



COURSE DATA

Data Subject

Code	36319
Name	Fundamentals of Intensive Care and Techniques for the Treatment of Severe Pain
Cycle	Grade
ECTS Credits	4.5
Academic year	2024 - 2025

Study (s)

Degree	Center	Acad. Period
1204 - Degree in Medicine	Faculty of Medicine and Odontology	5 First term

Subject-matter

Degree	Subject-matter	Character
1204 - Degree in Medicine	18 - Optional subjects	Optional

Coordination

Name	Department
DE ANDRES IBAÑEZ, JOSE ANTONIO	40 - Surgery

SUMMARY

English version is not available

Esta asignatura se plantea para que el alumno pueda conocer los aspectos generales de los cuidados intensivos y del tratamiento del dolor agudo y crónico del paciente, como complemento de los conocimientos adquiridos en la asignatura de Anestesia contenida en el modulo de Procedimientos Diagnósticos y Terapéuticos en 3º curso de Grado.

En el **área de conocimiento de Cuidados intensivos**, principalmente el alumno conocerá: los aspectos generales de los cuidados intensivos, el tipo de paciente y sus características comunes. Los cuidados generales. Sedación y analgesia, y las complicaciones relacionadas con la estancia. En la vía aérea la fisiopatología, el diagnóstico, y el tratamiento del fallo respiratorio agudo y del Síndrome de Distres Respiratorio Agudo. Mantenimiento de la permeabilidad de la vía aérea y los distintos modos de oxigenoterapia y ventilación invasiva y no invasiva así como su monitorización. Conocer los tipos de Shock, su diagnóstico y manejo clínico. La función neurológica y su monitorización multimodal, incluyendo los criterios diagnósticos de muerte cerebral. Conocer las técnicas diagnósticas y el



tratamiento de las infecciones más frecuentes en Cuidados críticos, la prevención y los factores de riesgo de la infección nosocomial y sus métodos de vigilancia, así como el tratamiento de la sepsis y del fracaso multiorgánico.

En el **área de conocimiento del tratamiento del dolor agudo y crónico**, el alumno aprenderá a valorar el dolor como elemento individualizado en la semiología clínica de un paciente. Conocer los principios de acción de los fármacos analgésicos, utilizados en tratamiento del dolor, y utilizarlos eficazmente. Conocer las técnicas analgésicas, generales, y regionales. A partir de ahí el alumno podrá planificar un adecuado tratamiento del dolor quirúrgico y no quirúrgico, y la prevención del dolor crónico. Finalmente el alumno entenderá la diferencia entre una unidad de tratamiento de dolor agudo y los aspectos generales de las unidades multidisciplinares de tratamiento del dolor crónico, el tipo de paciente y sus características comunes. Saber remitir adecuadamente un paciente a una unidad especializada de tratamiento del dolor comprenderá las técnicas especializadas de tratamiento el dolor que se realizan en las Unidades multidisciplinares de tratamiento del dolor crónico.

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Es recomendable tener conocimientos de anatomía y fisiología, así como de patología general para poder comprender la repercusión de las distintas enfermedades sistémicas y su evolución a situaciones críticas que precisan tratamientos intensivos.

En el paciente con dolor crónico para su mejor comprensión se debe tener una visión básica de la nocicepción y sus vías, así como de patología general para poder comprender la repercusión de las distintas enfermedades sistémicas con dolor crónico que precisan tratamientos especializados concomitantes al etiológico mismo de la enfermedad causal.

COMPETENCES (RD 1393/2007) // LEARNING OUTCOMES (RD 822/2021)

1204 - Degree in Medicine

- Students must be able to apply their knowledge to their work or vocation in a professional manner and have acquired the competences required for the preparation and defence of arguments and for problem solving in their field of study.
- Students must have the ability to gather and interpret relevant data (usually in their field of study) to make judgements that take relevant social, scientific or ethical issues into consideration.
- Understand and recognise the effects, mechanisms and manifestations of diseases over the structure and function of the human body.



