

# MANAGEMENT OF DRY EYE DISEASE IN PHARMACIES FROM SIBIU COUNTY

ANDREI – CĂTĂLIN MUNTEAN<sup>1</sup>, CRISTINA-IOANA ROTH<sup>2</sup>, FELICIA – GABRIELA GLIGOR<sup>3</sup>,  
CLAUDIU MORGovan<sup>4</sup>, ANCA – MARIA JUNCAN<sup>5</sup>, ANCA BUTUCĂ<sup>6</sup>, OANA – IULIANA  
NEGOI<sup>7</sup>, ADRIANA STĂNILĂ<sup>8</sup>

<sup>1,2,3,4,5,6,7</sup> "Lucian Blaga" University of Sibiu, <sup>8</sup>Ofta Total Clinic, Sibiu

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**Abstract:** The aim of this paper was to investigate the pharmacy staff ability to diagnose and recommend the correct treatment for dry eye disease (DED). A mystery shopper technique was adapted by simulating patients with DED in 144 pharmacies from Sibiu County. The pharmacy staff did not know about their involvement in the study. The questions, the advises and the staff type were recorded after the visit in a specific questionnaire. This study reveals that in Sibiu County there is a good collaboration between the pharmacy staff and the eye doctors, and that the pharmacy staff is well trained.

## INTRODUCTION

Dry eye disease (DED) represents one of the most widely spread pathology of the ocular surface. Dry eye is defined as a "multifactorial disease of the ocular surface characterized by a loss of homeostasis of the tear film, and accompanied by ocular symptoms, in which tear film instability and hyperosmolarity, ocular surface inflammation and damage, and neurosensory abnormalities play etiological roles".(1,2) As main symptoms of dry eye, the following are mentioned: soreness, burning, grittiness, watery eyes and visual disturbing that can affect one or both eyes.(1,3,4) One of the most common approach in the treatment of DED is to provide symptomatic relief through the application of topical lubricants.(5,6) On the pharmaceutical market there are a lot of topical lubricants, which are different because of their composition and dosage form (drops, gels, spray and ointments).(6,7) A lot of this treatments are available as over-the-counter (OTC) dosage forms and patients have easy access to them.(8)

## PURPOSE

The purpose of this study was to highlight the pharmacist-patient relationship, regarding to the dry eye patient's approach in pharmacy because it is a common disorder both in clinical and pharmaceutical practice.

## MATERIALS AND METHODS

A mystery shopper technique was used in 144 community pharmacies, across Sibiu County by 12 investigators, each one, visiting different pharmacy, alone, from November 2018 to January 2019. In Sibiu, the pharmacies are a mixture of independent (47.92%) and network pharmacies (52.08%). All the investigators used the same scenario, based upon a previous methodology applied in UK.(1) When entered in the pharmacy, the investigators approached the counter and, when they were observed by the pharmacy staff (pharmacists or pharmacy assistants), made the following statement to begin the discussion: "My eyes are tired, sore, and sometimes I see things unclear. What could you recommend me?" The scenario answers to the pharmacy staff questions on the patient symptoms and history were based upon the definition of DED provided by the International Dry Eye WorkShop. The questions and the scenario answers are presented in table no. 1.

Table no. 1. Mystery shopper scenario answers

Question	Answer
Age of patient?	63
Duration of symptoms?	10 days
Allergies?	No
Severity?	Moderate, but not lifestyle changing
Bilateral or unilateral?	Both eyes are affected equally
Stickiness/crusting?	No
Tearing?	From time to time
Itching?	No
Pain?	No
Photosensitivity?	No
Foreign body sensation?	Yes, form time to time
Burning?	Mild sensation, occasionally
Headaches?	No
Dryness?	Only after a long day
Contact lens wear?	No
History of eye problems?	No
Medical history?	Not known for sure
Current medication?	No
Did the patient have an ophthalmological exam?	No

The investigators did not answer to this questions by their own, only when and if they were asked, and did not offer any additional information voluntarily. For a better evaluation of the offered answers the students completed a questionnaire after each visit in which they checked the proper answers regarding the medical problem. After every visit, the investigators filed a questionnaire in order to record the manner for solving the medical issue. The investigators data collected were analysed with Microsoft Excel (Microsoft, USA).

