

ANALYSIS OF THE USE OF THE HYPOTENSIVE DRUGS ACCORDING TO THE QUESTIONNAIRE SURVEY OF PHARMACY VISITORS IN GRODNO

*Al-Zeyadi H. H., Kozlovski V. I., Cymbalisky A. V., Goncharuk V. V.
Grodno State Medical University, Grodno, Belarus*

The aim of the study is to assess the structure of use of hypotensive drugs and adherence to the antihypertensive therapy among pharmacy visitors in Grodno.

Material and methods. We conducted questionnaire survey among 109 pharmacy visitors who bought antihypertensive drugs.

Results. ACE inhibitors is the most widely used group of antihypertensive drugs among the pharmacy visitors in Grodno. 44% of them took one drug. The most of the pharmacy visitors used hypotensive drugs regularly; however, 19,3% respondents were non-adherent, mostly from the middle-aged group (45-59 years).

Conclusion. The structure of use of antihypertensive drugs among the pharmacy visitors in Grodno complies to the international guidelines for the management of arterial hypertension. However, there are some disadvantages: 1) relatively large number of respondents use only one antihypertensive drug; 2) some respondents, especially among middle-aged persons, take antihypertensive drugs not regularly.

Keywords: arterial hypertension, hypotensive drugs, pharmacy visitors, questionnaire, database of sales.

For citation: Al-Zeyadi H. H., Kozlovski V. I., Cymbalisky A. V., Goncharuk V. V. Analysis of the use of the hypotensive drugs according to the questionnaire survey of pharmacy visitors in Grodno. *Journal of the Grodno State Medical University.* 2020;18(5):597-601. <http://dx.doi.org/10.25298/2221-8785-2020-18-5-597-601>.

Introduction

Arterial hypertension (HTN) is a major health burden and particularly as a major risk factor for stroke, ischemic heart disease, congestive heart failure, end-stage renal disease that have great impact on all-cause mortality in all segments of the population [1]. According to the World Health Organization, diseases attributable to hypertension are responsible for the most of mortality in the world [2]. HTN has a great economic impact. It was reported that HTN cost in the USA was about \$51.2 billion per year during 2012–2013 [3]. Expenses for treatment of arterial hypertension in Russia in 2012 varied, depending on stage, from 139592 to 807881 rubles a year [4]. So, minimization of the health and economic consequences of HTN is an important public health problem.

According to the Framingham Heart Study the residual lifetime risk of developing HTN among 55- and 65-year-old persons is >90% [5]. Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC-7) states that HTN develops in a majority of people after the age of 65 [6]. On the other hand, the frequency of HTN in young people increases significantly. The data from Russia and Ukraine showed that the incidence of HTN in young adults under 30 years is 11,5% and 14,2% [7,8].

According to guidelines for management of arterial hypertension both in the USA [9] and in the European countries [10], the most important antihypertensive drugs for long-term management of this condition are:

1) diuretics (mainly thiazide and thiazide-like diuretics), 2) beta-adrenergic receptor antagonists (beta-blockers - BB), 3) calcium channel blockers (CCB), 4) angiotensin-converting enzyme inhibitors (ACEI), 5) angiotensin receptor blockers (ARB).

Apart from these major groups of antihypertensive medicines some other groups can be administered in some patients: alpha-1 adrenergic receptor antagonists, mineralocorticoid receptor antagonists, imidazoline receptor agonists, alpha-2 adrenergic receptor agonists. The frequency of prescribing groups of antihypertensive medicines varies in various regions and countries.

The aim of the study is to assess the structure of use of hypotensive drugs and adherence to the antihypertensive therapy among pharmacy visitors in Grodno.

Material and methods

The main method used in the study is the questionnaire method. This method allows assessing not only structure of use of antihypertensive drugs, but also an adherence to the treatment that has a huge impact on the effectiveness of the therapy. Importantly, the questionnaire method allows to get information about patients who use antihypertensive drugs without prescription of a doctor.

We conducted questionnaire survey among pharmacy visitors in Grodno who bought antihypertensive drugs. We prepared questionnaires that contain next questions:

1. What are gender and age of a respondent?
2. What are comorbidities of a respondent?
3. Which antihypertensive drugs does a respondent take, dose and frequency of administration?
4. Are medications taken regularly (variants "yes" or "no" were proposed)?
5. Who prescribed the medications (variants "the doctor", "the pharmacist", or "the respondent" were proposed)?

