

Частина I

СТАТТИ

MEDICATION NON-ADHERENCE IN ELDERLY PATIENTS

Berezutsky V.I.

Dnepropetrovsk Medical Academy, Dnipro city, Ukraine

In recent years, a huge number of scientific studies devoted to the implementation of the patient's doctor's appointment. Against the background of the discrepancy between the possibilities of modern methods of treatment and the real successes, the relevance of this problem is obvious. In describing the problem, the terms compliance and adherence are used, which are essentially synonyms and reflect the degree of conformity the patient's behavior to the doctor's recommendations regarding medication administration, diet and other therapeutic measures. Most often, these concepts are applied in relation to pharmacotherapy and measure the degree of adherence quantitatively, assessing the ratio of the doses of drug taken/prescribed to the patient [1]. There is no universally accepted system of evaluation of the Compliance and even the semantic content of various authors differs, its importance can hardly be overestimated. The strong dependence between adherence to therapy and its effectiveness has been proved [2]. Inaccurate implementation of medical recommendations leads to the progression of the disease, an increase in the duration and cost of treatment, the development of complications and side effects. This, in turn, creates a patient's distrust of both the doctor and the very idea of successful treatment. A systematic analysis of 79 studies (total number of clinical cases 230,000) found that low adherence to chronic disease treatment leads to a significant increase in the cost of treatment - an average of 83% [3]. It was found that medication non-adherence leads to a 2-fold increase in hospital admissions [4].

The problem of compliance exists as much as medicine. The Bible also describes the story of the Syrian military leader Naaman, who did not want to follow the advice of the prophet Eliseus on the treatment of leprosy [5]. Hippocrates quote is known: *"The doctor must know that patients often lie when they say they have taken medication."* The statement from former surgeon C. Everett Koop concluded that *"Drugs don't work in patients who don't take them"* [6]. The incidence of non-adherence is very high, in chronic diseases requiring long-term therapy, it reaches 60%. The incidence of non-compliance is very high, in chronic diseases requiring long-term therapy; it reaches 60% [7]. It is believed that complete compliance is just the middle point on a wide continuum of commitment of patients to the treatment (from total or partial resistance to therapy to abuse) [8]. Numerous studies confirm the difficulty of achieving high adherence in patients of all age categories. The problem of compliance is polyetiological and multifaceted; it has many aspects. The reasons for the decline in adherence to therapy can be very different and they are far from always associated with the patient himself. The influence of various factors on the formation of compliance is revealed in their relationship. None of them individually have a decisive effect on compliance [9].

This article aims to highlight the specifics of factors that affect the compliance of elderly and senile patients. The geriatric group is predominant not only for a general practitioner (therapist, family doctor), but also for doctors of most specialties. The demographic situation that defines this state of affairs in recent decades is characteristic not only of Ukraine, which can be safely called the country of pensioners, but also of the countries of the European Union. In the United States, the proportion of people over 60 years of age is 12%, and they consume about 30% of all drugs issued in this country [10, 11]. According to the results of statistical studies, medication non-adherence is 30% more common in elderly patients than in middle-aged people [12]. To achieve the goal, an analysis of scientific publications on the issue of adherence of elderly patients to drug therapy was carried out. For the analysis, we used scientific papers published in 2016-2020 in journals indexed in the scientometric databases Scopus, WebOfScience, MedLine and PubMed.

Analytical studies of the causes of low adherence to pharmacotherapy in elderly patients revealed the influence of several factors: various factors of medication non-adherence were complexity of medication regimen, lack of knowledge about the disease and therapy, difficulty in remembering to take medications, taking so many pills at the same time, missed dose of treatment [13].

The socio-economic factor has a strong influence on the compliance of geriatric patients, especially in modern crisis conditions. The cost of drugs prescribed for taking often exceeds the pensioner's income and makes it even more dependent on able-bodied relatives. The psychology of any person very much depends on his income and determines his assessment of the need for certain goods and services. An Austrian writer Marie von Ebner-Eschenbach accurately estimated that *"doctors hate either from persuasion or from economy."* The average Ukrainian retiree prefers domestic drugs to imported ones, because *"they are not faked"* and not because it is cheaper. He refuses to take several medications for a long time, as it is *"harmful to the liver"* and not because the budget does not allow it. He is also sure that doctors and advertising recommend anticoagulant and statins because they *"have a percentage of sales"* and not because they really need to. The combination of several chronic, long-term current diseases significantly increases the amount needed for constant drug use and, accordingly, the cost of treatment [14]. The need for multiple drugs has a negative effect on patient adherence even at a low cost: There is a well-known inverse relationship between the amount of drugs taken and adherence [15]. It was found that with an increase in the number of drugs taken from one to four per day, the probability of fulfilling appointments by patients older than 65 decreases by half, in patients younger than 65 this dependence is much weaker [16]. In addition, multicomponent and complex drug regimens raise concerns about the occurrence of side effects, which provides a negative placebo effect [17].

