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ВИВЧЕНИЯ ПРИХИЛЬНОСТІ ДО ЛІКУВАННЯ ПАЦІЄНТІВ ІЗ ЦУКРОВИМ ДІАБЕТОМ В УКРАЇНІ

Ключові слова: цукровий діабет, прихильність до лікування, хворі на цукровий діабет, фармацевт, стратегія втручання

А Н О Т А Ц І Я

Прихильність хворого до лікування значно впливає на досягнення цілей терапії. Прихильність до лікування цукрового діабету коливається від 36% до 93%. Очікується, що поліпшення прихильності знизить витрати на охорону здоров’я, зменшить HbA1c і ризик ускладнень. В Україні переважна частина пацієнтів із цукровим діабетом не досягають задовільних цілей глікемії. Прихильність до лікування пацієнтів із цукровим діабетом не вивчено в Україні, тому було виконано дослідження їхньої прихильності до терапії методом анкетування.

Метою роботи було вивчити прихильність до лікування пацієнтів із цукровим діабетом.

Опитування хворих на цукровий діабет щодо прихильності до лікування здійснено методом анкетування з використанням дистанційних форм за допомогою Google форми.

Анкетування встановило численні проблеми щодо застосування лікарських засобів та низьку прихильність до лікування пацієнтів із цукровим діабетом в Україні. Основні причини низької прихильності пацієнтів: проблеми з пам’яттю та когнітивними порушеннями, проблеми з використанням обладнання (глюкометрів, шприц-ручок), емоційне виснаження, погана комунікація з лікарем, поліпрагмазія, недоступність неохідного лікування та розходних матеріалів для контролю цукрового діабету. Одночасно опитування виявило проблеми комунікації пацієнтів із медиками та фармацевтами. На думку пацієнтів цукрового діабету в Україні, вони очікують від лікаря та фармацевта більше інформації та навчання, доступніше пояснення цілей та схеми лікування. Для поліпшення ситуації медичні та фармацевтичні працівники мають використовувати доступну мову без застосування складних термінів, демонструвати зацікавленість, підтримку, співчуття, терпимість, емпатію та інколи доцільний гумор.

Стратегії втручань фармацевтів поліпшать прихильність до лікування, які можна впровадити за допомогою стандартів належної аптечної практики, що спрямована на пацієнтів цієї нозології. Поліпшення прихильності до лікування цукрового діабету підвищить ефективність лікування, досягнення цілей глікемії та запобіжить розвитку ускладнень.

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STUDY OF ADHERENCE TO TREATMENT OF PATIENTS WITH DIABETES IN UKRAINE

Key words: diabetes millitus (DM), adherence to therapy, patients with diabetes (PwD), pharmacist, intervention strategy

А В С Т Р А К Т

The patient’s medication adherence significantly affects the achievement of therapy goals.

Adherence to DM therapies ranges from 36% to 93%. Improving adherence is expected to reduce healthcare costs, reduce HbA1c and the risk of complications. In Ukraine, the majority of patients with diabetes (PwD) do not achieve satisfactory glycemic goals. Adherence to the treatment of PwD has not been studied in Ukraine. Survey of their adherence to therapy of PwD was conducted.

The aim of the work was to study the adherence to treatment of PwD.

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The survey of PwD regarding adherence to treatment was conducted by the questionnaire method using remote forms with applying Google forms.

The conducted survey identified the numerous problems regarding the use of drugs and adherence to the treatment of PwD in Ukraine. Main reasons of low adherence to therapies of PwD are memory problems and cognitive impairment fear of hypoglycemia; problems with the use of equipment (glucometers, pens); emotional exhaustion; poor communication with the doctor; polypharmacy; unavailability of necessary treatment and control DM. At the same time, the survey revealed communication problems with doctors and pharmacists. According to PwDs view in Ukraine, the attributes they expect from a doctor and pharmacist are: more information and training; a more accessible explanation of the goals and regimen of treatment.

To improve the situation, medical and pharmaceutical workers should use accessible language, without using complex terms and show interest, support, compassion, tolerance, empathy and sometimes appropriate humor. In the words three intervention strategies of pharmacists to increase adherence to treatment are identified: educational (increasing patients’ knowledge about DM), behavioral (consultations, monitoring treatment goals, behavior change, monitoring adverse reactions), and educational-behavioral.

