DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES AT VILNIUS UNIVERSITY

Scientific Area/eas, Field/ds of Science (codes)	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute of Clinical Medicine Clinic of Internal Diseases, Family Medicine and Oncology			
Course unit title (ECTS credits, hours)	**General Endocrinology** 8 credits (216 hours)			
Study method	**Lectures**	**Seminars**	**Consultations**	**Self-study**
Number of ECTS credits	-	-	1	7
Method of the assessment (in 10 point system)	Doctoral course unit will be assessed during the exam, where PhD student will have to provide written and oral answers to 4 open questions and solve one clinical case. Final exam score will be calculated as an arithmetical mean of all four scores. Assessment of each question/clinical case will be based on 10 points grading system: 10 points – excellent knowledge and capabilities, very few minor errors present; 9 points – very good knowledge and capabilities, a few minor errors present; 8 points – above average knowledge and capabilities, minor errors present; 7 points – average knowledge and capabilities, some errors; 6 points – below average knowledge and capabilities, (substantial) errors present; 5 points – knowledge and capabilities meet the minimum requirements, many mistakes present. 4 points – does not meet minimal requirements			

PURPOSE OF THE COURSE UNIT

To provide the latest theoretical and practical knowledge about endocrine diseases and metabolic disorders, emphasizing priority research areas, news regarding the pathophysiology of diseases, modern diagnostic and treatment options. To promote the ability to integrate knowledge into analysing and interpreting the latest research and international recommendations, to teach how to discuss and make evidence-based decisions, to encourage the application of research skills, to teach how to collect, analyse, interpret and present research data. To help develop a holistic approach to endocrine system changes characteristic to various comorbidities.

THE MAIN TOPICS OF COURSE UNIT

I. I. Diabetes mellitus (DM):
1. Classification and diagnosis of DM
2. Type 1 DM: differential diagnostics, LADA, treatment strategy, management goals.
3. Type 2 DM: risk factors, treatment strategy, management goals, long-term care plan.
4. The importance of cardiovascular and chronic kidney diseases in DM patients - a holistic approach to the patient care and treatment strategy.
5. The role of bariatric surgery for the treatment of type 2 DM: indications, bariatric surgery types, outcomes, long-term care.
6. MODY diabetes: diagnosis, types, treatment.

7. Gestational diabetes - epidemiology, significance for mother and foetus, diagnosis, treatment strategy, postpartum care.
8. Secondary diabetes mellitus and other types of diabetes: differential diagnosis, treatment strategy.
9. Acute DM complications: diabetic ketoacidosis, hyperglycaemic hyperosmolar nonketotic syndrome, hypoglycaemia: causes, progression rate, first aid, treatment strategy in the intensive care unit, treatment and follow-up tactics once stable.
10. Chronic DM complications: prevention, classification, diagnosis, long-term care
11. Application of modern technologies for management of DM - continuous glucose monitoring systems (sensors), insulin pumps.
12. Pancreatic islet cell transplantation for the treatment of type 1 DM - patient selection process, indications, principles for carrying out the procedure, long-term patient care.

II. Thyroid disorders:
1. Euthyroid nodular goiter.
2. Hyperthyroidism and hypothyroidism - diagnosis, differential diagnosis, treatment
3. Thyroid cancer - diagnosis, differential diagnosis, treatment, long-term care

III. Disorders of the parathyroid glands:
1. Hyperparathyroidism - classification, diagnosis, differential diagnosis, treatment.
2. Hypoparathyroidism - classification, diagnosis, differential diagnosis, treatment.
3. Vitamin D deficiency: diagnosis, recommendations, treatment
4. Acute hypercalcaemia and acute hypocalcaemia: causes, diagnostic criteria, treatment algorithms.

IV. Pituitary disorders:
1. Pituitary insufficiency - classification, diagnosis, differential diagnosis, treatment.
2. Pituitary incidentaloma - diagnostic algorithms, long-term care strategy.
3. Hyperprolactinemia - diagnosis, treatment.
4. Acromegaly - diagnosis, treatment.
5. Rare hormone-producing pituitary tumours - diagnosis, treatment.
6. Perioperative care of patients undergoing pituitary surgery due to pituitary tumours.

