Information about the subject

Degree: Bachelor of Science Degree in Dentistry

Faculty: Faculty of Medicine and Health Sciences

Code: 480202 **Name:** Anaesthesiology

Credits: 6,00 **ECTS Year:** 2 **Semester:** 1

Module: Module 3: General Medical-Surgical Pathology and Therapeutics

Subject Matter: GENERAL MEDICAL-SURGICAL PATHOLOGY **Type:** Compulsory

Field of knowledge: Health Sciences

Department: Surgical Specialities

Type of learning: Classroom-based learning

Languages in which it is taught: English, Spanish

Lecturer/-s:

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Module organization

Module 3: General Medical-Surgical Pathology and Therapeutics

Subject Matter	ECTS	Subject	ECTS	Year/semester
GENERAL MEDICAL-SURGICAL PATHOLOGY	18,00	Anaesthesiology	6,00	2/1
		General Medical-Surgical Pathology	6,00	2/2
		Medical-Surgical Specialities	6,00	2/2
MEDICAL PATHOLOGY	12,00	General and Dental Pharmacology	6,00	2/1
		Pathological Anatomy	6,00	2/1

Recommended knowledge

1. Objectives related to knowledge:

·Provide dental students with the theoretical, anatomical, physiological, and pharmacological foundations of local and regional anesthetic block techniques.

·Acquire knowledge and mastery of instruments, materials, and their manipulation.

·Develop knowledge and mastery of the most common techniques used for local and regional anesthesia in dentistry.

·Understand all possible complications, master their treatment, and comprehend the limitations of local anesthesia.

·Address anesthesia and sedation in the dental office, including knowledge of anesthesiology techniques used for dental treatments, with or without the collaboration of an anesthesiologist.

·Understand the main causes of orofacial pain, pharmacological treatment strategies for pain in dentistry, and the possibilities of medical treatment for some orofacial pains.

2. Manual and practical skills:

·Train students in the manipulation of materials with a sterile and safe technique.

·Prepare students to perform local and regional oral anesthesia techniques.

·Train students to choose the appropriate anesthesia technique for each patient and planned therapy.

·Provide the necessary knowledge for ergonomic planning, material, and precise instrumentation for each case.

·Train students in the clinical use of analgesic drugs, individualizing therapeutic guidelines for each patient.

·Instruct students on the possibilities and limitations of using inhalation and intravenous sedation in dentistry.

3. Attitudes:

·Encourage teamwork among students for the application of different local and regional anesthetic techniques.

·Stimulate continuous training in important techniques for professional practice.

·Introduce students to the practical application of theoretical knowledge, familiarizing them with the necessary instruments and materials for performing local and regional anesthesia techniques in the oral cavity and maxillary structures.

·Initiate students in collaboration with anesthesiology and resuscitation, a medical specialty with which they should cooperate to carry out some dental treatments in which, due to the procedure's characteristics or patient comorbidities, local anesthesia techniques are not indicated.

4. Upon completion of the course, the student should be able to:

·Understand the importance of local anesthetics in dentistry.

·Understand the mechanism of action of local anesthetics.

·Know the forms of administration of local anesthetics.

·Determine the type of anesthesia to use in each clinical situation.

·Know the pharmacokinetic characteristics, indications, contraindications, and risks of local anesthetics and adjuvant drugs in dentistry.

·Know and perform commonly used anesthesia techniques in dentistry.

·Know and perform accepted sedation techniques in dentistry.

·Understand the expected effects on patients undergoing deep sedation or general anesthesia .
·Understand the theories explaining the action of general anesthetics on the central nervous system.
·Know the names and characteristics of the main halogenated anesthetics.
·Know the names and characteristics of the main intravenous anesthetics.
·Familiarize themselves with the most relevant aspects of Cardiopulmonary Resuscitation.

