

La recursividad en la enseñanza de la exploración del paciente oftalmológico

Recursiveness in teaching examination of the ophthalmic patient

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Resumen: En la formación de pregrado se le concede una gran importancia a la enseñanza de la Oftalmología como uno de los problemas de salud a los cuales se enfrentará el futuro médico general integral por lo que tienen que estar preparados para su identificación e interpretación. En tal sentido, los medios de enseñanza empleados para llevar el contenido ocupa un lugar importante dentro de los componentes del proceso docente. El presente artículo tiene como objetivo explicar los medios que pueden emplearse durante la enseñanza del contenido de exploración del paciente oftalmológico. Se trata de un estudio descriptivo, transversal y analítico.

Palabras clave: formación; Oftalmología; medios de enseñanza

Abstract: In undergraduate education, great importance is given to the teaching of Ophthalmology as one of the health problems that the future general practitioner will face, so they must be prepared for its identification and interpretation. In this sense, the teaching means used to teach the content occupy an important place within the components of the teaching process. The aim of this article is to explain the means that can be used during the teaching of the content of ophthalmologic patient examination. It is a descriptive, cross-sectional and analytical study.

Keywords: training; Ophthalmology; teaching media.

Introduction

Nowadays, the university is required to train a creative, active and sensitive man. The University of Medical Sciences is no exception. The future professional needs an adequate preparation that will allow him/her to reach better health indexes and contribute as a health promoting agent, to the increase of the population's quality of life. Taking into account this projection, the programs of study in the career of Medicine must be at the height of what society demands. Hence the quality in which each of the contents should be taught.

The specialist in general comprehensive medicine (MGI) should be able to provide comprehensive medical care to children, adolescents, adults, pregnant women and the elderly individually, as well as to families, schools, factories, cooperatives and care institutions for special groups of society. This through the actions of health promotion of the individual, the family, and the community, specific prevention in healthy and sick individuals, outpatient care in and out of clinics and hospitalized patients, and physical, psychological and social rehabilitation to patients who require it. (Alvarez and Barcos, 2015).

The quality of health care must be closely related to the level of competence and professional performance of the human resources trained in medical education institutions. Comprehensive general medicine is the primary health care (PHC) effector specialty. The training of specialists is developed in the community teaching space and uses the facilities and resources of the polyclinic and the family doctor's office, where comprehensive medical care is provided to healthy or sick individuals, families and community groups. This professional in his performance integrates and applies family, sociobiological and ecological aspects, and achieves mastery of the analysis of the health situation as a working method. (Pérez and Corrales, 2016). Within the existing needs in the field of ophthalmology teaching at the undergraduate level is precisely the use of teaching media to bring students the content with greater objectivity.

In general, in undergraduate teaching in family medicine, sufficient importance is given to eye diseases due to their frequency in medical practice. Sometimes these diseases are not sufficiently valued in the different strategies developed because efforts are basically focused on the pathologies that cause most mortality, leaving aside the prevention of visual impairment, a source of great social and health costs.

There are many researchers who consider that Ophthalmology, in undergraduate education, should provide skills such as knowing how to evaluate by clinical history and ophthalmologic examination a patient with an eye disease, describe the anomaly of the ocular structures, the degree of affection, make a positive and limited differential diagnosis, request studies, in addition to acquiring notions of the particularities of the treatments.

In the diagnosis carried out, it was detected as the main insufficiency that physicians presented a deficit of knowledge of clinical history and examination in ophthalmology. That is why it is necessary to prepare the future professional in the techniques and procedures that can be used and to give due importance to the deepening of this subject so that the future health professional is able to assess and recognize even from classrooms and laboratories, the social and health implications of eye diseases since the correct diagnosis of these and the appropriate conduct improves the quality of life of the individual. This insufficient training in ophthalmology is due to the lack of systematization of the anamnesis and examination of the ophthalmologic patient.

As part of the need to improve the teaching of ophthalmology from the undergraduate level, the present research aims to explain the different teaching methods for the content related to the **examination of the ophthalmologic patient.**

Development

With the inclusion of ophthalmology content in the MGI specialist's training, students should not only address the diseases that cause visual deficit due to ocular involvement, but also the ophthalmologic examination and, particularly, the exploration of the fundus as an open window to observe structures and presume what is happening in other tissues, especially in the blood vessels of the organism. (Amador, García, and Aceituno, 2016).

Therefore, an adequate training of the student in the care of health problems concerning this subject contributes to the prevention, early diagnosis and timely treatment of ophthalmologic complications secondary to systemic diseases. A general practitioner should know and even, in certain cases, know how to use some type of procedure that further defines the possibilities of being able to diagnose in a non-specialized environment, such as the physician working in primary health care.

