

Comparative Analysis of E-Prescriptions for Cardiovascular Diseases in Ukraine

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Introduction
Cardiovascular diseases (CVD) is one of the leading causes of death in Ukraine and the world and declining quality of life. According to statistics, CVD is the cause of 64.7% of the total number of deaths in Ukraine. The government's reimbursement program "Affordable Medicines" has implemented to improve the provision of medicines.

The aim and methods
The aim of this study was to compare and determine the features of prescribing INNs for medicines for the treatment of CVD in the reimbursement program "Affordable Medicines" during 2019-2020. Methods. Analysis of the NDSU database (nndu.gov.ua) statistical data of electronic registers of e-prescriptions, comparative and DDDs analysis.

Results
According to NDSU statistics, 488 901 688 UAH was reimbursed for the treatment of CVD by e-prescriptions in 2019 and 607 146 831 UAH in 2020 (+ 24.7%). We found that more 20% of e-prescriptions were prescribed (9 143 276) in 2020 than in 2019 (6 was 7 513 691). Comparing to DDDs showed, the e-prescriptions were prescribed in 273 005 688 DDDs and 378 593 904 DDDs in 2019, 2020 respectively. The growth is more 28.1%. The dynamics of e-prescriptions by DDDs of antihypertensive medicines for CVD during 2019-2020 is showed in Table.

Distribution of prescribed treatment in the program

INNs
Losartanum
Spironolactonum
Amiodaronum

Detailing of released medicines for CVD treatment in the reimbursement program "Affordable Medicines" according to...

Conclusions
We conducted a comparative analysis of e-prescriptions for antihypertensive medicines, included in the reimbursement program "Affordable Medicines". We found that a growth of 20% e-prescriptions for CVD treatment and the increasing in the number of DDDs on 28.1% in 2020. It is a significant achievement in reimbursement and the development of e-prescriptions for outpatient in Ukraine. The prospect for the "Affordable Medicines" program is to increase the number of e-prescriptions and expand the list of INNs by combine medicines due to data of evidence.

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INTRODUCTION

Cardiovascular diseases (CVD) is one of the leading causes of death in Ukraine and the world and declining quality of life. According to statistics, CVD is the cause of 64.3% of the total number of deaths in Ukraine.

The government's reimbursement program "Affordable Medicines" has implemented to improve the provision of outpatients with CVD by an essential medicines since April, 2017.

The National Health Service of Ukraine (NHSU) is administration of this program and implemented e-prescriptions since April, 2019 in Ukraine. Family doctors can prescribe the e-recipes for patients with CVD, 2 type diabetes and asthma, using e-system.

THE AIM AND METHODS

The aim of this study was to compare and determine the features of prescribing INNs for medicines for the treatment of CVD in the reimbursement program "Affordable Medicines" during 2019-2020.

Methods. Analysis of the NHSU database (nszu.gov.ua), statistical data of electronic registers of e-prescriptions, comparative and DDDs analysis.

RESULTS

According to NHSU statistics, 488 981 688 UAH was reimbursed for the treatment of CVD by e-prescriptions in 2019 and 667 140 051 UAH in 2020 (+ 26.7%).

We found that more 20% of e-prescriptions were prescribed (9 143 279) in 2020 than in 2019 (it was

7 313 001).

Comparing in DDDs showed, the e-prescriptions were prescribed in 273 605 698 DDDs and 370 988 904 DDDs in 2019, 2020 respectively. The growth is more 26.1%.

The dynamics of e-prescriptions by DDDs of antihypertensive medicines for CVD during 2019-2020 is showed in Tabl.

Distribution of prescribed e-prescriptions by DDDs for CVD treatment in the program "Affordable Medicines" for 2019-2020

INNs	2019	2020	2020/2019, %
Losartanum	28 836 754	43 101 360	+33,1%
Spironolactonum	7 145 228	10 613 913	+32,7%
Amiodaronum	3651777	5 240 937	+30,3%
Carvedilolum	4 713 231	6 652 476	+29,2%
Clopidogrelum	75 750 814	106 854 606	+29,1%
Hydrochlorothiazidum	3 018 495	4 225 805	+28,6%
Simvastatinum	13 227 365	18 072 991	+26,8%
Metropololum	1 444 840	1 906 218	+24,2%
Bisoprololum	53 073 874	68 992 872	+23,1%
Amlodipinum	46 793 039	60 182 537	+22,5%
Enalaprilum	29 667 383	37 651 626	+21,2%
Digoxinum	1 438 468	1 786 438	+19,5%
Furosemidum	1 46 876	175 195	+16,2%
Isosorbidi dinitras	3 319 800	3 909 300	+15,1%
Atenololum	321 045	380 285	+15,0%
Nitroglicerinum	234 340	275 643	+15,0%
Verapamilum	822 372	948 705	+13,3%
Total	273605698	370988904	+26,1%

