

370517 - FARMACO - Ocular Pharmacology

Coordinating unit: 370 - FOOT - Terrassa School of Optics and Optometry
Teaching unit: 731 - OO - Department of Optics and Optometry
Academic year: 2019
Degree: BACHELOR'S DEGREE IN OPTICS AND OPTOMETRY (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6 Teaching languages: Catalan

Teaching staff

Coordinator: Clot Silla, Eduardo
Others: Gonzalez Davila, Paula
Mazario Garcia, Manuel Francisco
Clot Silla, Eduardo

Opening hours

Timetable: Opening hours for students, to be arranged by appointment with the teaching staff.

Degree competences to which the subject contributes

Specific:

1. Acquire skills in patient care
2. Technical english applied to optics and optometry
3. Applying the protocols of public health in relation to visual health.
4. Applying an specific anamnesis to extract relevant information.
5. Ability to write and interpret a report
7. Detecting the need to derive the patient with the corresponding report to the appropriate professional and be able to collaborate keeping the follow-up of the patient
8. Detecting adverse reactions caused by systemic and topical medication.
9. Designing protocols for prevention of visual health
10. Establish protocols, analyze results and elaborate the corresponding reports
13. Know establish an optimal therapeutic relationship, know communicate with the patient
16. Being able to design and create the optimal work environment to prevent the development of visual problems
17. Being able to take, treat, represent and interpret experimental data. "Use basic laboratory equipment and techniques"
18. Being able to perform literature searches.
19. Value the need to realize complementary tests. Realize and interpret correctly the results of these tests (visual field, layouts,...)

Generical:

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20. Adaptation of all the fields of professional activity envers compatible aspects with the medium ambient (recycling, reuse of the materials,...)
21. Consistently communicate the basic knowledge of optometry acquired. (Explain orally and in writing the basic knowledge)
22. Communicate (Advise and guide) in a responsible and efficient way with the patient and his environment (in order to ensure compliance with treatment)
23. Be able to organize the work of a group of people to attain a previously determined aim in the due terms

28. Encourage methodical work, rigorous, consistent and innovative

30. Being able to collaborate on initiatives, both locally and globally, committed to improving the visual health of the population
32. Locate new information and the interpretation of it in its context.

33. Working with evidence, methodology and rigour.

Teaching methodology

Directed learning hours are, on the one hand, to give lectures (large group) in which the teacher makes a short presentation to introduce the general learning objectives and concepts of matter. Subsequently, through seminars delves deeper into the themes involving the student to participate actively in their learning. In addition, cooperative learning techniques developed in the classroom.

Moreover practice sessions are held where the student starts using a criterion of rational drug use in problem solving and basic clinical skills. To perform these activities directed learning support material is used by ATENEA (: learning objectives for content, scripts activities (where, apart from a brief theoretical explanation for different activities are proposed and the methodology to be employed), tests self, examples, programming and evaluation activities directed learning and bibliography).

Autonomous learning hours are the hours that the student will devote to the study of matter in order to overcome the different tests evaluated. Also included in this group the hours spent resolving self questionnaires of the different contents by virtual campus ATENEA.

Learning objectives of the subject

At the end of Ocular Pharmacology course, the student should be able to:

- Interpret data pharmacokinetic, pharmacodynamic and toxicological properties of drugs used in the prevention and treatment of eye conditions, diagnostic tests and visual examinations.
- Identify and characterize the different dosage forms and routes of administration of the drugs used in the prevention and treatment of eye conditions, diagnostic tests and visual examinations.
- Distinguish the route of administration as the therapeutic goal
- Describe, justify and apply the clinical criteria governing the rational use of medicines for the prevention and treatment of eye conditions, diagnostic tests and visual examinations
- Apply the necessary clinical procedures for early detection of ocular adverse reactions
- Establish a line of action against ocular adverse reactions.
- Describe and apply basic standards of patient care.