It is very important to teach the examination of the ophthalmologic patient as a complement to the clinical history, since a general practitioner must know how to evaluate the criteria for referral or interconsultation of the patient and even, in some cases, to know how to use some type of procedure that allows diagnosis in a non-specialized environment such as the physician working in primary health care. Hence, the use by the teacher of the necessary resources so that students can acquire this knowledge with quality during their medical career.

From the above, the importance of the training of the MGI specialist is clear, having the responsibility to promote health, prevent disease, diagnose, treat and rehabilitate the individual in interaction with the family, the community and the surrounding environment. (Alvarez and Barcos, 2015) Among the contents to be mastered by this specialist are those of ophthalmology, with the study of diseases of the eye and its annexes. Particularly, vision in human beings is of transcendental importance for their development and quality of life. (Pérez and Corrales, 2016).

Examination of the patient in ophthalmology.

The eye is the main organ of the senses, through vision 80% of the stimuli that reach the brain are received, so visual loss due to eye damage is significantly disabling. When vision is lost, it brings suffering to the individual, his family and society. The costs involved in education, rehabilitation and loss of productivity due to blindness have significant repercussions, particularly in the poorest areas of the planet. (Perez and Corrales, 2016).

The results obtained point to the need to develop the use of strategies focused on promoting teaching based on problem-based learning, use of clinical simulators, clinical case methodology and integrated teaching workshops, a criterion that agrees with that proposed by authors such as Naranjo (2001).

This will contribute to train individuals capable of facing a knowledge society, with the necessary tools and skills for it; this as shown by the studies where some type of strategy that promote situated teaching was carried out, ideal for health professionals who are in training, who require teaching-learning that helps them to develop critical and reflective thinking, which allows them to make decisions with the person they are caring for. (Palomino (2017) and Pérez (2015)).

During teaching activities, active teaching methods should be used, with emphasis on problem solving, as well as participatory group discussion techniques as a practical way to develop independence, creativity and the active search for information on the part of the student.

Although teaching methods are of great importance, one of the essential components of the teaching process is the teaching aids.

Horruitiner (2015) refers to the fact that teaching aids constitute a system of teaching materials and technological resources intended to support face-to-face activities and students' self-preparation; they become an important part of the success of blended learning - seen not as an end in itself, but as essential pedagogical tools to facilitate the teaching-learning process -, since they contribute to solve the problems arising from the decrease in face-to-face attendance compared to other modalities.

In this sense, recursion in educational terms consists of an approach for the achievement of good developmental practices based on a conception that leads to the design and adjustment of resources, including didactic ones. (Guerra, 2011).

These didactic resources, used by teachers for the development and enrichment of the teaching-learning process, favor a greater accessibility of the content.

Among the most used resources in this modality are:

- Printed media: texts and guides to work with the text; career guides, subject guides, video guides, etc.
- Audiovisual media: videos, transparencies, audiocassettes, educational radio and TV.
- Computer media: educational software, materials in digital format, virtual laboratories, multimedia, e-mail, Internet, etc.

The work of the teaching staff for the development of these resources should be guided by a system approach to the training process, where each of these pedagogical resources is integrated to the achievement of the proposed objectives. (Horruitiner, 2015)

In the particular case of the career of Medicine, Durante and Domínguez (2006) state: "Within medical education and practice, audiovisual media are tools and technologies that facilitate the teaching-learning process as well as the dissemination of science." (p.1)

Further on, they state:

In the teaching-learning process (TEP), the greater the number of senses involved in learning, the greater the retention achieved by the learner. Thus, the ideas and procedures that are mentally processed through visualization pass into long-term memory. However, procedures that are not only described, but observed and practiced, are usually integrated into the brain stem responses. This is the mental process that everyone who teaches seeks to achieve when performing the visit step and the clinical, anatomic-clinical or bibliographic sessions. (p.1)

In the program of the subject Ophthalmology, elaborated for the students of the medical career, it is emphasized: "The fundamental teaching means will be the television, the video, the computer, the blackboard, the chalk and the eraser, the Ophthalmoscopes and the test booklet". (P.11). However, teachers must know, in each of the contents, how to use these media.

In the case of the present article, reference will be made to the material or technological resources that the teacher can use to facilitate access to the contents of the curriculum in the subject Ophthalmology with emphasis on the content related to the examination of the ophthalmologic patient. This subject acquires a particularity, especially if we take into account the places where the students, once graduated, practice their professional work.