The study was conducted during two months: in December 2019 and January 2020. The questionnaires of 109 visitors of Grodno pharmacies were obtained. The age of respondents varied from 26 to 86 years

of age. Among them there were 56 females and 50 males, 3 respondents forgot to indicate gender. Only the one-third of the respondents (39 – 35%) do not have other diseases. The most common comorbidities included ischemic heart disease – 20 (18,3%), diabetes mellitus – 9 (8,3%), arthritis – 7 (6,4%), congestive heart failure – 6 (5,5%), prostate hyperplasia – 4 (3,7%), bronchial asthma and gastritis – both 3 (2,8%).

The study was conducted with the permission of the Commission on biomedical ethics of the Grodno State Medical University.

Calculations were performed using the programs Microsoft Excel and Statistica 10. For comparison of frequency characteristics we used the Pearson's Chi-square test. Statistically significant differences were confirmed if the p-value was <0,05.

Results and discussion

According to the age all respondents were divided into three groups: young (18 – 44 years) – 7 persons, middle-aged (45-59 years) – 43 persons and elderly (≥ 60 years) – 59 persons. Average age of the respondents was $62,5 \pm 11,2$ years.

Table 1. – Frequency of use of antihypertensive drugs among the pharmacy visitors in Grodno
Таблица 1 – Частота применения антигипертензивных средств среди посетителей аптек в Гродно.

Drug	Number of persons that take the drug/ percentage of the total number
ACE inhibitors	
Lisinopril	34 (31,2%)
Enalapril	20 (18,3%)
Ending of the table 1	
Captopril	6 (5,5%)
Ramipril	6 (5,5%)
Perindopril	5 (4,6%)
Diuretics	
Hydrochlorothiazide	16 (14,7%)
Indapamide	9 (8,3%)
Furosemide	2 (1,8%)
Calcium channel blockers	
Amlodipine	27 (24,8%)
Nifedipine	3 (2,8%)
Angiotensin receptor blockers	
Losartan	18 (16,5%)
Valsartan	5 (4,6%)
Candesartan	2 (1,8%)
Beta adrenergic receptor blockers	
Bisoprolol	12 (11,0%)
Metoprolol	9 (8,3%)
Carvedilol	2 (1,8%)
Other drugs	
Moxonidine	6 (5,5%)
Spironolactone	5 (4,6%)
Clonidine	2 (1,8%)
Doxazosin	1 (0,9%)

Among the major classes of antihypertensive drugs ACEI were used the most frequently – in 71 (65,1%) cases; among them lisinopril was the most widely prescribed – in 34 (31,2%) cases. Representatives of other major classes were administered with next frequencies: CCB – 28,4%, diuretics – 24,8% ARB – 22,9%, BB – 21,1%. Drugs that do not belong to the five major classes of antihypertensive drugs (imidazoline receptor agonist moxonidine, mineralocorticoid receptor antagonist spironolactone etc. are presented as “other drugs”). For more information see the table 1.

The structure of use of the antihypertensive drugs does not differ significantly between genders. In both females and males ACEI was the most commonly prescribed group of antihypertensive drugs. Higher number of respondents use diuretics among women, but the difference is not statistically significant ($p=0,352861$ by the Chi-square test) – see the table 2.

Table 2. – Use of the main groups of antihypertensive drugs in males and females

Таблица 2 – Применение разных групп антигипертензивных средств у мужчин и женщин

Groups of drugs	Number of persons that take the drug/ percentage of the total number	
	males	females
ACE inhibitors	31 (62%)	37 (66,1%)
Angiotensin receptor blockers	12 (24%)	13 (23,2%)
Calcium channel blockers	15 (30%)	14 (25%)
Beta adrenergic receptor blockers	12 (24%)	11 (19,6%)
Diuretics	12 (24%)	18 (32,1%)

ACEI is the most widely used group of antihypertensive drugs not only in Grodno but also in Belarus at all, as we reported previously according to the data of sales in Belarus [11]. CCBs are much more widely used in Grodno in comparison with Belarus (28,4% vs 11,5%). This may be explained by economical reasons. If we compare our data with the data from Russia [12], we see that ACEI in this study also was the most commonly prescribed group of drugs, BB and diuretics share the 2-nd place. According to the modern guidelines, BB may be considered as initial monotherapy of HTN only in patients with concomitant ischemic heart disease or congestive heart failure [9, 10].

