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Elderly Population At High Risk For Skin Melanoma Incidence

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SUMMARY

The purpose of the study. Scientifically substantiate priority measures to improve the provision of medical care to optimize the reproductive health of the population.

Materials and methods. A patient with impaired reproductive function and in need of its correction with the help of **biomedical technologies (BMT)**; a potential consumer of BMT have been taken as observation units in accordance with the specified goal. The survey was conducted in 2020, the total number of respondents whose questionnaires were included in the final development was 366 people (105 target and 142 potential users of BMT.

Results of the work. The analysis of the clinical characteristics of patients with disorders of the reproductive system (i.e., the flow of patients referred for medical and genetic examination) allowed us to determine that among such patients, one of the spouses has "primary" infertility (36.6%), abnormalities of physical and/or sexual development (23.1%), miscarriage (18.4%), "secondary infertility" (16.2%).

Output. Conducting a comprehensive examination of patients and identifying target users of BMT to a specialized institution is facilitated by the presence of an extensive network of internal and external contact audiences, a high level of provision of material, technical and human resources, and a clear stage-by-stage provision of medical services.

Key words: reproductive health disorders, biomedical technologies, seeking medical care, organization of a social survey of potential consumers.

One of the modern criteria for the well-being of the state is the social protection of a person in the field of health protection. Ensuring this right becomes especially relevant in the context of the rapid development of biology and medicine, and the introduction of new **biomedical technologies (BMT**) related to intervention in the human genome and its reproductive capabilities [1,2,3].

In some cases, **reproductive technologies (RT)** allow to overcome most forms of infertility that were previously considered incurable. At the same time, the use of **RT** has led to the emergence of radically new problems in the field of biology, medicine, legislation and ethics. This situation is a new characteristic feature of modern relations in the field of healthcare, affecting not only the doctor and the patient, but also the patient's family members, as well as third parties. Innovations in medicine turned out to be inadequate to the traditional concepts of life, death, consciousness, mind, personality and human nature. RT questions the principle of parents' personal responsibility for the well-being and upbringing of their children, the importance of the family in the life of an individual and the whole society [4,5,6].

The published data indicate the high practical significance and prospects of research on the protection of reproductive health of the population.

Materials and methods. The laboratory of genetics of reproductive disorders of the State Institution of **the Medical and Genetic Research Center of the Russian Academy of Medical Sciences (RCMG)** has been chosen to carry out this work, as the research base. When choosing the research base, we proceeded from the fact that the laboratory performs a comprehensive examination of reproductive health for a wide range of diagnostic services and provides prognosis and medical recommendations for the correction of reproductive health, both adult and child populations; has sufficient material and technical equipment.

The selective method has been used to study public awareness of modern technologies in medicine and biology, assess the position of society regarding their use for the correction of reproductive health, in-depth analysis of medical, social and ethical and legal problems of the use of technologies, the category under consideration and limitations of their use, since one of the objectives of this study is to propose amendments and additions to existing domestic legislation.

The determination of the required volume of observations for a sample study in order to obtain representative results has been carried out in advance both by the method excluding the determination of the resulting feature, and by classical methods based on the use of the resulting factor.

A patient with impaired reproductive function and in need of its correction with the help of BMT; a potential consumer of BMT have been taken as observation units at this stage of the study, in accordance with these statistical aggregates. The survey was conducted in 2020, the total number of respondents

whose questionnaires were included in the final development was 366 people (105 target and 142 potential BMT consumers).