The pharmacies were not informed that this study takes place, and were visits took place according to the common pharmaceutical practice. This study was conducted by the both, EU and national, regulations regarding the research.

## RESULTS

A total of 144 pharmacies were visited, from all Sibiu County. From the total number of the units visited 68 were in Sibiu, 20 in Mediaş and 56 were in other settlements. From these, 69 were independent ones and 75 were network units. According to the national regulations, each pharmacy must have at least one pharmacist for every shift. This was observed during

<sup>1</sup>Corresponding author: Cristina-Ioana Roth, Str. Lucian Blaga, Nr. 2A, Sibiu, România, E-mail: cristinatrihenea@gmail.com, Phone: +40746 963451  
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the study. Table no. 2 present the answers received by investigators from pharmacies.

In 43.75% of the visited pharmacies the talk was with a pharmacist, in 31.94% the investigators asked for recommendation to a pharmacy technician. Additional information was requested in 73.61% pharmacies and in 26.39% the staff did not ask for any information. 474 additional questions were asked, regarding the patient, symptomatology and pharmaceutical care practice.

Figure no. 1 presents a chart that presents how much time was spent in the pharmacy by the investigator. In 52.08% of the visits the time spent was between 7 to 10 minutes, which shows a good interest for the patient from the pharmacy staff, unlikely, in 10.42% of the visits the time spent in the pharmacy was less than 3 minutes which can influence the treatment and the patients quality of life because of the bad recommendation or lack of interest. Only in 8.33% the time spent in pharmacy was more than 10 minutes.

Figure no. 1. Time spent in pharmacy

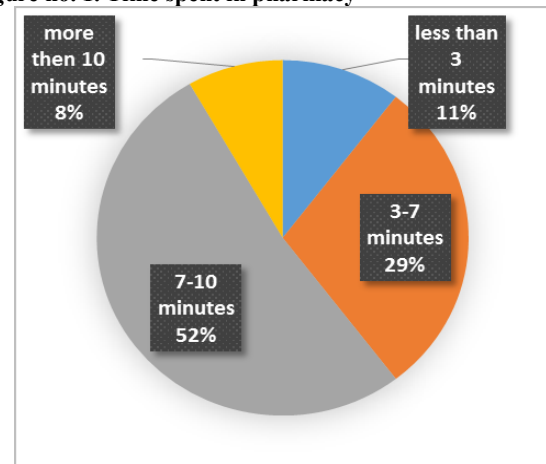
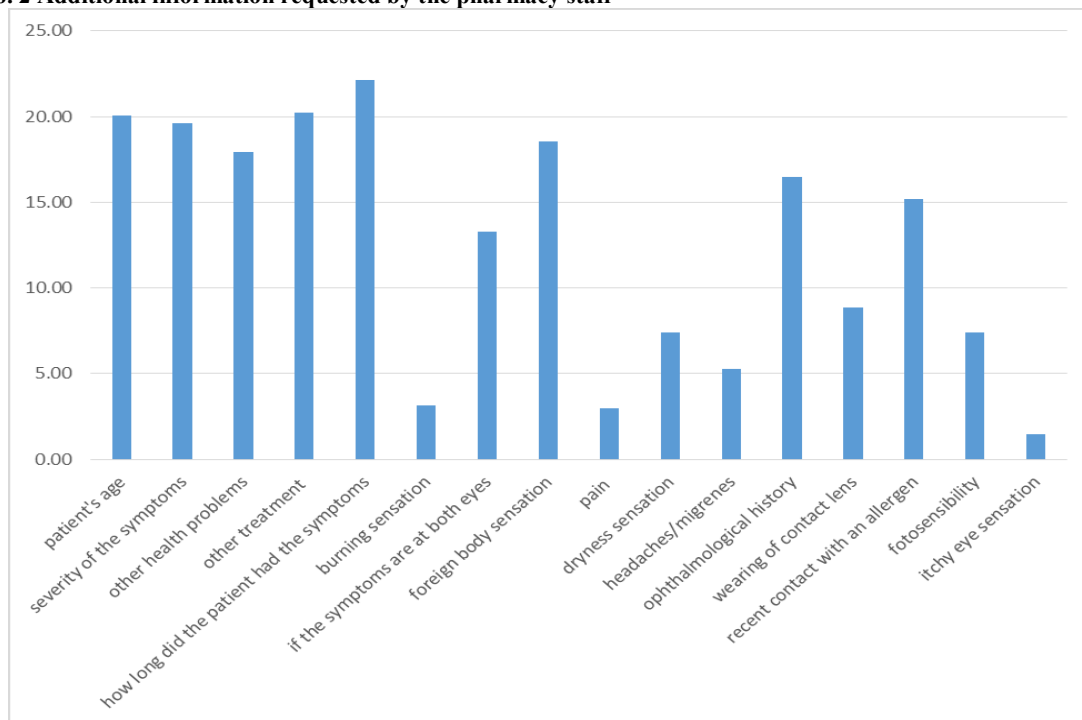


