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ORIGINAL PAPERS

ASPECTS OF ADHERENCE TO TREATMENT IN COMMUNITY PHARMACY

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Abstract. Adherence to treatment, patient cooperation and compliance, means the use of a specific drug by the patient, following the prescription and the medical advice. In contrast, non-adherence means the habitude of the patient who does not follow medical recommendations. In the present work, we present a study of adherence to treatment performed on 100 patients diagnosed with chronic illnesses who require permanent or long-term administration of medication (hypertension, coronary heart disease, dyslipidemia, bone and joint diseases, diabetes, epilepsy). The study was performed in three community pharmacies from Târgu Mureș. Our objective was to analyze and evaluate adherence to treatment in patients with chronic conditions in community pharmacies. The method used was questionnaire. We analyzed omissions in medication, compliance regarding number of doses and indicated concentration, compliance regarding the period between administrations, use of drugs for purposes other than prescribed, administration of the medicines in concordance with the main meals. Another aim is to establish the main source of information about the prescribed medication (general practitioner, specialist physician, and pharmacist). It was established that the phenomenon of non-adherence to treatment is a big concern among chronic patients, and the information about the prescribed medicines is received mainly from the general practitioner or specialist physician. The results show that involvement of pharmacists in counseling patients was minimal.
Keywords: adherence to treatment, questionnaire, counseling, community pharmacies

Introduction

Adherence to treatment, patient cooperation and compliance, means the use of a specific drug by the patient, following the prescription and the medical advice. The expression "compliance" is defined as the agreement with a request, requirement, and the consent to follow a prescribed medical treatment. Adherence to treatment of the patient is essential for optimal therapeutic results.

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In contrast, non-adherence means the habitude of the patient who does not follow medical recommendations. Non-adherence is a phenomenon concerning the medical community since 1943, but the complete recognition and the study of this problem truly started in the last twenty years. Recent studies showed that 40-60% of the prescribed medication is administered incorrectly or not administered at all [1]. Non-adherence to treatment can be easily defined as being the number of drug doses that are not administered or are administered incorrectly, which threaten the therapeutic result of the treatment [1]. It is a proven fact that non-adherence to treatment decreases the degree of healing, the productivity of the treatment, increases the number

of visits to the physician and the morbidity of the disease. According to the World Health Organization (WHO) the factors, which depend on the patient, are determinant for the treatment adherence. Until recently, it was considered that the patient is solely responsible for the correct administration of his own medication, but more and more theories support the fact that this is a wrong interpretation of the manner in which other factors affect the behavior regarding the treatment and the capacity of the patient to adhere to the medicinal regime [2,3].

In the community pharmacy, the patient meets with the pharmacist, the last professional responsible for the medicine and the treatment. The pharmacist is responsible with „pharmaceutical care" and assumes responsibility for the patient needs, regarding the medicine and medical therapy [4,5].

Many methods, which establish the patient cooperation, were elaborated, being grouped in direct and indirect methods [1,6,7]. The objective direct methods of treatment adherence evaluation are analytical and biochemical. These methods are rather expensive and are not available to the pharmacist in the community pharmacy [7,8]. Indirect methods such as: minimal consultancy (patient anamnesis and observation) [7,8], statements of the patients or of their acquaintances, patients interviewing, the use of questionnaires, counting the remaining tablets, registration of the data when the medicines were released for individual treatment, electronic monitoring [12], are all accessible to the pharmacist.

In this work, the questionnaire was chosen as method of evaluation for the patient treatment adherence. This method allows the inappropriate use of medicines or the misunderstanding regarding treatment recommendations. It is possible that for some patients, the query will create a hostile environment. That is why the questionnaire questions are formulated in such a manner that the patient should respond without any hesitation. The method allows the rapid questioning of many patients, maintaining its subjectivity regarding the appreciation of the exact level of cooperation.

Aim of the study (Objectives)

The major objective: analysis and evaluation of some aspects regarding adherence to treatment of the chronic patient in the community pharmacy.

Secondary objectives:

- determination of the extent of treatment adherence in the community pharmacy;
- identification of the factors which influence the adherence to treatment;
- influence of polypharmacy on the degree of adherence to treatment;
- determination of the contribution of the specialists in the health domain (general practitioner, specialist physician and pharmacist) regarding patients information;
- appreciation of the impact of counseling in the community pharmacy on patients' compliance with the prescribed treatment.