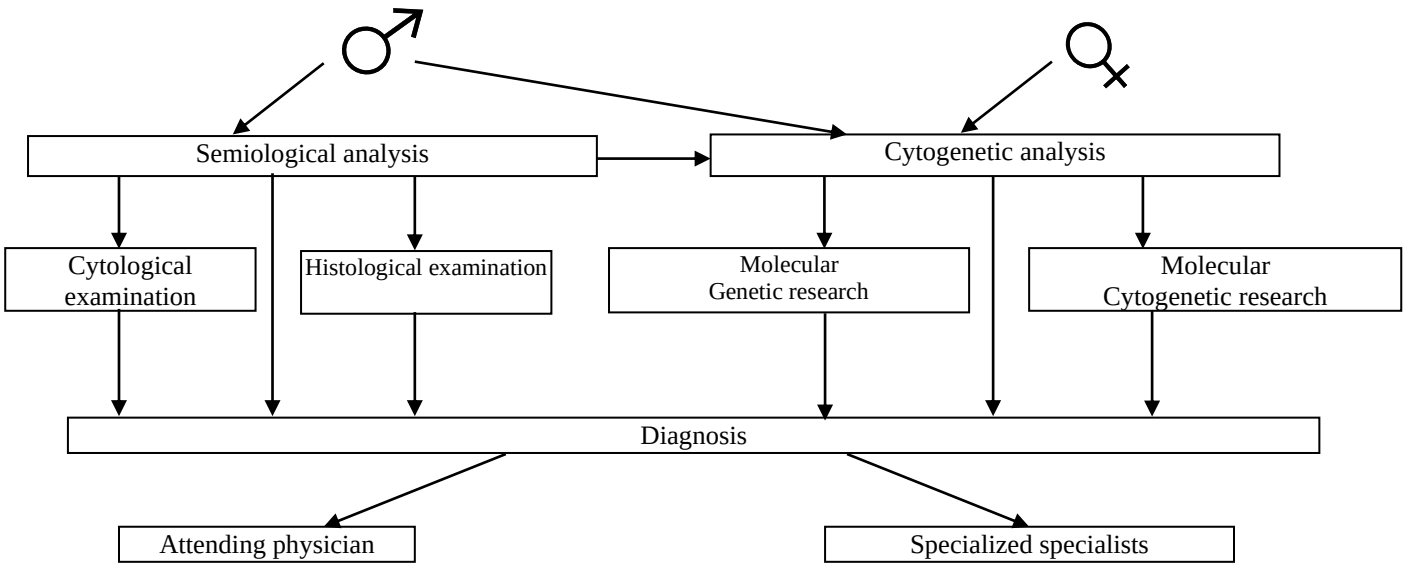
Mathematical processing of the obtained results was carried out using the STATISTICA V.6,0 software product. To analyze the data, we used the method of calculating averages and indicators, calculating the representativeness error, the mean square deviation, using the method of comparing averages and relative values, nonparametric correlation.

Results. The causes of human reproductive dysfunction are diverse, but one of them is a hereditary pathology affecting germ cells (gametes), which leads to absolute and relative infertility, being the cause of spontaneous abortions, frozen pregnancies.

A detailed study of the causes of disorders of reproductive function and sexual development of various age and gender groups is carried out by the Laboratory of Genetics of Reproductive Disorders of the State Medical Center of the Russian Academy of Medical Sciences. The examination of patients in this laboratory is carried out using not only clinical, but also genetic / molecular genetic methods, and it also introduces innovations of various kinds into practice. Medical innovations include the use of modern high-tech diagnostic methods, and teaching patient's healthy lifestyle skills. The Laboratory of Genetics of Reproductive Disorders has a developed network of internal and external contact audiences, which contribute to its effective functioning and the implementation in practice of the principle of continuity in the identification and correction of disorders of the reproductive system.

The medical and genetic examination of patients with impaired reproductive function and / or sexual development referred to the Laboratory begins with a clinical examination at the initial appointment with a geneticist (anamnesis is collected, an examination is carried out, according to indications - morphometry). In the procedural MGNC of the Russian Academy of Medical Sciences, biological material is taken.

Clinical and laboratory examination of men and married couples is carried out according to the scheme worked out in the laboratory within the framework of this study (Scheme 1).



Scheme 1. Stages of clinical and genetic examination of patients with reproductive dysfunction and/or abnormalities of sexual development

The most frequently performed laboratory tests have been carried out when patients complain of reproductive health disorders include: semiological analysis of ejaculate, cytogenetic examination of peripheral blood lymphocytes, cytological examination of ejaculate (Table 1).