Intervention strategies by pharmacists will improve adherence to treatment, which can be implemented according to GPP, tailored to patients of this nosology. Improving adherence to diabetes treatment will improve treatment efficacy and achieve glycemic goals and prevent the development of complications.

**Introduction**

The patient’s medication adherence significantly affects the achievement of therapy goals. Low adherence to treatment characterizes nearly half of the patient population, leading to serious health complications, premature death, and increased health care application and funding [1].

Adherence to therapies is influenced by many factors: management of therapy (complexity of treatment, duration of therapy, mode of taking drugs, their side effects, time spent on treatment per day); the health care system (quality of the relationship between the patient and the service provider, access to medical care), demographic and socio-economic factors [2].

The three most common chronic diseases – diabetes mellitus (DM), hypertension and hyperlipidemia – are distinguished by the extent of avoidable health complications.

Adherence to DM therapies ranges from 36% to 93%. Improving adherence is expected to reduce healthcare costs, reduce HbA1c and the risk of complications [3]. Additional factors are also described: depression, forgetfulness, cognitive impairment, limited knowledge about DM, etc.

Low adherence to DM treatment is associated with demographic factors such as younger or older age, lower education, and lower income [4].

In Ukraine, the majority of patients with diabetes (PwD) do not achieve satisfactory glycemic goals [5] despite the presence of many new classes of drugs [6,7] and increased patient education efforts [8].

Adherence to the treatment of PwD has not been studied in Ukraine. Survey of their adherence to therapy of PwD was conducted using a questionnaire.

The aim of the work was to study the adherence to treatment of PwD.

**Research materials and methods**

The survey of PwD regarding adherence to treatment was conducted by the questionnaire method using remote forms with applying Google forms. The developed questionnaire included no-alternative and alternative closed-type questions and a socio-demographic section. During the development of the questionnaire, a preliminary examination was
carried out with the participation of PwD. Relevant questionnaires of 510 patients with type 1 and type 2 diabetes mellitus were included in the study. 64.7% of the respondents who took part in the survey were under 40 years old, the other 35.3% were over 40 years old. The participants of the study had a significant history of DM: 23.5% of all participants had more than 20 years, 11–20 years – 13.7%, and 4–10 years – 35.3% of the participants.

**Result and discussion**

The analysis of answers to the questions of the questionnaire showed that 66% of PwD, in addition to glucose-lowering drug, take also drugs for the treatment of another diseases (conditions).

In response to a clarifying question about the type of drugs that PwD also take, a list of groups of the most used drugs based on the statistics of complications (antihypertensive, antilipidemic, for CVD) is proposed. More than half (57.5%) of the respondents answered that they use other drugs which isn’t specified in the list. A third of the respondents (27.5%) take antihypertensive drugs, 17.5% – for CVD. Only 7.5% take antilipidemic drugs, which may indicate insufficient attention to this indicator. According to foreign studies, PwD are more inclined to high cholesterol, which is a risk of CVD. Cholesterol control measures should be taken to prevent CVD and premature death. Disturbed cholesterol balance underlies not only CVD, but also a growing number of other diseases, such as neurodegenerative diseases and cancer [9].

The conducted survey identified the numerous problems regarding the use of drugs and adherence to the treatment of PwD in Ukraine.

To the question «Mark the questions that you can answer affirmatively», 82.2% of patients noted that they «forgot to take their medicine on time», and 62.2% of respondents are not attentive to the hours of taking medicine (sometimes they take medicine 1–2 hours later). Part (13.3%) of patients skips the next dose of drug if they feel bad after taking the medication, which disrupts the regimen, which is upon affects glycemic control.

Answers to the following question revealed difficulties in taking medication: compliance with the regimen of taking medication from the time of eating (45.5%), alternating several drugs (22.7%) and compliance with the frequency of administration (29.5%). That is, a significant part of patients have difficulties in the use of drugs. It is possible to eliminate some of them thanks to the clarification pharmaceutical care during dispensing drugs, or pharmaceutical consultations, which require more time (Fig. 1).

![Fig. 1. Difficulties that arise when taking drugs by PwD](image)

Regarding familiarization with the Patients Leaflet of medicines taken by the patient, the responses showed that the vast majority (72%) of patients read the instructions care-
fully. This shows that the majority of respondents understand the need for detailed information about taking the drug. Only 4% of respondents do not read the Patients Leaflet of medicines at all (Fig. 2). It is worrisome that only 2% of PwD turn to pharmacists with this question, although it is their function to provide clarification on the use of drugs in accordance with the GPP.