Polymorbidity (a combination of several long-running chronic diseases) - another important feature of geriatric patients that makes compliance difficult: according to statistics, an average of 8 significant chronic diseases is detected in elderly and old people at the same time. The polymorbidity of the geriatric patient determines the need for observation in several narrow specialists at the same time, which inevitably gives rise to polypharmacy [18]. Even if each specialist tries to take into account

all the combined pathology (and this, unfortunately, is not often), an elderly patient appoints at least 3 or 4 pharmaceutical products [19]. It is easy to imagine that the general list will consist of 15-20 drugs and, even if the patient tries to perform all assignments at first, the rapid appearance of side effects brings the compliance to zero [20].

Longitudinal cohort study using register data of 711,432 older adults (aged 65 years and older) living in Sweden with five or more prescription drugs revealed: polypharmacy is most often chronic, although a substantial share of older adults experience short, recurring episodes of polypharmacy and are thus exposed to its potential harms in a transient rather than persistent manner [21]. The severity of the side effects may be such that Francis Bacon's phrase is inadvertently recalled that "*the cure can be worse than the disease.*" It is extremely difficult to trace the relationship of these side effects by any particular medicines with such a quantity. Side effects are a very important factor in reducing adherence to therapy in geriatrics. An age-related decrease in the function of detoxification systems, which is progressively progressing against the backdrop of chronic diseases, creates the most favorable conditions for their manifestation due to relative overdose [22].

The need to take several groups of pharmaceuticals exacerbates the situation. Absolute overdose, as a rule, is caused by forgetfulness due to cognitive impairment on the background of discirculatory encephalopathy. Vascular dementia of varying severity occurs in most geriatric patients [23]. In patients there is a weakening of memory for past and current events, a decrease in the level of judgments, asthenia, a slowing of mental processes. Discirculatory disorders reduce hearing and visual acuity. To reach mutual understanding with a person who sees poorly, does not hear well, not understands what he has seen and heard, and, in addition to everything, very often in a bad mood, is an extremely difficult task [24]. Age-related disorders of pharmacodynamics and pharmacokinetics in the elderly are caused by a decrease in the enzymatic activity of the liver and the metabolic rate of pharmaceuticals; a decrease in the penetration of medicines into the tissues; decreased functional capabilities of the kidneys; a decrease in the binding of medicines to blood proteins; receptor sensitivity changes. Significantly more often, elderly patients develop withdrawal symptoms, which is especially noticeable in relation to antihypertensive and psychotropic pharmaceuticals.

Another important factor to consider is the psychological characteristics of an older person. Undoubtedly, the key question of compliance of any patient is the question of trust in the attending physician. Many patients, like Voltaire, believe that "*doctors are those who prescribe medications that they know little about to treat diseases that they know even less about in people about whom they know nothing at all.*" Gaining the trust of an elderly person is much more difficult. From the height of his life experience, an elderly patient not only does not take his children and grandchildren, quite solid in terms of position in society, but can treat a doctor condescendingly [25]. In addition, old age is a period of a person's life that is not often perceived positively by the person himself. Changing social status, changing lifestyle, narrowing the circle of friends affects the psychological status. In geriatric practice, the attitude of family members to an elderly person and his illness is very important. An

elderly patient very often depends on the family not only financially, but also physically. Therefore, the compliance of the patient's relatives is no less important [26]. A large-scale study of Norwegian geriatricians showed that the effectiveness of pharmacotherapy increases significantly when elderly people are treated at home with cooperation between geriatricians and general practitioners [27].

In addition to these factors that determine the compliance of an elderly patient, there are many others related to the characteristics of the disease, the health system and the attending physician himself. It is he who must take into account all these influences in order to achieve maximum patient commitment. A physician is the most influential agent in the formation of compliance; his authority and personal qualities acquire special significance. Hippocrates instructed to remember that the success of healing is largely determined by the patient's trust in the doctor: *"Let him also be a beautiful and kind person, and as such significant and philanthropic"*. The close and stable relationships that are usually formed in geriatric practice between the doctor and the patient help to achieve mutual understanding [28]. The patient and his family are imbued with an understanding of the need to perform doctor's prescriptions, and for this it is necessary to provide detailed information in an accessible form. The doctor understands and takes into account when prescribing treatment all the features of an elderly patient and his family. There are already "technical" methods that have proven themselves in practice to solve typical compliance problems [29]. So, in order to exclude polypharmacy, the attending physician assumes the role of coordinator of the strategy and tactics of patient management and agrees on the appointment of all specialists [30].