Materials and methods

The study was performed in three community pharmacies from Târgu Mureş, in the period February – April 2010. The study was performed on 100 patients diagnosed with chronic illnesses who require permanent or long-term administration of medication (hypertension, coronary heart disease, dyslipidemia, bone and joint diseases, diabetes, epilepsy), who agreed to fill up the questionnaire. The patients' sample is a non-probabilistic sample. The questionnaire included in its structure:

a) identity component: age, diagnosis, the prescribed medicines, medicine administration.

b) specific items: omissions in medication [13], compliance regarding number of doses and indicated concentration, compliance regarding the period between administrations, use of drugs for purposes other than those prescribed for by the physician, administration of the medicines in concordance with the main meals, the main source of information about the prescribed medication.

Results and discussions

The first component of the questionnaire was the age. The largest category of patients was between 61-70 years (31%), followed closely by the age category between 51-60 years (29%). Practically, 60% of the patients were aged between 51-70 years. Thereby old age patients mainly represent the sample, which demonstrates the impact of medication upon health after a certain human evolutionary sequence (**figure 1**).

The second component of the questionnaire was the diagnosis. Regarding the patient diseases, 62 suffered of high blood pressure, 27 were affected by lipid metabolism disorders (hyperlipidemia, dyslipidemia, hypercholesterolemia), 26 had heart diseases (especially coronary heart diseases and hypertensive heart along with stroke, fibrillation,

etc.). Other patients in the studied group presented diabetes, epilepsy, spondylosis, osteoporosis, chronic hepatitis (**figure 2**).

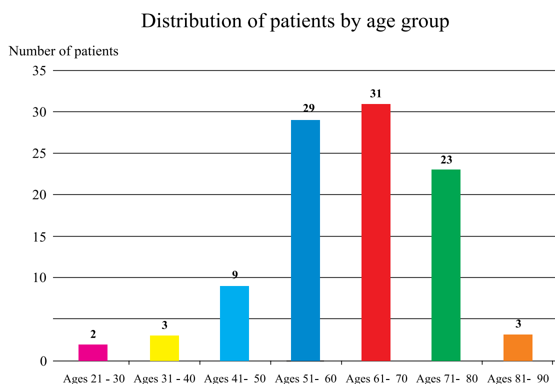

Figure 1. Distribution of patients by age groups

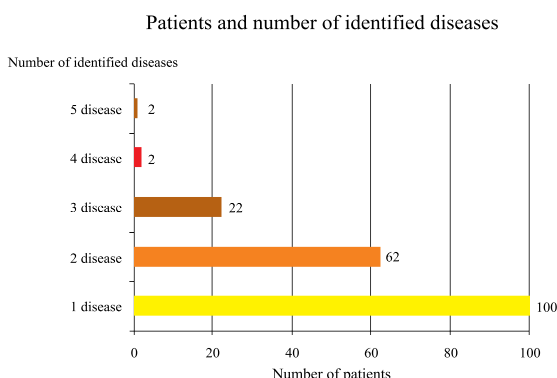

Figure 2. Number of identified medical conditions

Quantification of the number of the prescribed medicines for every patient discusses the reported problem of health maintenance in concordance with environment aspects and education.

In this context, upsetting is the phenomenon of polypharmacy, 28% of the patients following a treatment with an association of 5-8 medicines. In the patient mentality a cliché was formed, each disease being associated in analogy with a medicine, which can explain the large number of prescribed medicines (**figure 3**).

The patients' answers were analyzed regarding the correctness of the medicine administration. Several patients (17%) were identified declaring incorrectly the administration of the prescribed medicines. Apparently, when the number of medicines increases, the number of errors regarding administration also increases (**figure 4**). Psychologically we are in the moment of perception of medicine by the patient, its "congestion" leading to