The antihypertensive therapy may be categorized into monotherapy and combination therapy. In our study the number of respondents who used one drug and drug combinations was found to be 48 (44%) and 61 (56%) respectively. So, almost half of the respondents take only one antihypertensive agent. It is known that monotherapy is used only as initial therapy, the most of patients with HTN require combinations of antihypertensive drugs.

Among those respondents who use combination therapy, 44 took two drugs, 13 took three drugs and 4 took four drugs. Among combinations of two drugs the most prevalent combination was ARB+diuretics

which was found to be in 12 respondents (27.3%) followed by ACE+diuretics – 10 respondents (22.7%) and ACE+CCB – 8 respondents (18.2%). Among the three drug combinations, ACE+BB+diuretics comprised the greatest commonly prescribed combination.

Relatively small number of the pharmacy visitors use fixed dose combinations (22 – 20,2%). But this is more than in Belarus, if we compare with number of sales according to the database of sales (9,94%) [11].

The ACEI were the most commonly used class of antihypertensives among patients with diabetes, and almost all patients with diabetes (8 from 9) received renin-angiotensin system inhibitors (ACEI or ARB). In patients with heart diseases BB have been used the most frequently, ACEI have the 2-nd place. This is not surprising because BB are widely used in the treatment of both IHD and CHF. For more information about use of antihypertensive drugs in patients with comorbidities see the table 3.

Among the pharmacy visitors in Grodno 21(19,3%) were nonadherent to the antihypertensive medications (they took the drugs irregularly): 14 (25%) in females and 7(14%) in males. The difference between males and females was not statistically significant ($p>0,05$ by the Chi-square test) – see the table 4. When we analysed dependence of adherence on the age of the respondents, we found higher rate of non-adherence in the middle-age group (45-59 years) – 32.1% ($p<0,01$ by the Chi-square test) – see the table 5. The older patients have better adherence; this is in line with data from other studies [13].

Also we analyzed the number of patients that took antihypertensive medications by doctor's prescription and not by doctor's prescription (on the advice of a pharmacist or on their own initiative). We found that the most of the pharmacy visitors (79–72,5%) used antihypertensive drugs on the recommendation of a doctor; the number of respondents who used the medicines on the advice of a pharmacist and on their own choice were 25 (22,9%) and 5 (4,6%), respectively.

Table 3. – Use of hypotensive drugs in patients with the most important comorbidities

Таблица 3 – Применение гипотензивных средств у пациентов с наиболее важными сопутствующими заболеваниями

Ischemic heart disease and/or congestive heart failure	Diabetes mellitus	Groups of drugs
11 (47,8%)	6 (66,7%)	ACE inhibitors
7 (30,4%)	2 (22,2%)	Angiotensin receptor blockers
8 (34,7%)	4 (44,4%)	Diuretics
8 (34,7%)	4 (44,4%)	Calcium channel blockers
13 (56,5%)	2 (22,2%)	Beta adrenergic receptor blockers

Interestingly, among the pharmacy visitors that took antihypertensive medicines without doctor's prescription, drugs, there were significantly more

Table 4. – Comparison of regularity of taking of antihypertensive drugs in females and males among the pharmacy visitors (изменить в тексте)

Таблица 4. – Сравнение регулярности приема гипотензивных средств у мужчин и женщин

	Females	Males	Total
Regular use	42 (75%)	43 (86%)	85 (80,2%)
Irregular use	14 (25%)	7 (14%)	21 (19,8%)
Total	56	50	106

Table 5. – Comparison of regularity of taking of antihypertensive drugs in different age groups (изменить в тексте)

Таблица 5. – Сравнение регулярности приема гипотензивных средств в разных возрастных группах

	18-44 years	45-59 years	>60 years	Total
Regular use	7 (100%)	28 (65,1%)	53 (89,8%)	88 (80,7%)
Irregular use	0	15 (34,9%)	6 (10,2%)	21 (19,3%)
Total	7	43	59	109

people who received monotherapy (73,3% vs 32,9%, $p=0,00015$ by the Chi-square test) as well as those with low adherence to therapy (60% vs 3,8%, $p<0,0001$ by the Chi-square test).

We also analyzed influence of age on the number of patients that use antihypertensive medicines with and without doctor's prescription. It was found that the highest rate of self-treatment was among the middle-aged respondents – 24 (55,8%); corresponding values for young and for older respondents were 1 (14,3%) and 5 (8,5%) ($p<0,0001$ by the Chi-square test).