William Osler wrote: *"A novice doctor prescribes twenty medicines for each disease; an experienced doctor - one medicine for twenty diseases."* To reduce the number of prescriptions from the treatment plan, drugs that are duplicated in effect are removed. When choosing pharmaceuticals, preference is given to drugs that provide multiple effects [31]. To reduce the multiplicity of intake (and, accordingly, their number), prolonged medicines of daily action are selected. The reduction of the total number of doses is also achieved by the appointment of combined pharmaceuticals [32]. It is known that the patient's attitude to the medication is affected even by his appearance and organoleptic properties. All of these actions can reduce the financial costs of therapy, which is extremely important to increase compliance. If necessary, a further reduction in the cost of treatment is possible by replacing the original drugs with generic ones [33]. To overcome the difficulties caused by cognitive disorders, you can use various *"forget-me-not's"* (from tablets with large font to electronic gadgets). The monitoring participation of both relatives and the doctor himself is always relevant. The ability to quickly contact a doctor if necessary and get advice is very important. Researchers at the University of Lynchburg have proven the high efficiency of Patient Adherence Programs in Activation [34].

Conclusions. Thus, a high adherence to the treatment of elderly patients is possible due to a set of measures, the main organizational role of which is played by the attending physician [35]. The main conditions for ensuring a high medication adherence in elderly patients: the coordinating role of the family doctor; geriatrician advisory assistance; the most simple pharmacotherapy regimens; the priority of the admin-

istration of prolonged and multicomponent medicines; control of pharmaceuticals administration by family members of an elderly patient; patient training on self-monitoring methods of taking drugs; monitoring of liver and kidney function according to laboratory tests. The application of these principles of pharmacotherapy for elderly patients will significantly increase the effectiveness of the treatment.

References

1. Forbes C.A., Deshpande S., Sorio-Vilela F. et al. A systematic literature review comparing methods for the measurement of patient persistence and adherence. *Current medical research and opinion*. 2018;34(9):1613-1625.
2. Brown M.T., Bussell J., Dutta S. et al. Medication adherence: truth and consequences. *The American journal of the medical sciences*. 2016;351(4):387-399.
3. Cutler R. L., Limos F., Frommer M. et al. Economic impact of medication non-adherence by disease groups: a systematic review. *BMJ open*. 2018;8(1):1-12.
4. Mongkhon P., Ashcroft D.M., Scholfield C.N. et al. Hospital admissions associated with medication non-adherence: a systematic review of prospective observational studies. *BMJ quality & safety*. 2018;27(11):902-914.
5. Langum V. Avarice. *Medicine and the Seven Deadly Sins in Late Medieval Literature and Culture*. Palgrave Macmillan: New York; 2016. P. 133-144.
6. Lindenfeld J., Jessup M. 'Drugs don't work in patients who don't take them. *European journal of heart failure*. 2017;19(11):1412-1413.
7. Memon K. N., Shaikh N.Z., Soomro R. A. et al. Non-Compliance to Doctors Advices among Patients Suffering from Various Diseases: Patients Perspectives: A Neglected Issue *Journal of Medicine*. 2017;18(1):10-14.
8. Mohiuddin A.K. Patient Compliance: Fact or Fiction? *Innovations in pharmacy*. 2019;(10):3-11.
9. Mohiuddin A. K. Risks and Reasons Associated with Medication Non-Adherence. *J Clin Pharm*. 2019;(1):50-53.
10. Laroche M. L., Sirois C., Reeve E. et al. Pharmacoepidemiology in older people: Purposes and future directions. *Therapies*. 2019;74(2):325-332.
11. Yap A. F., Thirumoorthy T., Kwan Y. H. Medication adherence in the elderly. *Journal of Clinical Gerontology and Geriatrics*. 2016; 7(20):64-67.
12. Kaur R.J. Elderly and Medication Non-Adherence. *Journal of The Indian Academy of Geriatrics*. 2019;15(1):1-12.
13. Roy N. T., Sajith M., Bansode M. P. Assessment of Factors Associated with Low Adherence to Pharmacotherapy in Elderly Patients. *Journal of Young Pharmacists*. 2017;9(2):272-276.
14. Johnson R., Harmon R., Klammer C. et al. Cost-related medication nonadherence among elderly emergency department patients. *The American journal of emergency medicine*. 2019;37(12):2255-2262.
15. Unutmaz G.D., Soysal P., Tuven B. et al. Costs of medication in older patients: before and after comprehensive geriatric assessment. *Clinical interventions in aging*. 2018;(13):607-705.
16. Gomes D., Placido A.I., M6 R. et al. Daily Medication Management and Adherence in the Polymedicated Elderly: A Cross-Sectional Study in Portugal. *International Journal of Environmental Research and Public Health*. 2020;17(1):200-209.
17. Hosseini S. R., Zabihi A., Amiri J. et al. Polypharmacy among the Elderly. *Journal of mid-life health*. 2018;9(2):97-105.
18. Kim J., Parish A. L. Polypharmacy and medication management in older adults. *Nursing Clinics*. 2017;52(3):457-468.
19. Morin L., Wastesson J.W., Laroche M. et al. How many older adults receive