Table no. 2. Questionnaire answers

Questions found in the questionnaire		Answers	Total	%
Pharmacy	independent	69	144	47.92
	network	75		52.08
Pharmacy staff	Pharmacist	63	144	43.75
	Pharmacy assistant	46		31.94
	Without badge	35		24.31
Time spent in pharmacy	less than 3 minutes	15	144	10.42
	3-7 minutes	42		29.17
	7-10 minutes	75		52.08
	more then 10 minutes	12		8.33
Additional information	Yes	106	144	73.61
	No	38		26.39
If the previous answer was YES, the questions were related to	patient's age	95	474	20.04
	severity of the symptoms	93		19.62
	other health problems	85		17.93
	other treatment	96		20.25
	how long did the patient had the symptoms	105		22.15
If the answer to question 4 was YES, for better understanding of the symptoms the questions were	burning sensation	15	474	3.16
	if the symptoms are at both eyes	63		13.29
	foreign body sensation	88		18.57
	pain	14		2.95
	dryness sensation	35		7.38
	headaches/migraines	25		5.27
	ophthalmological history	78		16.46
	wearing of contact lens	42		8.86
	recent contact with an allergen	72		15.19
	photosensitivity	35		7.38
	itchy eye sensation	7		1.48
	other questions	N.A.		N.A.
Recommendation received from pharmacy	artificial tears	87	144	60.42
	ocular decongestant	45		31.25
	Antihistaminic medication	12		8.33
Pharmaceutical care practice	storage conditions of the product	73	406	17.98
	way of administration	128		31.53
	possible side effects	65		16.01
	wearing of contact lens	47		11.58
	if the symptoms do not improve visit an ophthalmologist	93		22.91
The pharmacy staff had an open attitude towards patient and it's problem	Yes	135	144	93.75
	No	9		6.25
The patient was sent to ophthalmologist	Yes	12	144	8.33
	No	132		91.67

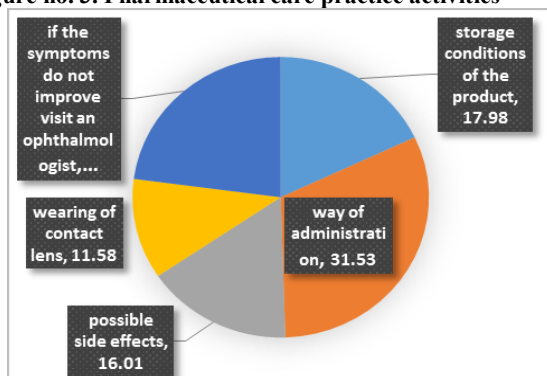
Figure no. 2 Additional information requested by the pharmacy staff



In figure no. 2, there are represented the additional questions asked by the pharmacy staff. These questions help the pharmacy staff to obtain supplementary information regarding the patient condition and show that the staff is well trained and had a patient-centered attitude.