Learning outcomes

At the end of the course, the student must be able to prove that he/she has acquired the following learning outcomes:

R1	Takes a correct clinical history.
R2	Knows the methodology of clinical examination of patients.
R3	The student can optimize the diagnostic means, personalizing them for each identified clinical situation and updating them.
R4	The student can establish a diagnostic judgement from the anamnesis and examination data and record them.
R5	The student is able to establish a reasoned and updated therapeutics from the established diagnostic judgments.
R6	The student is able to have a continuous training program, based on bibliographic sources.
R7	Acquires the skills to have their own scientific production and to participate in the dental societies dedicated to the advancement of dentistry.
R8	Develops capacity to relate to patients and communicates effectively.
R9	Proves knowledge of the mechanisms of pain transmission.
R10	Properly selects the type of anesthesia according to the objective.
R11	Proves new knowledge about materials and instruments used when applying local anesthesia, demonstrating effort, responsibility, care and precaution in their use.
R12	Knows the different pharmacological possibilities in the field of dentistry. Describes and explains the pharmacology of local anesthetics and their components.
R13	Describes and applies the different anesthesia techniques studied demonstrating interest, enthusiasm and dedication in the acquisition of knowledge, skills, abilities, and above all, demonstrating self-confidence.
R14	Recognizes the main mechanisms that cause failures in local anesthetic techniques and knows how to handle them.

R15 Identifies and interprets the main clinical manifestations of vital complications in patients.

R16 Describes, recognizes and manages the cases of special patients and the complications that may arise after the administration of locoregional anesthesia, demonstrating interest, enthusiasm and dedication in the acquisition of new knowledge and safety, tranquility and self-confidence in the face of a patient who presents a complication.

R17 The student is able to make an individualized decision for the anesthesia of a patient based on the data from the anmnesis and examination.

R18 The student is able to handle emergency situations.

R19 The student is capable of performing basic pediatric cardio-pulmonary resuscitation.

R20 The student is able to properly record the information obtained and prepare reports.

Competencies

Depending on the learning outcomes, the competencies to which the subject contributes are (please score from 1 to 4, being 4 the highest score):

GENERAL	Weighting			
	1	2	3	4
CG2 I bOrganizational and planning skills				x

SPECIFIC	Weighting			
	1	2	3	4
CE A 7 Promote autonomous learning of new knowledge and techniques, as well as motivation for quality.			x	
CE B 1 Understand the basic biomedical sciences on which dentistry is based to ensure proper oral care.			x	
CE B 1 Know about general disease processes, including infection, inflammation, immune system disorders, degeneration, neoplasm, metabolic disorders and genetic disorders.		x		
CE B 1 Be familiar with the general pathological features of diseases and disorders affecting organ systems, specifically those with oral impact.			x	
CE B 1 Understand the fundamentals of action, indications and efficacy of drugs and other therapeutic interventions, knowing their contraindications, interactions, systemic effects and interactions on other organs, based on available scientific evidence.				x
CE B 1 Know, critically evaluate and know how to use clinical and biomedical information sources to obtain, organize, interpret and communicate scientific and health information.			x	
CE B 1 Know the scientific method and have the critical capacity to value the established knowledge and the new information. Be able to formulate hypotheses, collect and critically evaluate information for the resolution of problems, following the scientific method.		x		

TRANSVERSAL		Weighting			
		1	2	3	4
1. a.	Analysis and synthesis skills				x
1. b.	Organizational and planning capacity				x
1. c.	Oral and written communication in the native language.			x	
1. d.	Knowledge of a foreign language		x		
1. e.	Computer skills		x		
1. f.	Information management capacity			x	
1. g.	Problem solving			x	
1. h.	Decision making			x	
2. i.	Teamwork			x	
2. l.	Interpersonal skills		x		
2. n.	Critical Reasoning		x		
3. p.	Autonomous learning			x	
3. q.	Adaptation to new situations			x	
3. r.	Creativity			x	
3. s.	Leadership			x	
3. u.	Initiative and entrepreneurship			x	
3. v.	Motivation for quality			x	
3. w.	Sensitivity to environmental and socio-health issues			x	

Assessment system for the acquisition of competencies and grading system

Assessed learning outcomes	Granted percentage	Assessment method
R1, R2, R3, R4, R5, R9, R10, R11, R12, R14, R15, R17	80,00%	MULTIPLE CHOICE TEST: Multiple choice test with one correct answer. This shows to greater extent the contents acquired by the student.
R16, R18, R19, R20	15,00%	PRACTICAL: Written test in which the student is asked to solve practical exercises, clinical cases or problems about the contents of different subjects.
R12, R13, R15, R17	5,00%	CLASS PARTICIPATION: The teacher assesses the participation, involvement and progress the student makes in acquiring knowledge and skills in theory and practical classes and seminars. This is never more than 5% of the final grade.