- Understand and recognise source agents and risk factors which determine health status and the development of diseases.
- Organizar y planificar adecuadamente la carga de trabajo y el tiempo en las actividades profesionales.
- Capacidad para trabajar en equipo y para relacionarse con otras personas del mismo o distinto ámbito profesional.
- Criticism and self-criticism skills.
- Capacity for communicating with professional circles from other domains.
- Acknowledge diversity and multiculturality.
- Consideration of ethics as a fundamental value in the professional practise.
- Working capacity to function in an international context.

LEARNING OUTCOMES (RD 1393/2007) // NO CONTENT (RD 822/2021)

English version is not available

DESCRIPTION OF CONTENTS

1. THEORETICAL LESSONS PROGRAM

1. Generalities about Intensive Care. The critical patient. Assessment and prognosis scales.
2. Respiratory failure. Principles and methods of monitoring mechanical ventilation.
3. Circulatory failure. Principles and methods of hemodynamic monitoring.
4. Liver and kidney failure. Principles and methods of extrahepatic and extrarenal support.
5. Brain death. Diagnosis and management of organ donors for transplant.
6. Physiological bases of pain. Anatomy and physiology in the transmission and modulation of pain and in the evolution of acute to chronic pain. Prevention of chronic pain.
7. Musculoskeletal pain: myofascial, joint. Mixed pain. The rachis as an example.
8. Visceral pain. Neuropathic pain. Neuropathy and complex regional pain.
9. Pain in the cancer patient. Specific strategies.
10. Interventional techniques specialized in the treatment of chronic pain.

2. PRACTICAL TRAINING

SEMINARS - ANALYSIS OF CLINICAL CASES

1. Application of severity scales and calculation of prognosis in 5 patients.
2. Patient with acute respiratory distress syndrome: calculation of compliance and resistance values etc.
3. Patient with septic shock. Assessment of hemodynamic parameters and response to treatment.
4. Patient with hepato-renal syndrome. Adjustment of the hemofiltration system and supportive approach extracorporeal hepatic.
5. Planning of action in case of brain death, potential organ donor.



6. Treatment of pain in patients with spinal pathology. Critical analysis and foundations of decision-making process.
7. Treatment of musculoskeletal pain. Critical analysis and foundations of decision making.
8. Treatment of pain in patients with complex regional pain syndrome. critical analysis and foundations of decision-making process.
9. Pain in cancer patients. Critical analysis and foundations of decision making for both therapies as palliative medicine.
10. Treatment of pain in patients with headaches of cervical origin. Critical analysis and foundations of decision-making process.

CLINICAL PRACTICES.

Viewing and performing procedures in

- a) Intensive Care Unit (ICU) and Post-anesthetic Recovery Unit.
- b) Outpatient consultation, technical room and operating rooms, Pain Unit.

University Clinical Hospital and Malvarrosa Hospital. General University Hospital Consortium.

2 practices in the Intensive Care Unit (ICU).

2 practices in the Pain Unit.

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	19,00	100
Seminars	16,00	100
Clinical practice	10,02	100
TOTAL	45,02	

TEACHING METHODOLOGY

Classes with theoretical content will be given in person. Audiovisual support will be provided to the student through the virtual classroom.

Seminars. With proposals of real cases that must be analyzed and studied by the group. Group interactivity will be sought through oral presentations and examples in the classroom, counting in continuous evaluation. In total 10 thematic units in 10 class hours.

Clinical practices. In-person modality in which the theoretical concepts will be developed in a practical way in their application in patients admitted to the Intensive Care Unit, or outpatients for their study and completion of clinical history and/or performance of chronic pain treatment techniques. These small group practices will be carried out with real patients so that students can develop skills.

The gender perspective, respect for diversity and the sustainable development goals (SDGs) will be incorporated into teaching, whenever possible.