Fig. 2. **Segmentation of answers to the question «Do you read carefully the Patients Leaflet of medicines that you are taking?»**

When it was asked about the awareness of patients about the actions and benefits of drugs prescribed by a doctor, the majority (83.7%) of respondents believe that they are well informed about this issue. But, according to the questionnaires, significantly fewer patients are aware about the side effects of the drugs prescribed by the doctor, and percentage is 62% of the respondents. Thus, despite the fact that most patients read the Patients Leaflet of medicines, the issue of awareness, which affects the adherence to the treatment regime of PwD, is relevant and needs immediate resolution.

The majority of PwD have concomitant diseases and therefore take several drugs, so the issue of drug interaction matters a lot for this category of patients. Patient responses indicate that less than half (46%) of respondents believe that they are well aware about the interaction of drugs prescribed by the doctor, and the rest do not know enough about it. Therefore, the pharmacist’s task is to provide comprehensive information on drug interactions. The interaction of insulin with other drugs is separate in this matter, which requires considerable attention of pharmacists when dispensing insulin.

The awareness of patients regarding the time of taking medicines is quite high – 66.7% of patients answered that they are aware about this issue. The rest of the answers indicate that PwD are not aware, but are interested in this issue to one degree or another and would like to know more about it. That is, the need to provide pharmaceutical information when dispensing drugs regarding the time of drug use has been established.

The patient’s awareness about the consequences of diabetes and its complications affects adherence to treatment and maintenance of normoglycemia by the patient, if he is aware about the complications that may develop with unsatisfactory control. The answers to the following question showed that the vast majority of respondents believe that they are well informed (70%) about complications, and 26% of respondents are not aware, but would like to know more. Thus, pharmacists need to strengthen their work in explaining the consequences of diabetes and the need to control diabetes.

The last question in this block was about patients’ satisfaction with their diabetes treatment. Satisfaction with treatment is a patient-reported outcome, which is defined as the patient’s assessment of the process of taking medications and the associated outcomes of their use [10]. Patient satisfaction with treatment is a predictor of the success of therapy, its continuation, satisfactory adherence to treatment, appropriate use of resources, etc. [11].
There is a good trend that patients are generally satisfied (12.2%) with their treatment or more satisfied than dissatisfied (53.1%). But still, almost a third of patients are dissatisfied, so medical and pharmaceutical care needs improvement.

In order to specifically indicate the reasons and problems that, according to PwD, are the reasons for low adherence to treatment, an open question was proposed: «Indicate specific problems associated with low adherence to the doctor’s recommendations» (Table).

<table>
<thead>
<tr>
<th>N</th>
<th>Reasons of low adherence to therapies of PwD</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>The need of monitoring and performing manipulations related to diabetes every day (3–4 insulin injections per day and 2–4 blood glucose measurements)</td>
</tr>
<tr>
<td>2</td>
<td>Constant recalculation of the insulin dose depending on nutrition and physical activity</td>
</tr>
<tr>
<td>3</td>
<td>Automatic actions every day and sometimes the patient does not remember the injection</td>
</tr>
<tr>
<td>4</td>
<td>Poor memorization or difficulty understanding instructions</td>
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<tr>
<td>5</td>
<td>Fear of hypoglycemia</td>
</tr>
<tr>
<td>6</td>
<td>Problems with the use of equipment and tools related to treatment (glucometers, syringe pens) (insufficient training on the use of the device, cognitive impairment, etc.)</td>
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<tr>
<td>7</td>
<td>Stigmatization in society (injections are omitted if they need to be done in public places)</td>
</tr>
<tr>
<td>8</td>
<td>Emotional exhaustion – having to perform actions according to the regime for many years</td>
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<tr>
<td>9</td>
<td>Reluctance to show one’s weakness and ask for help in carrying out certain manipulations</td>
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<td>10</td>
<td>Poor communication with the doctor and the doctor’s misunderstanding of the real-life problems of PwD (the patient’s questions irritate the doctor, unexplained questions accumulate and affect the control of diabetes)</td>
</tr>
<tr>
<td>11</td>
<td>Polypharmacy – the use of many drugs, which affects the performance of actions regarding their reception and compliance with the recommendations of the Patients Leaflet of medicines</td>
</tr>
<tr>
<td>12</td>
<td>Financial burden – unavailability of necessary treatment and consumables for DM control</td>
</tr>
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</table>

Sometimes the prescription of doctor is resisted by the patient and he deliberately does not adhere to the treatment, which is related to beliefs/preferences and poor communication with the doctor.