For the content related to the examination of the ophthalmologic patient, the use of the following teaching aids is suggested:

When explaining the subjective ophthalmic examination, the teacher should have a sample of:

-Ophthalmologic medical history

- Flashlight

- Snellen chart,

- Jaeger's chart

- Ishihara test,

- Ophthalmoscope,

- Snellen chart,

The ophthalmologic clinical history model allows the student to become familiar with everything concerning the examination of the ophthalmologic patient from the lecture.

The reason for consultation, the history of the current disease, personal and family pathological history, both general and ocular. That the student understands the order of priority of the examination, which will begin with the subjective examination, exploring visual acuity, color vision, and visual field.

Then perform the objective examination starting with the adnexa (eyebrows, eyelids, eyelashes, conjunctiva and lacrimal apparatus) which can use natural light, incandescent light, palpate the eyeball with the tip of their index fingers to feel the tone of the eye, if there is increased volume, followed by the examination of the anterior segment for which the student observes how the light source is used when exploring the different structures, either using direct or oblique illumination. At what distance the observer should be placed from the patient.

It is followed by the examination of the refractive media and the fundus, pupillary reflexes showing the student the technique of how to take the ophthalmoscope. E.g. For the examination of the right eye, the examiner takes the ophthalmoscope with the right hand and places it in front of the right eye at a distance that should not exceed 40 to 50 cm.

The exploration of ocular motility in the diagnostic directions of gaze may be indicated to the patient by following the flashlight.

To explore Sensitivity to form: By visual acuity and visual field status. (Snellen's chart, Jaeguer's chart, explorer's hands).

The Snellen test is a test designed to evaluate visual acuity. It is named after the Dutch ophthalmologist Herman Snellen, who designed the test in 1862.

The test consists of correctly identifying letters on a chart known as a Snellen chart or Snellen chart. Only ten letters are used: B, C, D, E, F, L, O, P, T and Z. The letters have a decreasing

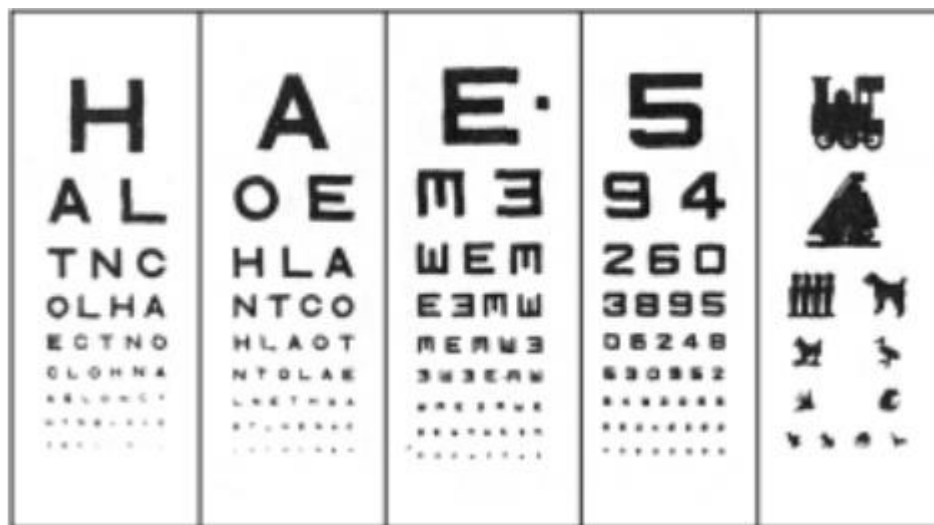
size depending on the level at which they are found. A 20/20 level corresponds to normal vision.

Snellen chart. A chart used to examine central visual acuity. It contains lines of letters and numbers of graduated size at the distance at which a normal eye can discriminate them. (Vaughan p.486)

The classic Snellen chart test is performed by placing the examinee at a distance of 20 feet (or 6 meters) from the chart, asking him to cover one eye with the palm of his hand, a piece of paper or a small paddle, and asking him questions about the letters he sees, each time using rows with smaller letter optotypes. The last row in which he is able to read the characters accurately marks the patient's visual acuity. (https://es.wikipedia.org/wiki/Test_de_Snellen)

Numbers, lines or pictures are used for people who cannot read, especially children. (<https://medlineplus.gov/spanish/ency/article/003396.htm>)

Figure 1: Different types of Snellen charts



Source: Taken from (Book of Ophthalmology, Jaime Alemañy Martorell, 2005).