EVALUATION

Theoretical evaluation: 50% of final grade. It will be carried out through a written test that will cover the contents of the theoretical program. It will aim to evaluate the acquisition of knowledge. It consists of:

- Multiple response question test. It will consist of 30 multiple choice multiple choice questions with 4 options and a single valid answer. Each correct question adds 1 point and the wrong ones subtract 0.33 points. Blank questions do not add or subtract.

It is a requirement to have passed the theoretical evaluation to be able to access the final evaluation. If the theoretical evaluation is failed, the subject is considered failed. If the theoretical evaluation is passed, the final grade is adjusted with the evaluation proration as specified.

Practical evaluation: 50% of the final grade. It will be carried out through continuous evaluation of participation in the different internship activities and with the completion of a multiple-choice test that evaluates the acquisition of skills related to the contents and clinical cases.

- Multiple response question test. It will consist of 30 multiple choice multiple choice questions with 4 options and a single valid answer. Each correct question adds 1 point and the wrong ones subtract 0.33 points. Blank questions do not add or subtract.

It is a requirement to access the advance call for this subject that the student has completed all of his/her practices.

Attendance at practical activities is mandatory. The student is considered to meet this requirement if he or she has attended a minimum of 80% of these activities and has adequately justified the impossibility of attending the remaining sessions due to the occurrence of a cause of force majeure. It will be essential to comply with this requirement to pass the subject.

Students are reminded of the importance of carrying out evaluation surveys on all the teaching staff of the degree subjects.

REFERENCES

Basic

- Fundamentos de Cuidados Intensivos
 1. Belda FJ, Llorens J. Ventilación mecánica en anestesia y cuidados críticos. Arán, 2009.
 2. Whiten C, Soni N, Jackson G. Practical Procedures In Anaesthesia And Critical Care. Oxford University Press, 2010
 3. Vincent JL, Abraham E, Kochanek P, Moore FA, Fink MP. Textbook of Critical Care: Expert Consult Premium Edition - Enhanced Online Features and Print (textbook of critical care, Shoemaker). Saunders, 2011.
 4. Vincent JL (Ed). Yearbook of intensive care and emergency medicine. Springer 2006-2011.
 5. Rippe JM, Irwin RS. Intensive Care Medicine 7^aed. Lippincott Williams & Wilkins, 2011
 6. Nácul FE. Surgical Intensive Care Medicine. Springer, 2010
 7. Adams JP, Bell D, McKinlay J. Neurocritical Care. Springer, 2010
 8. Frankel HL, Boisblanc BP. Bedside Procedures for the Intensivist. Springer, 2010



9. Criner GJ, Barnette RE. Critical Care Study Guide. Springer, 2010
 10. Smith FG, Yeung J. Core Topics in Critical Care Medicine. Cambridge University Press, 2010
- Fundamentos de técnicas para tratamiento del Dolor Agudo y Crónico
- 1.-Rogers JN. Toma de decisiones en el tratamiento del dolor. Elsevier. 2007
 - 2.-Waldman S. Atlas de Síndromes dolorosos frecuentes. Elsevier. 2003
 - 3.-Waldman S. Atlas de Síndromes dolorosos poco frecuentes. Elsevier. 2004
 - 4.-S. Diwan, P. Staats Atlas of Pain medicine Procedures . Mc Graw Hill Education. Medical 2015.
 - 5.-P. Raj, L. Lou Interventional Pain Management: Image-guided Procedures. Saunders/Elsevier, 2008
 - 6.-SN. Narouze. Atlas of Ultrasound-Guided Procedures in Interventional Pain Management. Springer, 2011
 - 7.-MA. Reina, J De Andres, A. Hadzic, A. Prats-Galino, X Sala-Blanch. Atlas of functional anatomy for regional anesthesia and Pain Medicine. Springer, 2015
 - 8.- Serra J. Tratado de dolor neuropático. Editorial panamericana. 2007.
 - 9.- Practice Guidelines for Chronic Pain Management. An Updated Report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine. Anesthesiology 2010; 112:810 833
 - 10.- Unidad de Tratamiento del Dolor . Estandares y recomendaciones . MINISTERIO DE SANIDAD Y POLÍTICA SOCIAL CENTRO DE PUBLICACIONES. 2011
http://www.msc.es/organizacion/sns/planCalidadSNS/docs/EERR/Unidad_de_tratamiento_del_dolor.pdf
 - 11.- Unidad de Cuidados Paliativos . Estandares y recomendaciones . MINISTERIO DE SANIDAD Y POLÍTICA SOCIAL CENTRO DE PUBLICACIONES. 2009
- Fuentes en Internet
- Procedure Specific Postoperative Pain management (PROSPECT)
<https://esraeurope.org/prospect/>
 - RECURSOS e-Salut:
 - ClinicalKey Student Medicina, Odontología y Enfermería
[<https://uv-es.libguides.com/RecursosSalut>]
 - Acces Medicina
[https://uv-es.libguides.com/Access_Medicina]
 - Médica Panamericana
[https://uv-es.libguides.com/Medica_Panamericana]