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Study load

Total learning time: 144h	Hours large group:	0h	0.00%
	Hours medium group:	32h	22.22%
	Hours small group:	28h	19.44%
	Guided activities:	0h	0.00%
	Self study:	84h	58.33%

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Content

<p>1. PHARMACOLOGICAL BASIS</p>	<p>Learning time: 41h Practical classes: 4h 12m Laboratory classes: 6h 48m Self study : 30h</p>
<p>Description:</p> <ul style="list-style-type: none"> 1.1. Introduction to Pharmacology 1.2. Basic pharmacological terminology 1.3. Legal aspects related to medication use 1.4. General Principles of Pharmacodynamics 1.5. General Principles of Pharmacokinetics 1.6. Ocular Pharmacokinetics <p>This block contains: The basic concepts related to ocular pharmacology.</p> <p>Related activities: Practices related to the evaluable block will be carried out at the end of each session and in the practice test. A continuous assessment test in the classroom during large group sessions.</p>	
<p>2. DRUGS FOR THE DIAGNOSIS AND EXAMINATION</p>	<p>Learning time: 10h Practical classes: 4h Self study : 6h</p>
<p>Description:</p> <ul style="list-style-type: none"> 2.1. Local anesthetics 2.2 Diagnostic Dyes 2.3 Drug for the diagnosis of visual disturbances related to the nervous system <p>This content works: Basic aspects related to the mechanism of action, dosage, route of administration, indications and adverse pharmac groups that are involved in the detection and diagnosis of various eye disorders.</p> <p>Related activities: A group activity is assessed individually at the end of the session.</p>	

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<h3>3. OCULAR PHARMACOTHERAPEUTICS</h3>	<p>Learning time: 77h</p> <p>Practical classes: 25h Laboratory classes: 8h Self study : 44h</p>
<p>Description:</p> <ul style="list-style-type: none"> 3.1 Antiglaucoma 3.2. Anti-inflammatory 3.3 Antiallergic 3.4 Antiinfectives 3.5 Viscoelastic 3.6 Antiangiogenic 3.7 Botulinum toxin <p>This content works: Basic aspects related to the mechanism of action, dosage, route of administration, indications and adverse reactions of different groups of drugs that are used in the treatment of most common eye diseases, basic clinical procedures and assessment of refractive status.</p> <p>Related activities: Practices related to the evaluable block will be carried out at the end of each session and in the practice test. A continuous assessment test in the classroom during large group sessions.</p>	

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Planning of activities

<p>1. PRACTICES</p>	<p>Hours: 24h Laboratory classes: 24h</p>
<p>Description: Activities that are carried out in groups of 2-3 students with a duration of 2 hours. The experimental part will be done in the laboratory. As directed learning it is planned that the student make a previous reading of the script and answer, at the beginning of each practice a questionnaire about the objectives, and some theoretical concepts that appear in the script (preliminary questionnaire). The practices are done in the Eye Physiology and Pharmacology Laboratory, 1st Floor.</p> <p>Support materials: All material and equipment needed will be provided at the start of each session. Detailed script of the practice (Word) ATENEA. It is mandatory to bring the script in paper format to each session.</p> <p>Descriptions of the assignments due and their relation to the assessment: The results of the preliminary questionnaire must be given to the teacher at the end of each practice session.</p>	

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Specific objectives:

At the end of the practices the student must be able to:

Practice 1. Drugs and forms of administration

- Know the information on the medication packaging, the different concentration units, dosage, types of pharmaceutical forms and concept of expiration. Administration routes and rules of proper administration.

Practice 2. Characteristics of eye preparations

- Know the concept of sterility, become familiar with sterilization systems such as sterilizing filters, concept of particle in suspension and relevance in eye preparations, adequate pH margins in ocular application preparations and concepts of isotonicity .

Practice 3. Bibliographic information search

- Know the different sources of information in health sciences in general and in pharmacology in particular.
- Know the best ways to find relevant information from a clinical point of view.
- Critical reading of scientific information.