Observations

MENTION OF DISTINCTION:
In accordance with the regulations governing the assessment and grading of subjects in force at UCV, the distinction of "Matrícula de Honor" (Honours with Distinction) may be awarded to students who have achieved a grade of 9.0 or higher. The number of "Matrículas de Honor" (Honours with Distinction) may not exceed five percent of the students enrolled in the group for the corresponding academic year, unless the number of enrolled students is fewer than 20, in which case a single "Matrícula de Honor" (Honours with Distinction) may be awarded. Exceptionally, these distinctions may be assigned globally across different groups of the same subject. Nevertheless, the total number of distinctions awarded will be the same as if they were assigned by group, but they may be distributed among all students based on a common criterion, regardless of the group to which they belong. The criteria for awarding "Matrícula de Honor" (Honours with Distinction) will be determined according to the guidelines stipulated by the professor responsible for the course, as detailed in the "Observations" section of the evaluation system in the course guide.

Learning activities

The following methodologies will be used so that the students can achieve the learning outcomes of the subject:

M1 Lecture.
Problem Solving.
Explanation of contents by the teacher.
Explanation of knowledge and skills.

M2 Practical basic sciences laboratory sessions, practical simulation laboratory sessions, virtual hospital and dissecting room.

M6 Discussion and problem solving.

M13 Personal preparation of written texts, essays, problem solving, seminars.

M15 Personalised Attention. Period of instruction and/or guidance carried out by a tutor with the aim of analysing with the student his/her work, activities and evolution in learning of subjects.

IN-CLASS LEARNING ACTIVITIES

	LEARNING OUTCOMES	HOURS	ECTS
THEORY CLASS M1, M6	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R20	75,00	3,00
TUTORING M15	R10, R12, R14, R16, R17	6,00	0,24
EVALUATION M6	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20	5,00	0,20
PRACTICAL CLASS M2, M6	R11, R15, R18, R19	14,00	0,56
TOTAL		**100,00**	**4,00**

LEARNING ACTIVITIES OF AUTONOMOUS WORK

	LEARNING OUTCOMES	HOURS	ECTS
INDIVIDUAL WORK M13	R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20	50,00	2,00
TOTAL		**50,00**	**2,00**

Description of the contents

Description of the necessary contents to acquire the learning outcomes.

Theoretical contents:

Content block	Contents
Anatomy Applied to Dental Anesthesia	·Anatomy of the fifth cranial nerve ·Tooth innervation ·Painful stimulation of the client ·Painful stimulation of the periodontium ·Innervation of the oro-facial region
Neurophysiological Basis of Oro-Dental Pain Transmission	·Neurophysiology of pain ·Nociceptors and their pathways ·Anatomy of the peripheral nerve ·Physiology of peripheral nerves
Basic Aspects for the Practice of Anesthesia in Dentistry	·Pre-anesthetic evaluation of the patient ·Premedication ·Monitoring ·Material and principles of application
Pre-anesthetic Considerations in Dentistry	·General health status of patients ·Medically compromised patients ·Patients with allergies ·Patients with cardiovascular problems ·Dental management of diabetic patients ·Dental management of patients with coagulation disorders ·Dental management of disabled patients ·Infectious and contagious patients ·Dental management of patients with polypharmacy ·Dental management of pregnant, lactating, oral contraceptive users, and menopausal patients