Conclusion

1. ACE inhibitors is the most widely used group of antihypertensive drugs among the pharmacy visitors in Grodno, lisinopril is the most commonly administered drug. In patients with concomitant ischemic heart disease and/or congestive heart failure beta-adrenergic receptor blockers are the most widely prescribed drugs.

2. Among the pharmacy visitors in Grodno almost half (44%) use one hypotensive drug. Relatively small number of respondents use fixed dose combinations (20,2%).

3. The most of the pharmacy visitors use hypotensive drugs regularly; however, 19,3% respondents are non-adherent. Age has significant influence on the rate of non-adherence; the middle-aged group (45 – 64 years) has highest rate of non-adherence.

4. The most of the pharmacy visitors used antihypertensive drugs on the recommendation of a doctor. The most of respondents who use hypotensive drugs without doctor's prescription belong to the middle-aged group.

In general, the structure of use of antihypertensive drugs among the pharmacy visitors in Grodno complies to the international guidelines for the management of arterial hypertension. However, there

are some disadvantages: 1) relatively large number of respondents use only one antihypertensive drug;

2) some respondents, especially among middle-aged persons, take antihypertensive drugs not regularly.

Literature

- Lackland, D. T. Global burden of cardiovascular disease and stroke: hypertension at the core / D. T. Lackland, M. A. Weber // *Can. J. Cardiol.* – 2015. – Vol. 31, № 5. – P. 569-571. – doi: 10.1016/j.cjca.2015.01.009.
- The world health report 2002 – Reducing Risks, Promoting Healthy Life / World Health Organization Press. – Mode of access: https://apps.who.int/iris/bitstream/handle/10665/42510/WHR_2002.pdf. – Date of access: 24.07.2020.
- Heart disease and stroke Statistics-2016 Update: A Report From the American Heart Association / Writing Group Members [et al.] // *Circulation.* – 2016. – Vol. 133, № 4. – doi: 10.1161/CIR.0000000000000350.
- Сура, М. В. Анализ затрат на фармакотерапию пациентов с артериальной гипертензией на амбулаторном этапе оказания медицинской помощи / М. В. Сура // *Вестник Росздравнадзора.* – 2014. – № 3. – С. 43-53.
- Residual lifetime risk for developing hypertension in middle-aged women and men: The Framingham Heart Study / R. S. Vasan [et al.] // *JAMA.* – 2002. – Vol. 287, № 8. – P. 1003-1010. – doi: 10.1001/jama.287.8.1003.
- Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure / A. V. Chobanian [et al.] // *Hypertension.* – 2003. – Vol. 42, № 6. – P. 1206-1252. – doi: 10.1161/01.HYP.0000107251.49515.c2.
- Шупина, М. И. Распространенность артериальной гипертензии и сердечно-сосудистых факторов риска у лиц молодого возраста / М. И. Шупина, Д. В. Турчанинов // *Сибирский медицинский журнал.* – 2011. – Т. 26, № 3. – С. 152-156.
- Ватутин, Н. Т. Распространенность артериальной гипертензии и факторов риска у лиц молодого возраста / Н. Т. Ватутин, Е. В. Складная // *Архивъ внутренней медицины.* – 2017. – Т. 7, № 1. – С. 30-34. – doi: 10.20514/2226-6704-2017-7-1-30-34.
- 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines / P. K. Whelton [et al.] // *Hypertension.* – 2018. – Vol. 71, № 6. – P. 1269-1324. – doi: 10.1161/HYP.0000000000000066.
- 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension / B. Whilliams [et al.] // *J Hypertens.* – 2018. – Vol. 36, № 10. – P. 1953-2041. – doi: 10.1097/HJH.0000000000001940.
- Al-Zeyadi, H. H. Analysis of use of hypotensive drugs in Belarus by the database of sales [Электронный ресурс] / H. H. Al-Zeyadi, V. V. Goncharuk, V. I. Kozlovski // *Актуальные проблемы медицины : сб. материалов итоговой научно-практической конференции, 24 января 2020 г. / отв. ред. В. А. Снежицкий.* – Гродно : ГрГМУ, 2020. – С. 5-8. Режим доступа: <http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1> <http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1>&HYPERLINK <http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1&isAllowed=y>&HYPERLINK <http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1&isAllowed=y>isAllowed=y. – Дата доступа: 10.10.2020.
- Фармакоэпидемиология артериальной гипертензии в России (по результатам фармакоэпидемиологического исследования ПИФАГОР III) / М. В. Леонова [и др.] // *Российский кардиологический журнал.* – 2011. – № 2. – С. 9-16. – doi: 10.15829/1560-4071-2011-2-9-16.
- Age-Related Differences in Antihypertensive Medication Adherence in Hispanics: A Cross-Sectional Community-Based Survey in New York City, 2011-2012 / P. Bandi [et al.] // *Prev. Chronic Dis.* – 2017. – Vol. 14. – P. 57. – doi: 10.5888/pcd14.160512.