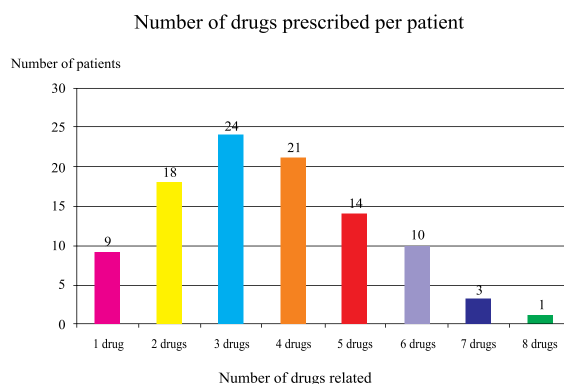

Figure 3. Number of drugs prescribed per patient

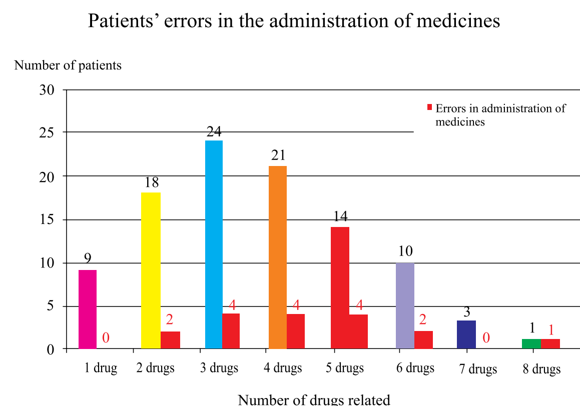

Figure 4. Number of patients with errors in administration of medicines

dysfunctions in administration. The patient "loses" the range of medications, because he is focused on remembering to take the medicine and not on the medicine's therapeutic effect. The error appears on the background of quantity and not quality. Statistics show this connection: GraphPad InStat software was used, monofactorial ANOVA analysis (one-way analysis of variance) and $p = 0.0014$, was considered very significant. The subgroups with polypharmacy, respectively 7 or 8 medicines, having a very small number of patients (3 patients, 1 patient) do not provide conclusive information.

The questionnaire items concern the problems of treatment adherence. The questions were structured with variables; for the first five, one valid response was accepted but for the sixth question, multiple interpretations were allowed. The logic design of the questionnaire started from the fact that it is necessary to explain the involvement of the patient, giving up the simple closed version of yes/no.

1. Does it happen to forget to take your medicines? *a) no; b) sometimes; c) several times in a month; d) several times in a week; e) every day.*

51% of the patients are absolutely sure that they are taking their medicine correctly every day, 36% can not quantify exactly the omissions' frequency, the answer being *sometimes*, and 13% of the group can be considered patients with serious treatment adherence problems, the omissions reaching a frequency of several times in a week or month (*d, e*). Regarding the omissions in treatment, 49% can be considered non-adherent to treatment (**figure 5**).

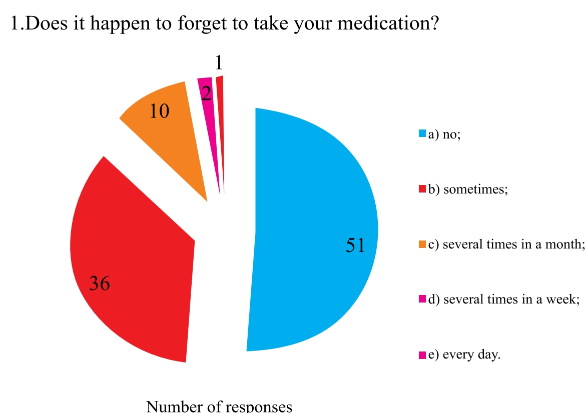

Figure 5. Patient responses to the first question

2. How do you follow the medical prescription, respectively the prescribed doses and concentration? *a) always; b) sometimes, when I feel sick I take a double dose; c) sometimes, I take only half of the prescribed dose; d) I adjust doses frequently, depending on how I feel; e) I take all the tablets, in the morning.* At this question, the degree of adherence increases to 70%. After a correlation with question 1 (50% of the patients are administering their medication without any omission), we can conclude that 0-20% of the patients, even if are very careful with the doses and concentration of the medicines, sometimes forget to administer it.

This item highlights a worrying phenomenon, where the patient modifies on his own the indication of the prescription: doubling the doses, when he feels that his health worsens on the principle *more medicine – more health*; halving the dose, the patient considering that his health improvement must be correlated with a reduction of the dose; deviation from the original prescription (frequent adjustment of concentration and doses). Analyzing the group regarding the adherence to treatment taking in consideration the doses and concentrations prescribed by the physician, 27% are non-compliant, this percentage can be considered an alarm signal on the medical education of these patients (**figure 6**).

3. How do you respect the time intervals in the administration of the medicines recommended by the physician and pharmacist? *a) every day; b) several times in a week; c) several times in a month; d) sometimes; e) no (I don't respect it).* Time between administrations is essential for the therapeutic effect of the medication. A relatively large percentage (33%) of the patients does not respect the administration time interval, which can lead to the idea of lack of involvement of the physician/pharmacist in the therapeutic act (**figure 7**). In order for the medical therapy to be effective, it must be explained and also understood, so the relation between the broadcaster (B) and receiver (R) must be a two-way communication, because the patient is the beneficiary and not a simple performer (the one who "swallows" the tablet).