Instrumentation and Material	·The syringe ·The needle ·The cartridge ·Additional materials ·Preparation of instruments and materials
Pharmacology of Local Anesthetics: General Aspects	·Mechanism of action of local anesthetics ·Metabolism of local anesthetics ·Toxicity of local anesthetics ·Maximum Recommended Dose ·Pharmacology of Vasoconstrictors: ·Clinical application of local anesthetic solutions ·Characteristics of the most commonly used local anesthetics in Dentistry
Regional Anesthesia in Dentistry	·Topical anesthesia ·Infiltrative anesthesia ·Regional anesthesia-field block ·Nerve trunk anesthesia-conduction block ·Intraoral techniques ·Extraoral techniques ·Pressure anesthesia (needle-free injection) ·Electronic dental anesthesia (EDA)
Maxillary Anesthesia: General Aspects	·Incisors and canines ·Premolars ·Molars ·Conduction blocks
Mandibular Anesthesia	·Mental nerve block ·Buccal nerve block ·Inferior alveolar nerve block ·Incisive nerve block ·Gow-Gates mandibular block ·Vazirani-Akinosi mandibular block with closed mouth
Suplemental Injection Techniques	·Intraosseous anesthesia ·Intraseptal anesthesia

Local Anesthesia in Different Fields of Dentistry	·Oral Surgery ·Periodontology ·Dental Therapy ·Prosthodontics ·Pediatric Dentistry ·Geriatric Patients
Management of Failures in Local-Regional Anesthesia in Dentistry	·Anesthesia failure ·Anatomical variations ·Physiological variations ·Inadequate technique or dose ·Complications ·Tolerance ·Hypersensitivity or allergy
Sedation Techniques	·Pre-medication ·Nitrous oxide sedation ·Intravenous sedation ·Conscious sedation ·Deep sedation
Fundamentals of General Anesthesia: Clinical Methodology and Application in Dentistry	·Hospital-based general anesthesia ·Office-based anesthesia
Principles of Pain Treatment	·Generalities of analgesic drugs ·Non-steroidal anti-inflammatory drugs (NSAIDs) ·Opioid analgesics ·Adjuvant drugs ·Clinical management of patients with acute pain
Pain Treatment in Dentistry	·Main types of orofacial pain ·Approach and treatment

Temporary organization of learning:

Block of content	Number of sessions	Hours
Anatomy Applied to Dental Anesthesia	2,00	4,00
Neurophysiological Basis of Oro-Dental Pain Transmission	2,00	4,00
Basic Aspects for the Practice of Anesthesia in Dentistry	4,00	8,00
Pre-anesthetic Considerations in Dentistry	2,00	4,00
Instrumentation and Material	2,00	4,00
Pharmacology of Local Anesthetics: General Aspects	4,00	8,00
Regional Anesthesia in Dentistry	4,00	8,00
Maxillary Anesthesia: General Aspects	6,00	12,00
Mandibular Anesthesia	4,00	8,00
Suplemental Injection Techniques	6,00	12,00
Local Anesthesia in Different Fields of Dentistry	4,00	8,00
Management of Failures in Local-Regional Anesthesia in Dentistry	2,00	4,00
Sedation Techniques	2,00	4,00
Fundamentals of General Anesthesia: Clinical Methodology and Application in Dentistry	2,00	4,00

Principles of Pain Treatment	2,00	4,00
Pain Treatment in Dentistry	2,00	4,00

References

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3.Miguel Peñarrocha Diago- Jose María Sanchis Bielsa- Jose Maria Martinez Gonzalez. Anestesia local en odontología. Aula Magna. 2007
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5.Berkovitz, B.K.B /Holland, G.R. /Moxham, B.J. Atlas en color y texto de anatomía oral
6.Roewer N; Holger THIELI: Atlas de anestesiología. Ed Masson 2003
7.Hurford y cols: Massachusetts General Hospital procedimientos en anesthesia. Ed. Marban 2003
8.SAFAR P: Reanimación cardiopulmonar y cerebral. Ed Interamericana. Madrid
9.Handbook of Local Anesthesia. Stanley Malamed. 7th Edition. Mosby