V. Adrenal gland disorders:
1. Adrenal incidentaloma - diagnostic algorithm, treatment strategy.
2. Hyperaldosteronism - classification, diagnosis, differential diagnosis, treatment.
3. Cushing's syndrome - classification (ACTH-dependent and ACTH-independent), diagnosis, differential diagnosis, treatment.
4. Pheochromocytoma - classification, diagnosis, differential diagnosis, treatment.

VI. Gonadal dysfunction: hypogonadotropic and hypergonadotropic hypogonadism: aetiology, related genetic syndromes, diagnosis, differential diagnosis, treatment.

VII. The importance of radiology and nuclear medicine in the diagnosis and treatment of patients with endocrine disorders - methods, advantages, application areas.

VIII. Disorders of the endocrine system induced by systemic biological therapy used to treat other pre-existing diseases.

IX. Rare endocrine diseases - concept, groups of diseases, genetic testing, care strategy.

X. Fluid and electrolyte balance disturbances: Hyponatraemia: classification, diagnosis, differential diagnosis, treatment.
XI. Gender dysphoria - concept, principles of working in multidisciplinary team, management goals. Indications and methods of hormone therapy, long-term care strategy.
XII. The latest scientific literature and guides concerning various aforementioned endocrinology topics - review, summary, conclusions regarding the topic under discussion.

RECOMMENDED LITERATURE SOURCES

1. Williams Textbook of Endocrinology, Fourteenth Edition, Elsevier, 2020. https://www.clinicalkey.com/#!/browse/book/3-s2.0-C20160054128
2. Winter, William E. Handbook of Diagnostic Endocrinology, Third Edition, Elsevier, 2021. https://www.clinicalkey.com/#!/browse/book/3-s2.0-C20170001039
3. Shifrin Alexander L. Endocrine Emergencies, First Edition, Elsevier, 2022. https://www.clinicalkey.com/#!/browse/book/3-s2.0-C20190031184
4. Alfredo Ulloa-Aguirre, Ya-Xiong Tao. Cellular Endocrinology in Health and Disease (Second Edition), Academic Press, 2021. https://doi.org/10.1016/B978-0-12-819801-8.09991-9. (https://www.sciencedirect.com/science/article/pii/B9780128198018099919)
5. Emiliano Corpas. Endocrinology of Aging, Elsevier, 2021. https://doi.org/10.1016/B978-0-12-819667-0.09995-9. (https://www.sciencedirect.com/science/article/pii/B9780128196670099959)
6. Hironori Ando, Kazuyoshi Ukena, Shinji Nagata. Handbook of Hormones (Second Edition), Academic Press, 2021. https://doi.org/10.1016/B978-0-12-820649-2.09990-3. (https://www.sciencedirect.com/science/article/pii/B9780128206492099903)
7. Cecile A. Ferrando. Comprehensive Care of the Transgender Patient, Elsevier, 2020. https://doi.org/10.1016/B978-0-323-49642-1.09991-9. (https://www.sciencedirect.com/science/article/pii/B9780323496421099919)
8. Manuel Faria, Francisco Bandeira, Luiz Griz, Hossein Gharib. Endocrinology and Diabetes: A Problem Oriented Approach, Second Edition, Springer, 2022. https://www.kriso.lt/endocrinology-diabetes-problem-oriented-approach-2nd-db-9783030906832.html?lang=eng
9. Giuseppe Orlando, Lorenzo Piemonti, Camillo Ricordi, Robert J. Stratta, Rainer W.G. Gruessner. Transplantation, Bioengineering, and Regeneration of the Endocrine Pancreas, Academic Press, 2020. https://doi.org/10.1016/B978-0-12-814833-4.09991-3. (https://www.sciencedirect.com/science/article/pii/B9780128148334099913)
10. Gardner D.G., & Shoback D(Eds.). *Greenspan's Basic & Clinical Endocrinology, 10e*. McGraw Hill. 2017. https://accessmedicine.mhmedical.com/content.aspx?bookid=2178&sectionid=166246461

CONSULTING LECTURERS

1. Coordinating lecturer: Žydrūnė Visockienė (Assoc. Prof. Dr.).
2. Vaidotas Urbanavičius (Assoc. Prof. Dr.).
3. Agnė Abraitienė (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University: 29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė