

Study program: Integrated academic studies in Dentistry			
Type and level of the study program: integrated academic studies			
Course title: CLINICAL TOXICOLOGY (DV-CLTO)			
Teacher: Vasović M. Velibor, Mijatović Jovin M. Vesna			
Course status: elective			
ECTS Credits: 3			
Condition: -			
Course aim The main objective of the course in clinical toxicology is to get students acquainted with pathways of toxins entry into the body, the basic physical and chemical properties of toxins, toxicokinetics and toxicodynamics of poisons, prevention and treatment of acute and chronic poisoning. The development of critical thinking and competences for scientific research.			
Expected outcome of the course: Students will acquire knowledge of the basic properties of toxins, mechanism of intoxication of the body, toxin-body interactions, basic measures aimed at prevention of intoxication and treating poisoned patients. Application of theoretical knowledge: the principles of resuscitation of acutely poisoned patients, methods of preventing penetration of toxins into the body, methods of natural and artificial detoxication, symptomatic and antidote therapy.			
Course description			
<i>Theoretical education:</i> A brief historical overview, the importance of toxicology, the definition of poison, chemical structure and toxicity, exposure and portals of toxin entry into the body. Absorption, distribution, metabolism, excretion of toxins. Types of poisoning, toxic and lethal doses, accumulation of toxins, adaptation to toxins, factors that influence the toxicity. Mechanisms of toxicity. Genotoxicity. Carcinogenesis. Acute poisoning with drugs for treating mental and nervous disorders and neurotoxic toxins. Acute poisoning with drugs for treating cardiovascular system and cardiotoxic toxins. Acute poisoning with drugs for treating respiratory system, digestive system, endocrine system. Acute poisoning with drugs and poisonous affecting blood diseases and blood-forming organs, metabolism and nutrition, which act on the immune mechanisms, infectious and parasitic diseases. Effects of drugs and toxins on the reproductive system and skin. Acute poisoning with opioid drugs, acute intoxication with drugs acting on the diseases of musculo-skeletal and connective system. Pesticide poisoning; Pesticide - definition, basic features and precautions, classification of pesticides, biological test for determination of residues; contamination of food through plastic packaging. Ethanol, methanol, trichloroethylen, benzene, chloroform, phenol, aniline, carbon disulfide, cyanide. Poisoning with carbon monoxide, carbon dioxid, hydrogen sulfide, sulfur dioxide, chlorin, nitrogen, oxides, ozone; poisoning with acids and bases; heavy metal intoxication.			
<i>Practical education: exercises, other forms of education, research related activities:</i> CPR Cardiopulmonary resuscitation of acutely poisoned patients. Skills in establishing the airway clearance (deflection head position, triple grip, placement of oropharyngeal tube, clearance of the airways – manual or using the aspirator, placing the patient in comma-position, Heimlich grip, orotracheal intubation. Artificial maintenance of ventilation (mouth-to- mouth method, mouth-to- nose, mouth-to- mask, mouth-to- tube, the use of hand-held mechanical ventilation using an AMBU-bag through a mask, AMBU-method with the tube, application of mobile respirator. Methods of maintaining artificial circulation (chest compressions, use of defibrillators in cardiac arrest, CPR techniques with a lifeguard, two rescuer CPR in acutely poisoned children, practicing techniques of peripheral and central venous line. Medicamentous resuscitation of the acutely intoxicated patients. Prevention of per oral toxin entry in the body - provoking vomiting, nasogastric suction, application of activated charcoal, inducing forced laxation. Natural detoxication of the body - forced diuresis, forced ventilation, hyperbaric oxygenation. Artificial detoxification - peritoneal dialysis, hemodialysis, hemoperfusion, plasmapheresis. Prevention of toxins entry in the body via respiratory, dermal, iatrogenic pathway; proper detoxification methods. Antidote treatment of acutely and chronically intoxicated patients. Symptomatic and infusion therapy in acutely and chronically intoxicated patients. Diagnosis of poisoning - anamnestic, clinical and laboratory algorithms. Toxicology databases and importance of forensic toxicology.			
Literature			
<i>Compulsory</i>			
1. True BV, Dreisbach RH. Dreisbach's Handbook of Poisoning: Prevention, Diagnosis and Treatment, CRC Press; 13th ed.			
<i>Additional</i>			
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Number of active classes			Other:
Lectures: 30	Practice: 15	Other types of teaching:	
Teaching methods Theoretical and practical			
Student activity assessment (maximally 100 points)			
Pre-exam activities	points	Final exam	points
Lectures	10	Written	
Practices	30	Oral	50
Colloquium		
Essay	2x5		