References

- Lackland DT, Weber MA. Global burden of cardiovascular disease and stroke: hypertension at the core. *Can J Cardiol.* 2015;31(5):569-571. doi: 10.1016/j.cjca.2015.01.009.
- World Health Organization Press. The world health report 2002 – Reducing Risks, Promoting Healthy Life. Available from: https://apps.who.int/iris/bitstream/handle/10665/42510/WHR_2002.pdf.
- Writing Group Members; Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M, Das SR, de Ferranti S, Després JP, Fullerton HJ, Howard VJ, Huffman MD, Isasi CR, Jiménez MC, Judd SE, Kissela BM, Lichtman JH, Lisabeth LD, Liu S, Mackey RH, Magid DJ, McGuire DK, Mohler ER 3rd, Moy CS, et al. Heart Disease and Stroke Statistics-2016 Update: A Report From the American Heart Association. *Circulation.* 2016;133(4):e38-360. doi: 10.1161/CIR.0000000000000350.
- Sura MV. Analiz zatrat na farmakoterapiju pacienotov s arterialnoj gipertenziej na ambulatornom jetape okazanija medicinskoj pomoshhi [Evaluation of costs for pharmacotherapy of patients with hypertension in outpatient care]. *Vestnik Roszdravnadzora.* 2014;3:43-53. (Russian).
- Vasan RS, Beiser A, Seshadri S, Larson MG, Kannel WB, D'Agostino RB, Levy D. Residual lifetime risk for developing hypertension in middle-aged women and men: The Framingham Heart Study. *JAMA.* 2002;287(8):1003-10. doi: 10.1001/jama.287.8.1003.
- Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, Jones DW, Materson BJ, Oparil S, Wright JT Jr, Roccella EJ; Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National Heart, Lung, and Blood Institute; National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension.* 2003;42(6):1206-52. doi: 10.1161/01.HYP.0000107251.49515.c2.
- Shupina MI, Turchaninov DV. Rasprostranennost arterialnoj gipertenzii i serdechno-sosudistykh faktorov riska u lic mladogo vozrasta [Prevalence of hypertension and cardiovascular risk factors in young people]. *Sibirskij medicinskij zhurnal* [The Siberian Journal of Clinical and Experimental Medicine]. 2011;26(3):152-6. (Russian).
- Vatutin M, Sklyanna O. Rasprostranennost arterialnoj gipertenzii i faktorov riska u lic mladogo vozrasta [Prevalence of arterial hypertension and risk factors in