drugs of questionable clinical benefit near the end of life? A cohort study. *Palliative medicine*. 2019;33(8):1080-1090.

20. Abada S., Clark L.E., Sinha A.K. et al. Medication regimen complexity and low adherence in older community-dwelling adults with substantiated self-neglect. *Journal of Applied Gerontology*. 2019;38(6):866-883.

21. Wastesson J.W., Morin L., Laroche M. et al. How chronic is polypharmacy in old age? A longitudinal nationwide cohort study. *Journal of the American Geriatrics Society*. 2019;67(3):455-462.

22. Caleres G., Modig S., Midlöv P. et al. Medication Discrepancies in Discharge Summaries and Associated Risk Factors for Elderly Patients with Many Drugs. *Drugs-Real World Outcomes*. 2019;1-10.

23. Rodgers J.E. Thudium E.M., Beyhaghi H. et al. Predictors of medication adherence in the elderly: The role of mental health. *Medical Care Research and Review*. 2018;75(6):746-761.

24. Kamath A., Kamath P., Hadigal S. et al. Complexity of Medication Regimen Prescribed on Hospital Discharge in Paediatric and Geriatric Patients with Psychiatric Disorder. *Journal of Young Pharmacists*. 2017;9(3):395-402.

25. Ross A., Gillett J. "At 80 I Know Myself": Embodied Learning and Older Adults' Experiences of Polypharmacy and Perceptions of Deprescribing. *Gerontology and Geriatric Medicine*. 2019;(5):1-15.

26. Schmidt N.E., Steffen A., Meuser T. M. Impairment for medication management in older adults: Validity of a family report measure. *Clinical Gerontologist*. 2019:1-13.

27. Romskaug R., Molden E., Straand J. et al. Cooperation between geriatricians and general practitioners for improved pharmacotherapy in home-dwelling elderly people receiving polypharmacy—the COOP Study: study protocol for a cluster randomised controlled trial. *Trials*. 2017;18(1):158-164

28. Cicolini G., Comparcini D., Flacco M. et al. Self-reported medication adherence and beliefs among elderly in multi-treatment: a cross-sectional study. *Applied Nursing Research*. 2016;(30):131-136.

29. Wadhwa T., Jalal H., Merghani M. et al. Strengthening Medication Adherence Practices in Chronic Disease Patients-Clinical Pharmacist Driven Focused Approach. *Indian Journal of Pharmacy Practice*. 2019;(12)2:71-79.

30. Romskaug R., Skovlund E., Straand J. et al. Effect of Clinical Geriatric Assessments and Collaborative Medication Reviews by Geriatrician and Family Physician for Improving Health-Related Quality of Life in Home-Dwelling Older Patients Receiving Polypharmacy: A Cluster Randomized Clinical Trial. *JAMA Internal Medicine*. 2019;179(7):912-919.

31. Cross A.J., Elliott R.A., George J. Interventions for improving medication-taking ability and adherence in older adults prescribed multiple medications . *The Cochrane database of systematic reviews*. 2016;(10):1-12.

32. Ouellet G. M., Ouellet J.A., Tinetti M.E. Principle of rational prescribing and deprescribing in older adults with multiple chronic conditions //Therapeutic advances in drug safety. 2018;9(11):639-652.

33. Stuhlec M., Bratović N., Mrhar A. Impact of clinical pharmacist's interventions on pharmacotherapy management in elderly patients on polypharmacy with mental health problems including quality of life: A prospective non-randomized study. *Scientific reports*. 2019;9(1):1-8.

34. Wood J.G. The Role of Patient Adherence Programs in Activation and Improved Outcomes. *Lynchburg Journal of Medical Science*. 2019;1(2):38-44.

35. Tan E., Sluggett J. K., Johnell K. et al. Research priorities for optimizing geriatric pharmacotherapy: an international consensus. *Journal of the American Medical Directors Association*. 2018;19(3):193-199.