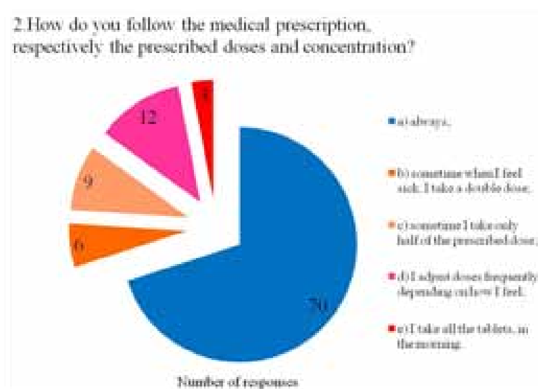

Figure 6 Patient responses to the second question

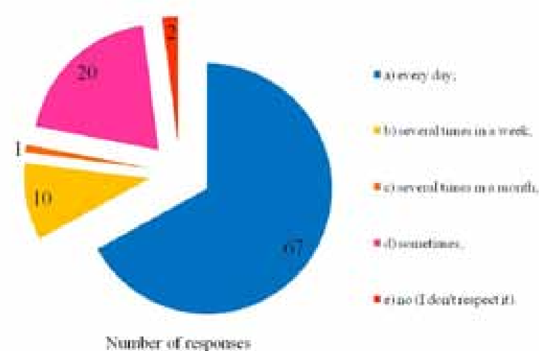

Figure 7. Patient responses to the third question

4. Are you using the prescribed medicines for other purposes than indicated by the physician (for other medical conditions)? *a) no; b) sometimes; c) several times in a month d) several times in a week; d) every day.* By this item, we verified if the prescribed medicines are administered for other purposes, for the treatment of other medical

conditions (there are cases when certain medicines are taken for different pains, for other purposes than the physician's initial indication). A worrying percentage of 13% of the patients, even if they cannot quantify it, the answer being *sometimes*, use the prescribed medicines for the treatment of other medical conditions, starting from the idea of compensation or based on his own or other people's personal experiences (**figure 8**). It is advisable to plead for the use of medicine according to indication and not randomly, removing from the start the elements of auto medication and autosuggestion.

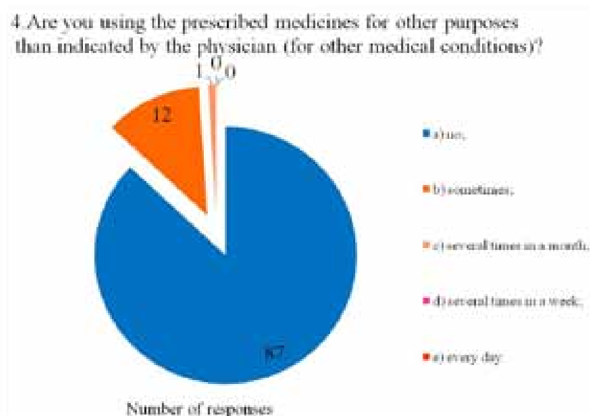

Figure 8. Patient responses to the fourth question

5. How do you take your medicine? *a) along with the food, during meals; b) a half an hour before every meal; c) only with liquids (tea, juice, milk) regardless of meals; d) with a glass of water regardless of meals; e) I'm not guided by meals.* This item's purpose is identification of the right way of medicine administration depending on food and orientation after the main meals of the day. The answers vary a lot (**figure 9**). Assessing the fairness of the administration against the orientation after the main meals revealed a percentage of 17% non-adherent patients (**figure 10**). It is harder to appreciate if this is caused by the lack of information (physician, pharmacist) or by the lack of adherence to treatment.

At the previous information, we can add the habit of patients (or the lack of habit) to use the *medical time*, namely his direct involvement in the administration of medicine in time and space (the moment of the day related to meals as reference point and the time encoded in hours, minutes). It is time to talk about the resultant between cause (C) and effect (E) regarding medicine administration and active/passive involvement of the patient [14]. Summarizing the aspects obtained with the aid of the first five questions of the questionnaire, the patients were non-adherent within wide limits: 13% (item 4) – 49% (item 1). For a better-structured vision of this phenomenon, we merged the results obtained for the five aspects followed in the questionnaire. The phenomenon of non-adherence appeared in 28.4% of the chronic patients from the analyzed group (**figure 11**), apparently not a very