We found that more 50% of e-prescriptions were prescribed during 2019 -2020 for these four INNs: Bisoprolol, Clopidogrel, Enalapril, and Amlodipine. The highest growth was in e-prescriptions for the selected period for:

Losartan (+ 28.7%),

Amiodarone (+ 25.3%),

Clopidogrel (+ 25.3%),

Carvedilol (+ 21.5%).

The structure of the e-prescriptions by INNs for treatment of CVD is showed in Tabl.

Distribution of prescribed e-prescriptions by INNs for CVD treatment in the program "Affordable Medicines" for 2019-2020

INNs	2019	2020	2020/2019, %
Losartanum	647 749	908740	+28,7%
Amiodaronum	168 087	224967	+25,3%
Clopidogrelum	1150201	1539385	+25,3%
Carvedilolum	374 624	477081	+21,5%
Hydrochlorothiazidum	214 192	268894	+20,3%
Simvastatinum	707 641	876609	+19,3%
Bisoprololum	1178162	1441221	+18,3%
Metroplolum	62 923	76431	+17,7%
Digoxinum	91 713	110977	+17,4%
Enalaprilum	1054241	1234502	+16,6%
Spironolactonum	486 004	582946	+16,6%
Amlodipinum	948718	1133902	+16,3%
Isosorbidi dinitras	73 731	87638	+15,9%
Furosemidum	84 958	99719	+14,8%
Nitroglicerinum	37 900	44142	+14,1%
Atenololum	12 258	13789	+11,1%
Verapamilum	19 899	22336	+10,9%
Total	7313001	9143279	+20,0%

DETAILING OF RELEASED MEDICINES FOR CVD TREATMENT IN THE REIMBURSEMENT PROGRAM "AFFORDABLE MEDICINES" ACCORDING TO DASHBOARD OF NHSU, UKRAINE

Деталізація відпущених лікарських засобів за програмою реімбурсації «Доступні ліки»



CONCLUSIONS

We conducted a comparative analysis of e-prescriptions for an antihypertensive medicine, included in the reimbursement program "Affordable Medicines".

We found that a growth of 20% e-prescriptions for CVD treatment and the increasing in the number of DDDs on 26.1% in 2020. It is a significant achievement in reimbursement and the development of e-prescriptions for outpatients in Ukraine.

The prospect for the "Affordable Medicine" program is to increase the number of e-prescriptions and expand the list of INNs by combine medicines due to data of evidence-based medicine for the treatment of CVD for outpatients in Ukraine.

ABSTRACT

Introduction. According to statistics, cardiovascular diseases (CVD) is one of the leading causes of death and declining quality of life in Ukraine. The government's reimbursement program "Affordable Medicines" has implemented to improve the provision of outpatients with CVD with the essential medicines since April 2017. The National Health Service of Ukraine (NHSU) is administration of this program and implemented e-prescriptions since April 2019.

The aim was to compare and determine the features of prescribing INNs for medicines for the treatment of CVD in the program "Affordable Medicines" for 2019-2020.

Methods. Analysis of the NHSU database, statistical data of electronic registers, comparative analysis.

Results. According to NHSU statistics, 488981688 UAH was reimbursed for the treatment of CVD by e-prescriptions in 2019 and 667140051 UAH in 2020 (+ 26.7%). We found that in 2020, 20% more e-prescriptions were prescribed (9143279) than in 2019 (7313001). According to the number of DDDs, in 2019 e-prescriptions were prescribed for 273605698 DDDs and 370988904 DDDs in 2020, which is 26.1% more. We found that more than 50% of e-prescriptions prescribed between 2019 and 2020 were for these four INNs: Bisoprolol, Clopidogrel, Enalapril, and Amlodipine. The highest growth in e-prescriptions for the selected period was for: Losartan (+ 28.7%), Amiodarone (+ 25.3%), Clopidogrel (+ 25.3%), Carvedilol (+ 21.5%).

Conclusions. We conducted a comparative analysis of e-prescriptions for CVD drugs that are included in the state program of reimbursement "Affordable Medicines". We found a 20% increase in e-prescriptions for CVD treatment and a 26.1% increase in the number of DDDs in 2020, which is a significant achievement in reimbursement and e-prescriptions for outpatients in Ukraine.