For the exploration of visual acuity close to 33 cm. The Jaeger primer is used, consisting of text fragments whose letters have an increasingly smaller size. Larger letters are scored J20 and smaller letters J1. www.doctorjoseperea.com/glosario-de-terminos/178-cartilla-de-jaeger.html

To explore Color Sensitivity:

- Ishihara test,
- Polychromatic plates)
- Pictures of the different equipment
- Photos
- Videos.
- Natural equipment,

Ishihara test

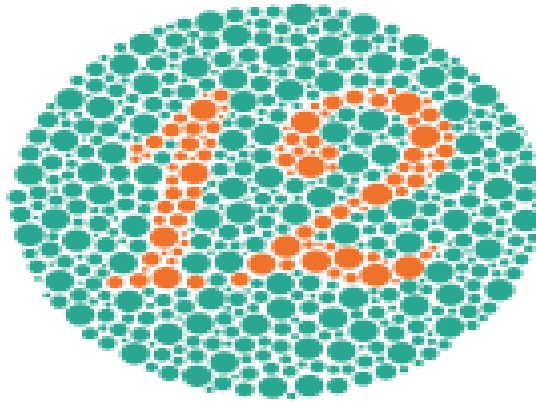
It is used to explore color sensitivity. One eye is scanned first while the other is occluded and vice versa.

It is one of the most commonly used testing techniques and consists of using a series of polychromatic films. These films contain dots of primary colors printed on a mosaic background with similar dots in a confusing variety of secondary colors. The primary dots are arranged in simple patterns (numbers or geometric figures) that cannot be identified by people with impaired color perception.

The test consists of a series of color charts, called Ishihara charts, each of which contains circles of randomly colored and sized dots. A number is formed in the pattern of dots that is visible to those with normal vision and invisible or difficult to see for those with a vision defect. The complete test consists of 38 discs, but the existence of impairment is usually clear after a few cards. Using the first 24 plates provides an accurate diagnosis of the severity of the vision deficiency.

. Chart 12 is visible to all patients. It is used to detect those people who are faking.
https://es.wikipedia.org/wiki/Cartas_de_Ishihara

Image 2: Ishihara test



Source: https://es.wikipedia.org/wiki/Cartas_de_Ishihara

When explaining tests to explore the status of retinal functions you can use the following teaching aids:

To explore Light Sensitivity: light and dark adaptation.

Flashlight, Ophthalmoscope)

The flashlight: It is an easy to use instrument, which can be carried in the pocket of the explorer, and with which you can explore the adnexa, ocular motility, and pupillary reflexes. Using it obliquely, the structures of the anterior segment of the eye can be observed.

The Ophthalmoscope

Ophthalmoscope: To use it, the explorer (either optician or doctor) must stand in front of the patient, looking at him, and project the light beam of the ophthalmoscope, in a dimly lit environment.

The ophthalmoscope is an instrument with several lenses and mirrors that illuminates the inside of the eye through the pupil and transparent structures such as the cornea, lens, vitreous humor and aqueous humor, allowing the examination of the retina or fundus. This procedure is called ophthalmoscopy, and it is a very important test to follow up the treatment of different diseases

such as glaucoma. It is one of the few examinations that allow the ophthalmologist to observe the vascular system in a non-aggressive and non-invasive way. (<https://areaoftalmologica.com/terminos-de-oftalmologia/ofthalmoscopia/>)

Its main application is the observation of the fundus, although the rest of the ocular structures can also be examined, from the eyelids and the anterior segment of the eye to the intraocular media and the retina.

Figure 3: Use of the ophthalmoscope (ophthalmoscopy)



Source: taken from <https://areaoftalmologica.com/terminos-de-oftalmologia/ofthalmoscopia/>

- Palpation (explorer's hands),

Another means that can be used is non-clinical or scientific medical photography, such as ophthalmologic retinal photography. This group presupposes the patient's consent given at the time of the study and does not require informed consent because it does not allow the identification of the patient. (Dove, 2004)

Conclusions

The preparation of general practitioners (GPs) in the essential elements of ophthalmology is of vital importance due to the prevalence and disability to which eye diseases lead. This finds its

answer in the knowledge of ocular diseases, particularly in the examination of the ophthalmologic patient.

The undergraduate teaching should enhance the exploration of the ophthalmologic patient and the knowledge of the most prevalent ocular diseases in primary care, so it is of vital importance to take into account the components of the teaching process, basically the use of teaching aids that contribute to improve the quality of teaching at this level.

The training process of the future professional contributes to improve the quality of performance in the examination of the ophthalmologic patient.

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