Scientific adviser: Viorel Nacu, MD, PhD, Professor, Tissue Engineering and Cell Cultures laboratory
Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. Cardiovascular disease is a general term for conditions affecting the heart and circulation. It is the number one cause of death globally. It is predicted that the annual incidence of cardiovascular disease - related mortalities will rise to 23,3 million globally by 2030. Developed disorders are often associated with the narrowing or blockage of the luminal diameter leading to inhibited blood flow through the affected vessels and tissue damage due to inadequate nutrient supply. The treatment options depend on the type of condition the person has and may range from dietary and lifestyle modification to pharmaceutical therapies and endovascular or surgical interventions.
Despite advantages and increased popularity of endovascular surgery, the preferred treatment for the long term revascularization is surgery utilizing vascular grafts. Currently available conduits for vascular grafting do not satisfy completely surgeons' requirements due to poor clinical efficacy, especially in small diameter vessels applications (< 6 mm). Therefore, tissue-engineered materials are the only alternative solution through the generation of biologically based functional vessels.
Aim of the study. To provide an overview of decellularization techniques employed current to produce a clinically viable tissue-engineered vascular grafts; to highlight both benefits and drawbacks of each strategy.
Materials and methods. Articles containing the keywords: Cardiovascular disease; Tissue-engineered vascular grafts (TEVG); Vessel decellularization; Decellularization reagents; Mechanical properties of vessel substitutes were selected from the PubMed and Springer Link databases.
Results. The use of biological scaffolds composed by extracellular matrix (ECM) as a strategy for tissue or organ replacement has increased. One technique that has shown good results in several tissue engineering applications, including blood vessels, is the use of decellularized scaffolds. Decellularization is the complete removal of all cellular and nuclear matters from a tissue while preserving ECM, and can be done by using detergents, enzymatic digestion, or mechanical stimulation. Decelullarization process induces the loos of the major histocompatibility complex while avoiding any adverse immunological reactions by the host. It allows the use of decellularized biological tissue not only as autografts but also as allografts and xenografts.
Conclusions. It is confirmed that the decellularization process is suitable for the generation of acellular scaffolds for vascular tissue engineering applications. However, the best technique that allows the preservation physicochemical properties similar to fresh vessels is yet to be determined. Researches and clinical trials should be continued in this field.
Key words: cardiovascular disease; Tissue-engineered vascular grafts (TEVG); Vessel decellularization; Decellularization reagents

DEPARTMENT OF MOLECULAR BIOLOGY AND HUMAN GENETICS

272. GENETIC ASPECTS OF HIRSUTISM

Author: **Maria Stratan**
Scientific adviser: Capcelea Svetlana, MD, PhD, Associate Professor, Department of Molecular Biology and Human Genetics
Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. Hirsutism is the exaggerated increase of terminal hair in women, developing a male model. Hirsutism is an important medical problem, not just a cosmetic defect, which currently affects about 5-15% of women. The researchers have shown that the impact of hirsutism symptoms on a woman's quality of life can be profound and can lead to psychological stress that threatens her feminine identity. Despite a large number of published works, some aspects of hirsutism are still controversial or underestimated. The treatment of hirsutism often requires a multidisciplinary approach and a variety of physical or pharmacological modalities can be used with the combination of 2 or more drugs in combination with esthetic treatment, depending on the involved etiopathogenetic mechanism.
Aim of the study. Evaluation of the molecular-genetic bases of hirsutism, the study of clinical polymorphism and the management of women with hirsutism.
Materials and methods. Online databases, meta-analyzes, scientific papers in theoretical and practical medicine were used.
Results. Following the analyses of the scientific papers we highlighted the main etiological factors of hirsutism: ovarian (93% PCOS, <1% androgendependent tumors, <1% luteoma); adrenals (<1% CAH, <1% Cushing syndrome, <1% androgen secretory tumors, 1% acromegaly) and other external factors (<1% iatrogenic, <1% androgenic drugs). The genetic approach has noted the involvement in the development of hirsutism of mutations in 5 major genes encoding important enzymes in androgen metabolism: 21-hydroxylase, P450 cytochrome oxidoreductase, aromatase, 11-beta-hydroxylase, 5 alpha reductase. The diagnosis of hirsutism is based on a detailed anamnesis, the objective exam using the Ferriman-Galway scale, seric markers, additional genetic and paraclinical tests. Ovarian suppression of androgens secretion with oral contraceptives is widely used in these women, but its efficacy is limited. One of the most effective medical therapies for hirsutism is medication with anti-androgens (spironolactone, finasteride, flutamide, etc.)
Conclusions. Hirsutism is a current medical problem that affects women's quality of life. PCOS (polycystic ovary syndrome) is the most common cause of hirsutism. The management of a woman with hirsutism requires a multidisciplinary approach - family doctor, endocrinologist, gynecologist, dermatologist. The treatment is indicated according to the ethiopathological, individualized mechanism, treatment strategies can be included with the combination of 2 or more drugs. Aesthetic and maintenance treatment is not excluded.
Key words: hirsutism, PCOS, Ferriman-Gallwey, oral contraceptives, anti-androgens

273. GENETIC ASPECTS OF FEMALE INFERTILITY

Author: **Elena Rusica**
Scientific adviser: Capcelea Svetlana, MD, PhD, Associate professor, Department of Molecular Biology and Human Genetics
Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. Female infertility is defined as the inability to conceive after one year of regular unprotected intercourse for women younger than 35 years and within 6 months for women after 35 years. One in seven couples experiences infertility or subfertility, and in 40% of cases it is because of women. Clinically, female infertility is a highly heterogeneous pathology with a complex etiology that includes environmental and genetic factors. It is difficult to assess accurately the overall magnitude of the contribution of the genetics to female infertility as most, if not all, conditions are likely to have a genetic component. Nethertheless, a significant number of infertility phenotypes have been associated with specific genetic anomalies.
Aim of the study. - This review aims to summarize current research on genetic diagnosis and genetic causes of female infertility.