It should be noted that during the study period, the volume of all types of diagnostic examination of patients increased by an average of 1.5 times. After conducting a comprehensive diagnostic clinical and laboratory examination, the Laboratory geneticist at the repeated admission gives the patient an analysis form and a conclusion. At the same time, the geneticist gives medical recommendations for health correction and, if necessary, a prognosis for future offspring. The recommendations of a geneticist depend on whether the patient has a genetic cause of the state of his reproductive system.

Table 1. Frequency of special laboratory tests for male reproductive disorders (per 100 men examined)

Research method	The nature of reproductive function disorders	
	Infertility "primary" (%)	Infertility "secondary"(%)
Semiological analysis of ejaculate	85,5	91,1
Cytogenetic examination of peripheral blood lymphocytes	55,4	29,3

Cytological examination of the ejaculate	24,4	12,2

In general, using medical and genetic research methods, it was possible to determine the genetic cause of disorders (chromosomal and gene mutations) of sexual development and/or reproductive function in 18% of patients among patients who sought medical help in the Laboratory (a selected stream of patients). Over the past 20 years, according to semiological analysis, there has been an unfavorable trend towards a decrease in quantitative and qualitative spermogram indicators in men, as well as an increase in the level of background diseases, among which inflammatory diseases of the genitourinary system and sexually transmitted diseases are leading. This trend is typical not only for adult patients, but also for adolescents.

Within the framework of this study, it was found that 41.8% of male patients with reproductive system disorders and 23.4% of women received recommendations on the use of reproductive technologies to solve the problem of childbirth.

Thus, the introduction of the achievements of molecular biology and genetics in practical medicine, in the diagnosis and prevention of diseases of the reproductive system will ensure the stability of the level of reproductive health.

Discussion. Within the framework of this study, a range of the most relevant issues related to the introduction of BMT into medical practice has been identified (Table 2).

More than half of the main ethical and legal issues of BMT, summarized in Table 2, are somehow related to the status of the human embryo, which is still uncertain in the world. Therefore, determining the status of a human embryo is a key problem in reproductive technologies (RT), in human reproductive cloning, in stem cell technology.

The solution of this issue is one of the most difficult problems of bio-medical ethics, and many very different, even directly opposite, points of view are expressed regarding the possibility of its solution. First of all, when discussing the status of a human embryo, it is necessary to solve the philosophical aspect of the question: whether a human embryo is a human being and a personality. And if he is, then after the first one, a question arises concerning the determination of the stage of his biological level of development at which the human embryo meets the criteria of a human personality and should be considered as a human being, an individual, with the right to life and respect for his human dignity, which should be protected by law. The data of embryology clearly show that from the moment of conception, that is, from the moment of the fusion of the female and male germ cells, the human embryo already has the characteristics of a human individual. But on the basis of biological data alone, it is impossible to fully assert that "the embryo is a human personality," because such a statement includes the concept of the soul. In addition, the criteria by which the embryo/fetus should be considered a person and a personality have not yet been determined.

Table 2. The main issues arising in the application of reproductive technologies

Reproductive technologies		Codes of ethical issues	Basic ethical issues
Artificial insemination with the sperm of a husband or donor		А	А – применение метода не по медицинским показаниям (для гомосексуальных пар и одиноких женщин) Б – manipulations on germ cells and embryo В – reduction of the number of embryos in multiple pregnancies Г – relationship between donor-recipient-offspring Д –gender selection Е – intervention in the process of embryo/fetus development Ж – финансовая выгода З – the fate of unclaimed embryos И – selection for preimplantation embryos К – the status of the clone as a consequence of its genetic identity with the genome of the donor Л – deformation of the concept of family and kinship relationships
In Vitro fertilization with the sperm of a husband or donor (IVF)		А, Б, В, Г, Д	
Intracytoplasmic injection of a husband's or donor's sperm into an oocyte (ICSI)		А, Б, В, Г, Д, З, И	
"Surrogate" motherhood		Г, Ж	
Cryopreservation of gametes and embryos		З	
Gamete donation		Г, Ж	
Preimplantation genetic diagnosis (PGD)		Г, Д, Е, И	
Artificial termination of pregnancy		В, Е	
Usage technologies Embryonic stem cells		Б, Е	
Human cloning	Reproductive	Б, Г, К, Л	
	Therapeutic	Б, Е,	

Note: The underline highlights issues directly related to the human embryo.