Thus, most barriers of adherence to treatment occur due to unintentional nonadherence of regimen. PwD generally want to adhere an agreed treatment plan, but are unable to do it due to many factors beyond their direct control, as they perceive it.

At the same time, the survey revealed communication problems with doctors and pharmacists. According to PwDs view in Ukraine, the attributes they expect from a doctor and pharmacist are: more information and training; a more accessible explanation of the goals and regimen of treatment. To improve the situation, medical and pharmaceutical workers should use accessible language, without using complex terms and show interest, support, compassion, tolerance, empathy and sometimes appropriate humor.

This survey established their unsatisfactory commitment to the treatment of PwD in Ukraine. And low adherence to treatment is associated with a decrease in the quality of life and health of PwD [12]. Patient responses show poor adherence to treatment for reasons sometimes beyond their control.

Therefore, it is imperative to design interventions to increase treatment adherence not only to obtain greater benefit from available resources, but also to improve the quality of life of PwD.

One of the ways to improve adherence is the prescription of long-acting drugs and combined glucose-low drugs that affect various key links in the pathogenesis of diabetes [13].
All groups of health professionals, including pharmacists, should be involved in increasing the adherence to treatment of PwD, which will ensure optimal use of human resources and reduce health care costs. Care-oriented pharmacists (including education, monitoring of treatment goals, adherence, assessment of medication-related problems) can improve adherence and consequently treatment outcomes [14].

International guidelines for DM recommend collaboration and a multidisciplinary approach to ensure more holistic treatment and better outcomes. Numerous studies show the positive effect of involving a pharmacist to a multidisciplinary team for the treatment of diabetes [15].

But today, in Ukraine, pharmacists have a narrow scope, they are focused on a limited number of interventions mainly regarding the pharmacy assortment with a product orientation, while in other countries there are examples of their extensive involvement, even such as the initiation of insulin therapy or vaccination, which is inherent to medical workers. Interventions by pharmacists to improve adherence of PwD may help achieve glycemic targets and prevent complications.

The importance of collaboration between pharmacists and other healthcare professionals to provide more comprehensive medico-pharmaceutical care to patients should be emphasized.

In the literature, three intervention strategies of pharmacists to increase adherence to treatment are identified: educational (increasing patients’ knowledge about DM), behavioral (consultations, monitoring treatment goals, behavior change, monitoring adverse reactions), and educational-behavioral.

A combined intervention strategy that includes educational (training) and behavioral interventions to improve adherence is the most popular strategy used by pharmacists. It includes training with subsequent consultations. Education is usually integrated into each intervention strategy and is seen as a basis for improving treatment adherence through interaction between the health care/pharmaceutical worker and the patient. A combined educational-behavioral strategy aimed at increasing patients’ knowledge about DM and enhancing DM control so that they are more aware about their condition for behavioral changes to achieve better outcomes. Both strategies (educational and combined educational-behavioral strategies) are effective in improving treatment adherence and achieving glycemic goals [16].

Studies by foreign scientists have shown that patients who regularly visit one pharmacy are approximately 1.1 to 2.5 times more likely to adhere to their medication regimen than patients who visit several different pharmacies. Continuous provision of support by pharmacists can reduce the irrational use of drugs by 21–32% and the use of other expensive services by 12–29%. This suggests that pharmacist follow-up of medication prescriptions can improve the safe use of medications by patients [17] and reduce the financial burden on the health care system.

**Conclusion**

1. Low adherence to DM treatment in Ukraine has been established by the questionnaire method, despite the availability of many new classes of glucose-lowering drugs and increasing efforts to educate patients.

2. Intervention strategies by pharmacists will improve adherence to treatment, which can be implemented according to GPP, tailored to patients of this nosology. Improving adherence to diabetes treatment will improve treatment efficacy and achieve glycemic goals and prevent the development of complications.
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Надійшла до редакції 5 липня 2023 р.
Прийнято до друку 23 липня 2023 р.

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