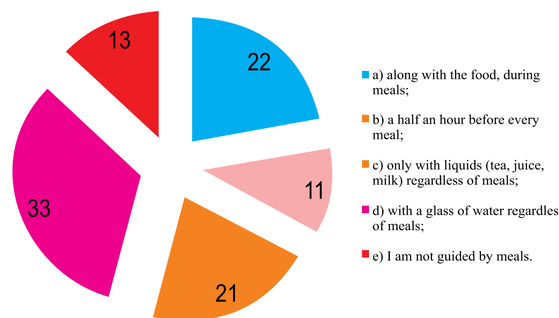

Figure 9. Patient responses to the fifth question

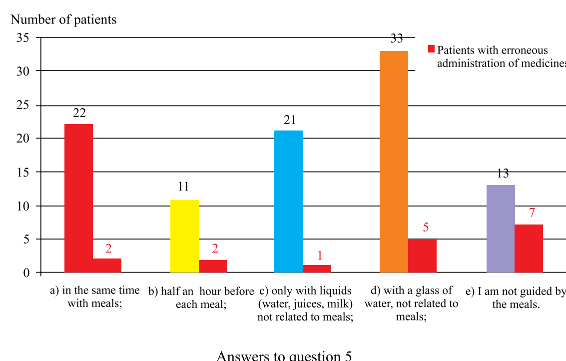

Figure 10. Administration errors related to patient answers to question 5

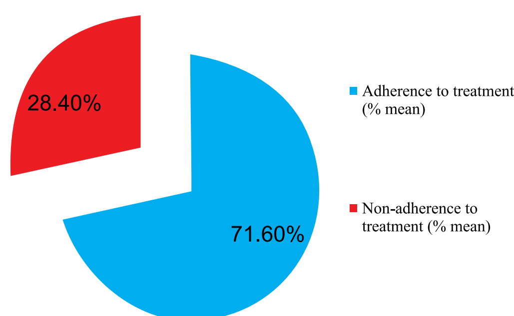

Figure 11. Adherent versus non-adherent patients in the studied group

high percentage, but with large deviations, some of them alarming, as it was analyzed before.

6. From whom did you receive information about the prescribed medicines? *(at this question more than one answer is accepted) a) general practitioner; b) specialist physician; c) pharmacist; d) I informed myself from the leaflet; e) other sources: family, neighbors, friends, etc.* This item wants to identify the patients' main source of information regarding his treatment. The question allowed multiple answers because patient counseling is made by both physicians and pharmacists as well as through individual information (**figure 12**). Physicians played the major role in patient counseling, including here general practitioners and specialist physicians. Only 19% of the group received information in the pharmacy, these patients benefiting from positive and cooperation relationships with the pharmacist. Worrying is that 10% informed themselves by reading the leaflet or by using other sources (neighbors, family). This 10% can be considered as an alarm signal on the professional relationship between the patient and physician/pharmacist.

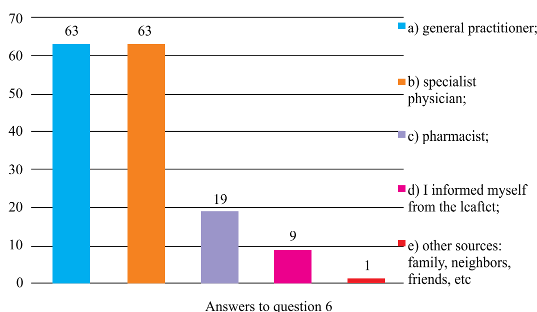

Figure 12. Patient responses to the sixth question of the questionnaire

Conclusions

When the patient has to follow a long treatment, sometimes for his whole life, he becomes responsible for the way he respects the medical prescription. He can be a patient which is adherent to treatment, respecting exactly the prescription and the physician and pharmacist recommendations or a non-adherent patient. However, the responsibility of non-adherence is not entirely up to the patient. The present study analyzes important risk factors of adherence to treatment and quantifies their impact on patients. Other factors depend on the patient's disease (one or more chronic medical conditions), medicine regime (number of prescribed medicines, program and administration of doses), disease issues (symptom attenuation/exacerbation) and last but not least, on the relationship between physician-patient, pharmacist-patient (or on the lack of this relationship).

In the community pharmacy, the pharmacist is the last responsible specialist with whom the patient is interacting. The pharmacist of the XXIst century, through his noble profession, became also a practitioner in "pharmaceutical care", where the pharmacist assumes responsibilities for the patient needs regarding medicines. Also, the pharmacist has the obligation and mission to collaborate with the health professionals, to share and assume responsibility for the medicinal therapy. Because few standards are applied after the pharmacist gives the medicine to the patient, the pharmaceutical community has the opportunity to create standards and set rules centered on the care towards the patient, in concordance with the pharmaceutical assistance practiced with a high level of professionalism.

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