Author: **Daniel Bolocan**
Scientific advisers: Garbuz Alexandru, MD, University assistant, Department of General Hygiene
Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. Bioimpedance analysis is a noninvasive, low cost and a commonly used approach for body composition measurements and assessment of clinical setting. There is a variety of methods applied for interpretation of measured bioimpedance data and a wide range of utilizations of bioimpedance in body composition estimation and evaluation of clinical status. This method is currently becoming more widely used for diagnostics of various pathological disorders.
Aim of the study. Revealing the conceptual basis and application of bioimpedance, as well as the method feasibility regarding physiological activity, body composition and chronic diseases assay.
Materials and methods. Assaying the contemporary models concerning the implementation of bioimpedance in clinical research, including indirect assessment of physiological functions and body composition (fluid volumes and fat-free mass), classification of hydration, regional fluid accumulation, prognosis of disease and wound healing as well.
Results. Increasing request for accurate, cost effective and non-invasive systems for clinical status monitoring and diagnosis of diseases, has accelerated the research endeavors to provide new methods and technologies for evaluation of the human body health. Body composition assessment tools have been considered a promising approach for the quantitative measurement of tissues characteristics over time, additionally to a direct assay of body composition equivalences and survival rate, clinical condition, illness and quality of life.
Conclusions. Bioimpedance analysis is a growing method for body compartments estimation in nutrition studies, sportive medicine and evaluation of hydration rate, fat mass and fat free mass between healthy and diseased populations. Fat mass, fat free mass including skeletal muscle mass, bone minerals, and total body water are compartments that can be predicted and analyzed using suitable bioimpedance measurements techniques, procedures and special equations applied in population in concern to age, ethnic groups etc.
Key words: bioimpedance; analysis; body composition

240. BREATHE NEW LIFE INTO CHRONIC KIDNEY DISEASE

Author: **Alina Lacusta**
Scientific adviser: Toderas Stela, MD, PhD, Associate professor, Department of pathophysiology and clinical pathophysiology
Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. Chronic kidney disease (CKD) is a worldwide public problem. There is a rising incidence and prevalence of kidney failure with poor outcomes and high cost. The guidelines define CKD as kidney damage or decreased glomerular filtration rate (GFR) less than 60 mL/min/1.73m2 for at least 3 months. In Moldova, there were registered 490 patients with chronic kidney disease in 2017. Nowadays, dialysis and transplantation are 2 main solutions especially in end-stage kidney disease. Dialysis will prolong the life, but they will not have a normal life quality. Life expectancy of someone on dialysis is lower than that of the general population. Dialysis and transplantation are not fully available for all patients.
Aim of the study. Analysis and comparing the data of latest studies performed in Europe and USA regarding new approach of CKD treatment, including exploring the field of artificial kidney grown in laboratories.

Materials and methods. The principle of this study execution consists on exploring of different new and suitable methods of treatment and life quality improvement in patients with CKD. Meta-analysis of diverse studies is the key tool for disclosure of optimal strategies for kidney function improvement in the ends stage of diseases.
Results. 1. Regenerative medicine holds the potential to fully heal damaged tissues and organs, offering solutions and hope for people who have conditions that today are beyond repair. 2. A new drug therapy that could potentially control protein leakage from the kidneys. 3. A new approach to prevent the kidney cell irreversible injury: AC1903. 4. Scientists have successfully produced human kidney tissue within a living organism, which is able to produce urine.
Conclusions. The outcome of the study reveals a significant "win" on kidney disease. In Moldova patients reach late stages of chronic renal disease, because a lot them are addressing too late to medical care services. That's why new treatment methods have a great importance to save lives of patients with CKD and to improve their life quality as well.
Key words: Chronic kidney disease (CKD); chronic renal failure; therapeutic methods

241. THE ROLE OF OSTEOMORPHOGENETIC PROTEINS IN POSTTRAUMATIC REGENERATION OF THE BONES

Author: **Iurie Stoica**
Scientific adviser: Lutan Vasile, MD, PhD, Professor, Department of pathophysiology and clinical pathophysiology
Nicolae Testemitanu State University of Medicine and Pharmacy of the Republic of Moldova

Introduction. Certain cells participate in the process of physiological and reparative (posttraumatic) regeneration: osteoprogenic cells - osteogenic stem cell, presteoblasts, osteoblasts. Likewise osteoclasts are involved in the remodeling process of the bones. The activity and interaction of osteogenic cells in the bone regeneration process is controlled by numerous growth factors named as bone morphogenetic proteins (BMP). It has now been demonstrated that these morphogenetic signals organize the structure of all organs, including bones, and the disruption of their functioning leads to different pathologies. Thus, discordance in the activity of these protein-signals may be the cause of tumor growth (e.g., rectal, esophageal cancer). BMPs play a decisive role in the regeneration and organization of the bone.
Aim of the study. Bibliographic analysis of the role of stimulatory factors in osteogenesis.
Materials and methods. Currently PMs obtained by the use of gene engineering method are used in regenerative medicine, including stimulation of post-traumatic bone regeneration. The method consists of inoculating BMP into the bone implant, from where they penetrate to the fracture site during several weeks. Clinical use of the osteomorphogenic protein products is now accepted for the acceleration of fractured bones fragments - Infuse BMP-2 (Medtronic) in dentistry and OP-1 BMP-7 (Stryker Biotech) in long bone fractures. BMPs are used in the recovery of intervertebral cartilage. The broad implementation of BMP is only retained by the expensive costs of the therapy – the standard cure can cost 6000-10,000 $.
Results. Nowadays about 20 osteomorphogenic proteins are known, and the following are directly involved in osteogenesis: BMP1 - metalloprotease - acts on procollagen I, II, II and participates in the cartilage genesis; BMP2 - plays a role in differentiation of osteoblasts and genesis of cartilages and bones; BMP3 - stimulates bone formation; BMP4 - regulates the formation of teeth; BMP5 - has a role in cartilage development; BMP6 - controls homeostasis by regulating hepcidin synthesis; BMP7 - plays a main role in the differentiation of osteoblasts and stimulates SMAD1 formation; BMP8a - participates in the development of the cartilages and bones.