- young adults]. *Arhiv vnutrennej mediciny* [The Russian Archives of Internal Medicine]. 2017;7(1):30-4. doi: 10.20514/2226-6704-2017-7-1-30-34. (Russian).
9. Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, DePalma SM, Gidding S, Jamerson KA, Jones DW, MacLaughlin EJ, Muntner P, Ovbigele B, Smith SC Jr, Spencer CC, Stafford RS, Taler SJ, Thomas RJ, Williams KA Sr, Williamson JD, Wright JT Jr. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Hypertension*. 2018;71(6):1269-1324. doi: 10.1161/HYP.000000000000066.
 10. Williams B, Mancia G, Spiering W, Rosei EA, Azizi M, Burnier M, Clement DL, Coca A, de Simone G, Dominiczak A, KHTNan T, MHTNfoud F, Redon J, Ruilope L, Zanchetti A, Kerins M, Kjeldsen SE, Kreutz R, Laurent S, Lip GYH, McManus R, Narkiewicz K, Ruschitzka F, Schmieder RE, Shlyakhto E, Tsioufis C, Aboyans V, Desormais I, Authors/Task Force Members. 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. *J Hypertens*. 2018; 36(10): 1953-2041. doi: 10.1097/HJH.0000000000001940.
 11. Al-Zeyadi HH, Goncharuk VV, Kozlovski VI. Analysis of use of hypotensive drugs in Belarus by the database of sales. In: Snezhitskiy VA, executive editor. *Aktualnye problemy mediciny: sbornik materialov itogovoy nauchno-prakticheskoy konferencii*; 2020 Janv. 24; Grodno. Grodno: GrSMU; 2020. p. 5-8. Available from: <http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1> HYPERLINK “<http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1&isAllowed=y>”&HYPERLINK “<http://elib.grsmu.by/bitstream/handle/files/17560/5-8z.pdf?sequence=1&isAllowed=y>” is Allowed=y.
 12. Leonova MV, Belousov YuB., Steinberg LL, Galitskiy AA, Belousov DYU. Farmakojepidemiologija arterialnoj gipertonii v Rossii (po rezul'tatam farmakojepidemiologicheskogo issledovaniya PIFAGOR III) [Pharmaco-epidemiology of arterial hypertension in Russia: the results of the pharmacoepidemiological study PIFAGOR III]. *Rossijskij kardiologicheskij zhurnal* [Russian Journal of Cardiology]. 2011;2:9-16. doi: 10.15829/1560-4071-2011-2-9-16. (Russian).
 13. Bandi P, Goldmann E, Parikh NS, Farsi P, Boden-Albala B. Age-Related Differences in Antihypertensive Medication Adherence in Hispanics: A Cross-Sectional Community-Based Survey in New York City, 2011-2012. *Prev Chronic Dis*. 2017;14:E57. doi: 10.5888/pcd14.160512.

АНАЛИЗ ПРИМЕНЕНИЯ ГИПОТЕНЗИВНЫХ СРЕДСТВ ПО ДАННЫМ АНКЕТИРОВАНИЯ ПОСЕТИТЕЛЕЙ АПТЕК В г. ГРОДНО

Аль-Зейяди Х. Х., Козловский В. И., Цымбалистый А. В., Гончарук В. В.

Гродненский государственный медицинский университет, Гродно, Беларусь

Цель исследования – оценить структуру применения гипотензивных средств и приверженность антигипертензивной терапии среди посетителей аптек г. Гродно.

Материал и методы. Мы провели анкетирование 109 посетителей аптек, которые покупали антигипертензивные средства.

Результаты. Ингибиторы АПФ были наиболее часто используемой группой антигипертензивных средств среди посетителей аптек в Гродно. 44% из них принимали только одно средство. Большинство посетителей аптек использовали гипотензивные средства регулярно, тем не менее, 19,3% анкетированных, в основном из группы среднего возраста (45-59 лет), не были привержены терапии.

Выводы. Структура применения антигипертензивных средств среди посетителей аптек в г. Гродно в целом соответствует международным рекомендациям по лечению артериальной гипертензии. Тем не менее, имеются некоторые недостатки: 1) относительно большое количество респондентов используют только одно антигипертензивное средство; 2) некоторые респонденты, особенно среди людей среднего возраста, нерегулярно принимают антигипертензивные средства.

Ключевые слова: артериальная гипертензия, гипотензивные средства, посетители аптек, анкетирование, база данных продаж.

Для цитирования: Аль-Зейяди Х. Х., Анализ применения гипотензивных средств по данным анкетирования посетителей аптек в г. Гродно / Аль-Зейяди Х. Х., Козловский В. И., Цымбалистый А. В., Гончарук В. В. // Журнал Гродненского государственного медицинского университета. 2020. Т. 18, № 5. С. 597-601. <http://dx.doi.org/10.25298/2221-8785-2020-18-5-597-601>.

Конфликт интересов. Авторы заявляют об отсутствии конфликта интересов.

Conflict of interest. The authors declare no conflict of interest.

Об авторах/ about the authors:

Аль-Зейяди Хусам Хасан Хади / Al-Zeyadi Husam Hasan Hadi, e-mail: hasanhusam123@gmail.com

Козловский Валерий Иванович / Kozlovski Valery, e-mail: vkz45@yHTNoo.com, ORCID 0000-0002-8153-7963

Цымбалистый Антон Вадимович / Cymbalisty Anton, e-mail: antoncymbalisty@gmail.com

Гончарук Виктор Владимирович / Goncharuk Viktor, e-mail: goncharuk103@gmail.com

* – автор, ответственный за переписку / *corresponding author*

Поступила / Received: 01.07.2020

Принята к публикации / Accepted for publication: 18.09.2020