Additional

- Fuentes en Internet
1. Sociedad Americana de cuidados críticos: SCCM
<http://www.learnicu.org/Pages/default.aspx>
 2. Curso de la Sociedad Americana: SCCM resident ICU course
<http://www.learnicu.org/Fundamentals/RICU/Pages/default.aspx>
 3. European Society of Intensive Care Medicine
Entrenamiento en cuidados de pacientes agudos.
<http://www.esicm.org/Data/ModuleGestionDeContenu/Pages/Generees/03-education/0B-pact-programme/25.asp>
 4. Critical Care medicine tutorials



<http://www.ccmtutorials.com/>

5. New England Journal of Medicine (vídeos)

<http://www.nejm.org/multimedia/medical-videos>

6. The Merck Manuals Online Medical Library

<http://www.merck.com/mmpe/sec06.html>

7. SCCMs Critical Care de formación cruzada para no especialistas en críticos

<http://www.learnicu.org/Pages/default.aspx>

8.- Institute for Clinical Systems Improvement (ICSI). Assessment and management of chronic pain. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2007 Mar. 87 p. Citada el 10 de junio de 2008. Disponible en: www.icsi.org.

- 9.- Attal N, Cruccu G, Haanpaa M, Hansson P, Jensen TS, Nurmikko T, et al. EFNS Task Force. EFNS guidelines on pharmacological treatment of neuropathic pain. *Eur J Neurol* 2006 Nov;13(11):1153-1169. Disponible en: <http://www.guideline.gov>.

10.-Dworkin RH, OConnor AB, Backonja M, Farrar JT, Finnerup NB, Jensen TS, et al. Pharmacologic management of neuropathic pain: evidence-based recommendations. *Pain* 2007 Dec 5;132(3):237-51. Disponible en: http://www.guideline.gov/summary/summary.aspx?doc_id=11724&nbr=6049#1146

11.-Boswell MV, Trescot AM, Datta S, Schultz DM, Hansen HC, Abdi S, et al. Interventional techniques: evidence-based practice guidelines in the management of chronic spinal pain. *Pain Phys* 2007 Jan; 10 (1): 7-111. Disponible en: <http://www.painphysicianjournal.com/2007/january/2007;10;7-111.pdf>

12.- Neira F, Ortega JL. Guías de Práctica Clínica en el Tratamiento del Dolor. Una herramienta en la práctica clínica. *Rev. Soc. Esp. Dolor* 2008; 6: 399-413.

13.-Cunningham AJ, Knape JT, Adriaensen H, Blunnie WP, Buchser E, Goldik Z, Ilias W, Paver-Erzen V, Board of Anaesthesiology of the European Union of Medical Specialists. Guidelines for anaesthesiologist specialist training in pain medicine. *Eur J Anaesthesiol.* 2007 Jul; 24(7):568-70.