The study identifies the main measures to regulate the use of biomedical technologies to optimize the reproductive health of the population.

The survey showed that the majority of respondents determine the moment of conception by the moment of the beginning of life. Therefore, in the applicant's own Proposals, conception is considered as the period after which any encroachment on the embryo, capable of damaging it or preventing its further development, was considered as an encroachment on human life. In the Proposals, such protection applies both to embryos participating in **IVF/ICSI** programs and located before implantation into the uterus, and to embryos/fetuses in vivo, implying criminal liability for the use of human embryos for research purposes (as

an encroachment on human life). Separately, the Proposals consider the relationship between the mother and the embryo / fetus, since in this case two basic rights enshrined in this Constitution of the Russian Federation (1993) collide: the right to freedom of conscience (mother) and the right to life (embryo / fetus). In solving this dilemma, in order to respect the rights of everyone as much as possible, it is necessary to adhere to a pragmatic position. In order to reach consensus on this issue, it is proposed to: develop a program of socio-educational and charitable programs to support motherhood and childhood (social assistance, payment of subsidies and provision of benefits); the fetus should be recognized as a citizen of the Russian Federation from 28 weeks of intrauterine development, but recognized as a subject of law after birth, provided that it was born alive; from the 28th week of pregnancy, provide for the responsibility of the mother for causing intentional harm to the child (alcohol consumption, smoking, careless handling of her body, etc.). The degree of responsibility of the mother would be established in accordance with the degree of harm caused – denial of subsidies, benefits, referral of a woman in labor to undergo rehabilitation courses, etc. Within the framework of maternity and fetal (embryo) protection, the role and actions of the father in the process of childbirth are considered. According to the results of the survey, the opinion is leading that this issue needs to be resolved at the level of the law of the Russian Federation.

The special questions of the questionnaire identified the need to create commissions or associations that would regulate the use of RT and regulate the doctor-patient relationship in overcoming the difficulties of childbirth. The creation of bioethical committees at various levels is necessary, according to international requirements (p.16. Universal Declaration on the Human Genome and Human Rights, UN, UNESCO, 1997; article 13. Helsinki Declaration, WMA, Edinburgh, 2000). The purpose of the creation and activity of these committees is to consult, examine and prepare domestic and international regulatory documents, conduct research in the field of bioethics. But in order for the project on the organization of bioethical committees to work at all levels in Russia and bring tangible results, in our opinion, its targeted funding is necessary, as well as giving the committee the right to make decisions when considering specific clinical cases.

Conclusion. The analysis of the clinical characteristics of patients with reproductive system disorders (i.e., the flow of patients referred for medical and genetic examination) allowed us to determine that among such patients one of the spouses has "primary" infertility (36.6%), abnormalities of physical and/or sexual development (23.1%), miscarriage (18.4%), "secondary infertility" (16.2%).

Among married couples who complained of miscarriage, men were significantly ($p<0.01$) 2.4 times more likely than women to have karyotype abnormalities (respectively 14.8% vs. 6.2%). One in four women with a history of miscarriage had an artificial termination of pregnancy.

Among the patients who applied to a specialized institution, 41.8% of men and 23.4% of women needed to be included in the BMT program to solve the problem of childbirth.

The presence of an extensive network of internal and external contact audiences, a high level of provision with material, technical and human resources, and a clear stage-by-stage provision of medical services contributes to conducting a comprehensive examination of patients and identifying target consumers of BMT to a specialized institution.

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