sugars and fatty acids are metabolized herewith.

Near (785 nm) and far (960) infrared laser irradiation bands didn't have an impact on the level of glucose in the blood of the donor in our experiments. Dermal infrared exposure of laser is accompanied by local reactions of superficial vascular system, namely vasodilator, anti-inflammatory, analgetic, wound healing effects.