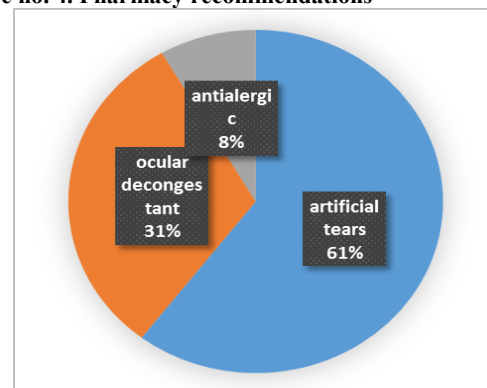
*Pharmaceutical care* is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life. According to this, the pharmacists has to adopt a new attitude, focused on patient's condition, his completed counselling and correct understanding of the information, in order to achieve the expected results. Results regarding this practice are presented in figure no. 3. In the present case, the patient has to receive information about: a) the administration of the recommended dosage forms; b) the side effects; c) the proper storage conditions; d) the requirement to visit a doctor if the symptoms do not improve. In 31.53% of the visited pharmacies the investigators were advised about the correct way of administration, 17.98 % were advised about the storage conditions, 16.01 % were advised regarding the possible side effects and a number of 22.91% told the investigators that if the symptoms do not improve the patient should visit an ophthalmologist.

Figure no. 3. Pharmaceutical care practice activities



From the pharmacies, most of the investigators received recommendation for artificial tears (60.42%) which are suitable for DED treatment. 31.25% of the recommendations were about ocular decongestant which are not indicated in DED because it may affect even more the eye and this disease can become worst. Antihistaminic treatment was given in 8.33% of the cases, figure no. 4.

Figure no. 4. Pharmacy recommendations



The investigators evaluated if the attitude towards the patient was an open one, in 93.75% of cases and the pharmacy staff had a good attitude and tried to solve his/her problem. In 8.33% of cases the patient was sent directly to a doctor.

## DISCUSSIONS

The prevalence of dry eye is reported from large epidemiological studies to range between 5% to over 35%, although different definitions of dry eye between studies make their comparison difficult.(1)

Dry eye symptoms are: ocular burning, foreign body sensation, stinging sensation, pain, photophobia and blurred vision.(9) Ocular Surface Disease Index (OSDI) is a first step in clinical diagnosis of dry eye disease. OSDI is a 12-item scale for the assessment of symptoms related to dry eye disease and their

effect on vision.(10) An elevated OSDI score points to a dry eye diagnosis and can guide us to the severity of dry eye syndrome.(11)

In clinical practice it is common to see patients with no clinical evidence of dry eyes, who are highly symptomatic or, conversely, those who have minimal symptoms despite visible damage to the ocular surface.(12) There is no gold standard diagnostic tool or standardized clinical protocol available for dry eye. Also, in the presence of a large number of tools and techniques, it is not evident, particularly in a clinical setting, which of them is the most appropriate, but symptomatology plays an essential role.(13)

The dry eye treatment is based on the etiology and symptoms of dry eye. First line in dry eye syndrome treatment are tear supplements and lubricants.(6,7) All these treatments are available in pharmacies and ophthalmologists and pharmacists have the same therapeutic goal: to recommend the best treatment for patient.

In Romanian pharmacies, the most common dosage forms that contain lubricants are the eye drops, gels, ointments, sprays and lubricating inserts. Also, on the Romanian pharmaceutical market the most common artificial tears used are the drops. Because they are liquid forms, their contact with ocular surface is not for a long time. The most frequently active ingredients used are: cyclosporine, natural compounds and hyaluronic acid/sodium hyaluronate. For better patient's compliance it is recommended to use gels as treatment regimen for an improved therapeutic effect.

Hyaluronic acid (HA) is a polysaccharide that belongs to the glycosaminoglycan family and consists of a basic unit of two sugars, glucuronic acid and N-acetyl-glucosamine. HA usually exists as a high molecular mass in the synovial fluid that surrounds joints, cartilage, and tissues of the eye.

## CONCLUSIONS

The role of the pharmacist is to counsel and inform the patient about health products; particularly for the present study about the available products for DED available, in close collaboration with the ophthalmologist.

It was noticed that at the level of Sibiu County the level of knowledge and professional education of the pharmacists is increased, due largely to a series of meetings and debates between doctors and pharmacists. All these lead to an increase in the quality of life of patient and his satisfaction degree. A good interdisciplinary collaboration between ophthalmologist and pharmacist leads to an informed, more compliant and well-treated patient.

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