Practice 4: Artificial tears I

- To know the anatomy and physiology related to the lacrimal functional unit.
- Know the composition, physiology and circulation of the tear film.
- To know the different concepts related to dry eye syndrome: definition, prevalence, etiology, signs and symptoms, classification, diagnosis, risk factors and treatment.
- To be familiar with artificial tear products: composition, pharmaceutical forms available, administration and effects of these preparations.

Practice 5. Artificial tear II

- To be familiar with the concepts related to the characteristics of artificial tears: surface tension, viscosity, preservatives, lacrimal osmolarity, classification of different types of artificial tears, resolution of clinical cases.

Practice 6. Solutions for cleaning and maintenance of contact lenses

- Identify the active principles of a maintenance solution according to their indications
- Describe the basic processes of maintenance of a contact lens as well as the active principles involved
- Assign an individualized maintenance system
- Remember the main disinfectants used in maintenance solutions
- Set the difference between a disinfectant and a preservative
- Describe the mechanisms of action of cleaners, disinfectants and humectants
- Set the differences between cleaners
- Establish the differences between contact lens moisturizers, conditioners and lubricants.

Practice 7. Pharmacovigilance

- Know the concept of pharmacovigilance.
- Know the notification and analysis system of imputability of adverse reactions.

Practice 8. Clinical Interview

- Know the basics of individualized pharmacotherapeutic attention in direct contact with the patient.

5. INDIVIDUAL CONTINUOUS EVALUATION TESTS

Hours: 4h
Theory classes: 4h

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Description:

Two partial exams on the contents of the practices.

Support materials:

Practice sessions notes and theory material available at ATENEA.

Descriptions of the assignments due and their relation to the assessment:

Resolution of the exercise by the student adjusting to the established time. Represents 40% of the overall mark of the subject (20% each exam)

Specific objectives:

The student will be able to demonstrate that he has achieved the specific objectives of the topics included in each of the individual tests.

6. SEMINARS

Hours: 4h

Practical classes: 4h

Description:

Working in pairs or in groups of 3-4 students on a theoretical issue from a guide. This kind of activity is presented as reinforcement of large-group lectures. Seminars and its content will be evaluated in the context of theoretical exams.

Seminar 1: Pharmacological treatments related to cataract surgery.

Seminar 2: Anisocoria-Oculosympathetic paralysis: Diagnostic drugs

Support materials:

Seminar's guide (PDF ATENEA) and teaching material, to be provided at the beginning of the activity. It is mandatory to bring the script in paper format to each session.

Specific objectives:

The student to be able to demonstrate that it has achieved the specific objectives of the workshop (listed in the script accordingly).

2. ABSTRACT REDACTION

Hours: 2h

Practical classes: 2h

Description:

Redaction of the abstract, no more than 350 words, of an original scientific article about Ocular Pharmacology that will be provided to students.

Support materials:

Scientific article provided through ATENEA platform.

Descriptions of the assignments due and their relation to the assessment:

Abstract delivery deadline is December 17th 2019.

Specific objectives:

To learn methodologies for the selection and synthesis of the most relevant information contained in a scientific document.

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Qualification system

The final mark is the sum of the partial qualifications and includes:

Final mark = $0,1 \times \text{abstract writing} + 0,1 \times 1\text{stTE} + 0,2 \times 2\text{ndTE} + 0,2 \times 3\text{rdTE} + 0,2 \times 1\text{rPE} + 0,2 \times 2\text{ndPE}$

TE: Theory exam mark (test questions + short questions)

PE: Practical exam mark (short questions)

1stTE: Pharmacological basis

2ndTE: Drugs for the diagnosis and ocular examination

3rdTE: Ocular Pharmacotherapeutics

Regulations for carrying out activities

It is not allowed, under any circumstance, to bring notes to the learning controls, tests or exams.

In the specific case of the practice sessions, the total practice mark can only be reached with a maximum of two non justified absences. The non justified absence in three or more practice sessions is penalized losing two points in the final total subject mark.

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Complementary:

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Others resources: