World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-52 November 2025
ISSN: 2749-3644

DETERMINATION OF ADHERENCE TO THERAPY AND METHODS FOR ITS IMPROVEMENT IN PATIENTS WITH ARTERIAL HYPERTENSION

Ganiev A.V., Kodirova G.I.
Andijan State Medical Institute

Article history:

Received: October 8th 2025
Accepted: November 7th 2025

Abstract:

The problem of patient adherence to therapy is multifaceted. In general, three main reasons for poor adherence have been identified.
Blood pressure in everyday life: physician inertia, low patient adherence to treatment, and challenges in healthcare systems' approaches to chronic care. Finding ways to improve the effectiveness of treatment for patients with cardiovascular disease remains a pressing issue in modern healthcare. The diversity of diseases requiring long-term medication adherence, the heterogeneity of patient groups in real-life outpatient settings, and the lack of sufficient methodological programs for assessing adherence to therapy prompt the search for new ways to organize a system for assessing and supporting patient adherence to treatment in long-term outpatient settings. The need to optimize the long-term treatment of patients with hypertension in outpatient settings and the need for a comprehensive application of methods for identifying and improving poor adherence to therapy in real-life outpatient settings motivated this research.

Keywords:

INTRODUCTION . Diseases of the circulatory system and their complications are, today, the main cause of early disability and mortality in most economically developed countries of the world (Chazova I.E. et al ., 2014; WHO'S annual World Health Statistics Report 2013). High morbidity and mortality from these diseases causes great economic damage, which affects the development of the country. Insufficient blood pressure control is responsible for 62% of cerebrovascular diseases and 49% of coronary heart disease, as well as more than 7.1 million deaths annually worldwide (Redon J. et al ., 2011). Currently, there is a need to more actively identify and treat patients with hypertension, correct risk factors, and improve the effectiveness of therapy (Boitsov S.A., 2012; Chazova I.E., 2013; Alhalaiqa F., et al ., 2012; Barreto MD, et al . 2015). The effectiveness of therapy is largely determined by the degree of patient adherence to treatment. Unfortunately, in real-life medical practice, including outpatient settings, adherence to therapy in patients with cardiovascular diseases (CVD) remains low (Ageev F.T., et al ., 2011; Boytsov S.A., et al ., 2013; Baggarly S.A., et al ., 2014; Bosworth N.V., et al ., 2011; Chobanian A.V., 2009; Hameed M.A., et al ., 2015).
The problem of patient adherence to therapy is multifaceted. In general, three main reasons for poor adherence have been identified.
Blood pressure in everyday life: physician inertia, low patient adherence to treatment, and challenges in healthcare systems' approaches to chronic care. Finding ways to improve the effectiveness of treatment for patients with cardiovascular disease remains a pressing issue in modern healthcare.
The diversity of diseases requiring long-term medication adherence, the heterogeneity of patient groups in real-life outpatient settings, and the lack of sufficient methodological programs for assessing adherence to therapy prompt the search for new ways to organize a system for assessing and supporting patient adherence to treatment in long-term outpatient settings. The need to optimize the long-term treatment of patients with hypertension in outpatient settings and the need for a comprehensive application of methods for identifying and improving poor adherence to therapy in real-life outpatient settings motivated this research.

TARGET RESEARCH : To assess adherence to therapy in patients with arterial hypertension and to develop methods for improving it in outpatient settings.

MATERIAL AND **METHODS RESEARCH** . Patients were recruited into the study groups in district clinics of the Andijan region in the period from 2024 to 2025. The studies were both cross-sectional and lasted from 3 to 12 months. A mandatory condition for patient inclusion in the study was the patient's consent to participate in the study. A total of 809 men and women with arterial hypertension were included in the study. Some patients (n = 331 (41%) had a combination of hypertension and coronary heart disease. The study did not include

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-52 November 2025
ISSN: 2749-3644

patients who had an acute myocardial infarction or acute cerebrovascular accident in the previous 3 months; those with symptomatic hypertension, chronic heart failure, decompensated diabetes mellitus, severe liver and kidney dysfunction, hemodynamic lesions of the heart valves, or renal artery stenosis.

Patients were examined and their adherence to therapy assessed at baseline and at various outpatient follow-up points (3, 6, and 12 months). Upon inclusion in the study, all patients underwent an assessment of their medical history, cardiovascular risk factors, medication records, ECG, and blood biochemistry. A psychological status assessment was also performed using the Hospital Anxiety and Depression Scale (HADS)8, and adherence to therapy was assessed using the Morisky-Green questionnaire . Telephone reminder messages were sent to patients. The call frequency was set at once every 3 weeks.

Statistical data processing was performed using the STATISTICA 6.0 statistical software package. For each continuous variable , the mean (M) and standard deviation (SD) are provided . To statistically describe the relationship between various parameters, the Spearman rank correlation coefficient was calculated . The significance of differences between two groups was tested using the Student's t-test and the nonparametric Mann-Whitney U-test; differences within a group at different points were tested using the Student's t-test. Fisher's exact two-tailed test was used to analyze 2x2 contingency tables. Differences were considered statistically significant at p values <0.05.

RESULTS RESEARCH AND DISCUSSION. We analyzed adherence to therapy in outpatient settings in patients with CVD and risk factors for cardiovascular complications. The study included men and women over 18 years of age with a baseline office systolic BP of 140-179 mmHg and diastolic BP up to 100 mmHg with or without antihypertensive therapy, who visited a family doctor. Based on the results of the Morisky-Green test , the patients were divided into 2 groups: the first group - patients with low adherence to treatment (LAT; at least one answer "yes"); the second group - patients with high adherence to treatment (HAT; all 4 answers "no"). A total of 809 patients were examined , 789 outpatient cards were subjected to the final analysis. There were significantly more patients with low adherence to therapy than patients with high adherence to therapy (61.1% versus 38.9%, respectively, p = 0.0001). Patients with LPT were slightly older, and men predominated among them (p = 0.001). The blood pressure level in patients of this group was significantly higher than in the HPT group. In the group of patients with high adherence to treatment (HPT), on the contrary, women predominated (p = 0.001). There were more patients with newly diagnosed hypertension in this group (p = 0.001), as well as patients with coronary artery disease (p—0.01) and diabetes mellitus (p—0.001). Patients of the HPT group felt better (according to VAS data), possibly because they were treated somewhat more actively than patients with LPT: they more often took ACE inhibitors, sartans , calcium antagonists, and nitrates. Patients in this group were able to self-monitor their blood pressure at home, as they were more likely to have home blood pressure monitors. An assessment of the frequency of use of medications from the supplementary drug list (SDL) showed that the proportion of patients using the SDL system was significantly lower in the NPL group than in the VPL group: 24.3% versus 30.0%, respectively (p = 0.001).

A univariate analysis of the contribution of various factors to patient adherence to therapy yielded the following data: Among the factors associated with AP, significant significance was shown by female gender, the presence of ACE inhibitors, ARBs, concomitant coronary heart disease, diabetes mellitus, and the presence of a home blood pressure monitor. It is particularly noteworthy that receiving medication through the DLO system was also associated with AP. Among the factors associated with NAP, significant significance was shown by older age,

A long history of arterial hypertension and a sedentary lifestyle were also present. A multivariate analysis showed that the presence of the drug on the DLO list and its dispensing to the patient increased adherence to therapy by 39%. Including an additional factor (the presence of coronary heart disease) in the analysis reduced the contribution of the DLO to adherence to 25%, but it remained significant. However, adding other factors to these parameters, such as diabetes mellitus or the use of a home blood pressure monitor, completely negates the effect of the DLO on adherence. When considering the causes of low treatment adherence, it is necessary to assess the patient's personality characteristics, which may contribute to this phenomenon. The study included 161 patients with hypertension (119 women, 42 men), average age 53.4±11.4 years, with a verified diagnosis of hypertension and disease duration of at least 1 year, patients were divided into 2 groups: Group 1 (n = 30) - with high adherence to treatment (HAT) - those who began treatment immediately after the diagnosis of hypertension and regularly took the prescribed therapy (17 women, 13 men; average age 52.9±11.7 years). Group 2 (n = 131) - with low adherence to treatment (LAT) - those who did not begin treatment immediately after the diagnosis of hypertension and did not take or irregularly took the prescribed therapy (102 women, 29 men; average age 53.1±11.8 years). In the NPL group, the age of patients at the peak of arterial hypertension was 44.3±1.4 years versus 38.1±1.7 years in patients with HPL (p <0.05). The duration of hypertension was

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-52 November 2025
ISSN: 2749-3644

also significantly higher than in patients with HPL (11.2±1.3 years versus 7.4±1.1 years, respectively, p <0.05).

Thus, patients with subclinical levels of depression were characterized by higher adherence to treatment.

It is known that one of the psychological characteristics of patients with hypertension is a high level of anxiety. All patients in our study had varying levels of anxiety and various anxiety-spectrum neurotic disorders.

An analysis of the mental status of patients showed that patients with VLP are characterized by a high level of anxiety, the presence of panic attacks, anxiety and phobic paroxysms. Patients in this group are also characterized by the presence of subclinical depression (dysthymia, cyclothymia), as well as anxious-depressive situational adaptation reactions and nosogenic (adaptive) anxious-depressive reactions (hypernosognosia). Patients with hypertension with poor adherence to treatment are characterized by more severe affective symptoms (depressive and manic phases of bipolar affective disorder) .

disorders and recurrent depressions)

Evaluation of the effectiveness of methods for increasing adherence to therapy in outpatient settings.

1. Educational programs (School for patients with hypertension) as a factor in increasing adherence to therapy and improving the effectiveness of treatment.

A total of 128 patients with stage 1-2 hypertension were trained. The control group consisted of 65 patients with hypertension who declined the offer to attend the School for various reasons. The groups were comparable in terms of gender, age, hypertension duration, blood pressure level, and BMI. Patient adherence to therapy was quite low in both groups, which realistically reflects the situation in routine outpatient practice. Patients who completed training at the School showed a significant reduction in both systolic and diastolic blood pressure. At the end of the observation period (6 weeks), the SBP level was 139.3 ± 7.4 mm Hg. st , DBP 86.2±5.4 mm Hg (p =0.001 and p=0.001, respectively). Patients in group 2 also showed a significant reduction in blood pressure at the final visit; however, the degree of reduction in blood pressure in the group attending the School of Hypertension was significantly higher than in the control group. Target blood pressure was achieved in 79% of patients in group 1 and 54% in patients in group 2 (p =0.001).

Adherence to therapy in patients who attended the School increased from 1.8 to 3.9 points (p = 0.0001), while no significant changes in adherence were observed in patients in the control group. Quality of life, assessed using a visual analogue scale, changed significantly more in the group of patients who attended hypertension courses (p = 0.0001).

CONCLUSIONS:

1. Among outpatients with hypertension and coronary heart disease examined in clinics, more than 60% have low adherence to taking prescribed medications.
2. High adherence to treatment is associated with factors such as complicated hypertension in combination with coronary artery disease or diabetes, as well as the use of angiotensin -converting enzyme inhibitors, calcium channel blockers, and angiotensin receptor blockers . Low adherence to treatment is significantly associated with male gender, older age, the presence of cardiovascular risk factors, and a long history of hypertension.
3. The presence of medications on the DLO (additional drug supply) list is associated with high adherence to therapy in a univariate analysis. Including additional factors such as coronary heart disease, diabetes, and the presence of a home blood pressure monitor (multivariate analysis) renders the contribution of DLO to high adherence insignificant and unreliable.
4. The use of fixed-dose combinations in patients with hypertension during long-term outpatient management is significantly associated with higher adherence to therapy than the use of free combinations. Moreover, the degree of improvement in adherence to therapy in patients receiving a fixed-dose combination significantly correlates with the degree of blood pressure reduction (r = -0.67; p = 0.0002).
5. Patient education on hypertension is associated with increased adherence to therapy (p < 0.05), which is maintained in the long-term observation period (92% of adherent patients at the end of the cycle and 85% after 1 year).
6. Using an integrated approach to increasing adherence with the simultaneous use of improved and traditional methods (e.g. self-monitoring diaries + distributing reminders; telephone reminders with differentiated reminder text + self-monitoring diaries) is more effective than using each method separately.

LITERATURE:

1. Ageev F.T., Fofanova T.V. Diuretics in the treatment of arterial hypertension. Practicing physician. 2003;2:2-9.
2. Fofanova T.V., Ageev F.T. ACE inhibitors + low doses of thiazide diuretics: an ideal combination for the treatment of arterial hypertension. Heart 2004, vol. 3, No. 2, pp. 99–103
3. Plisyuk A.G., Kulev B.D., Azizova O.A., Ovchinnikov A.G. Effect of combination therapy with lisinopril and simvastatin on the elastic properties of large arteries in patients with arterial hypertension and moderate hyperlipidemia . Farmateka . 2009. 4(178): 65-70.
7. 4 . Smirnova M.D., Tsagareishvili E.V., Ageev F.T., Svirida O.N., Kuzmina A.E. The presence

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-52 November 2025
ISSN: 2749-3644

of a home tonometer as a factor increasing adherence to therapy in patients with arterial hypertension in outpatient settings. Systemic hypertension. 2012;4:44-49.

4. Shalnova , S.A. Analysis of mortality from cardiovascular diseases in 12 regions of the Russian Federation participating in the study "Epidemiology of cardiovascular diseases in various regions of Russia" / S.A. Shalnova , A.O. Konradi, Yu.A. Karpov // Russian Journal of Cardiology. - 2012. - Vol. 97, No. 5. - P. 6-11.
6. Shevchenko A.O. New laboratory markers of angiogenesis and damage to atherosclerotic plaque. // Clinical laboratory diagnostics . - M., 2006.-№6.-P.23-50.
8. Shek A.B. Assessment of the prevalence of treatment for angina pectoris and silent myocardial ischemia in patients with circulatory failure caused by AF. // Bulletin of the Association of Doctors of Uzbekistan. 2004. No. 1. P. 34-36.
9. Toumanidis ST, Kaladaridou A., Bramos D. et al. Apical rotation as an early indicator of left ventricular systolic dysfunction in acute anterior myocardial infarction: experimental study. Hellenic J. Cardiol . 2013; 54:264–272.
10. Petrova E.B. Deformation properties of the left myocardium ventricle in patients with ischemic heart disease heart before and after revascularization using Velocity technology Vector Imaging . Medical Imaging. 2016; 5: 29–35.
11. Valocik G., Valocikova I., Mitro P. et al. Diagnostic accuracy of global myocardial deformation indexes in coronary artery disease: a velocity vector imaging study. Int. J. Cardiovasc . Imaging. 2012; 28 (8): 1931–1942.
12. Gilyarov M.Yu., Murashova N.K., Novikova N.A., et al. Use of speckletracking echocardiography to predict myocardial viability in patients with post-infarction cardiosclerosis. Ultrasound and functional diagnostics. 2014; 1: 73–83.