

drugs of Ukrainian manufacturers, 38.5% are foreign drugs. The drugs are presented on the market in the form of 4 dosage forms: tablets, capsules, oral drops, solution for injections.

**Conclusions.** The range of calcium channel blockers on the modern pharmaceutical market of Ukraine is quite wide. Dihydropyridine derivatives predominate, namely, amlodipine drugs, predominate among the registered medicines of this group. However, there are only 6 drugs of phenylalkylamine and benzothiazepine derivatives. Tablets (tablets, coated tablets, prolonged-release tablets, modified-release tablets) are the most common medicinal form of calcium antagonists. Other medicinal forms are available only in certain drugs.

**AFFORDABLE DRUGS REIMBURSEMENT PROGRAM  
FOR MEDICINAL PRODUCTS:  
DRUGS FOR PARKINSON'S DISEASE TREATMENT**

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**Introduction.** Parkinson's disease (PD) is a progressive neurodegenerative disorder that predominantly affects the elderly. PD patients have both motor and non-motor symptoms (tremors at rest, rigidity, bradykinesia, and stooping). PD can also be associated with neurobehavioral disorders (depression and anxiety), cognitive impairment (dementia), and autonomic dysfunction (orthostasis and hyperhidrosis). Medical treatment of PD patients is challenging, as the choice of drugs is limited. Virtually all patients with PD undergo dopamine replacement therapy using levodopa (LD) during the course of the disease's progression. However, despite the fact that LD is the «gold standard» in PD treatments and has the ability to significantly alleviate PD symptoms, it comes with side effects in advanced PD. LD replacement therapy remains the current clinical treatment of choice for Parkinson's patients, but approximately 80% of the treated Parkinson's disease patients develop levodopa-induced dyskinesia in the advanced stages of the disease

PD treatment is life-long, requiring long-term and continuous therapy with periodic adjustments of the dose and intervals of taking medicines to improve the patient's quality of life. Since April 1, 2019, The National Health Service of Ukraine has administered the Affordable Drugs reimbursement program for medicinal products. To reduce the financial burden, as one of the elements of compliance, the pharmacist has to understand the principles of choosing the trade name of a fixed combination of levodopa-carbidopa immediate release (LD-CD IR), which is registered on the pharmaceutical market of Ukraine, based on the neurologist recommendations, taking into account the patient's capabilities.

**Aim of the study.** Conduct a comparative analysis of medicines containing a fixed combination of LD-CD IR, which are included in the Drugs Register of

«Affordable Drugs» reimbursement program for medicinal products, and are subject to reimbursement.

**Materials and methods.** Comparative analysis of drugs containing a fixed combination of LD-CD IR was carried out according to such parameters as trade name, dosage form, dose (1), the retail price per pack, UAH (2), the minimum and maximum price per pack, UAH in Kharkiv pharmacies (3 and 4), amount of extra charge for a pack, UAH (5), and data on efficacy/bioequivalence (declarative principle) (6).

**Results and discussion.** The list of drugs included in the Drugs' Register which are subject to reimbursement as of October 20, 2022 (Order of the Ministry of Health of Ukraine No. 1931 dated October 27, 2022) included 3 trade names of drugs containing a fixed combination of LD-CD IR, which the patient can get at the pharmacy for free or with an additional payment.

Levocom (250/25 mg 100 immediate release tab.): 2 – 752.53 UAH, 3 – 566.91 UAH, 4 – 929.26 UAH, 5 – 244.24 UAH, 6 – not found.

Levocom (250/25 mg 30 immediate release tab.): 2 – 225.76 UAH, 3 – 172.40 UAH, 4 – 299.73 UAH, 5 – 73.27 UAH, 6 – not found.

Confundus<sup>®</sup> (250/25 mg 100 immediate release tab.): 2 – 508.30 UAH, 3 – 432.00 UAH, 4 – 515.31 UAH, 5 – 0.00 UAH, 6 – the equivalence index is not specified by the manufacturer.

Nakom<sup>®</sup> (250/25 mg 100 immediate release tab.): 2 – 508.30 UAH, 3 – 432.00 UAH, 4 – 515.31 UAH, 5 – 0.00 UAH, 6 – the equivalence index is not specified by the manufacturer.

According to the results of the price calculation for 1 tablet including reimbursement, trade names were distributed as follows (low-high): Levocom, Nakom<sup>®</sup>, and Confundus<sup>®</sup>. When analyzing the number of packages that were sold in February 2023 in Kharkiv pharmacies (the reimbursement program for PD treatment was activated in Kharkiv on February 1), Levocom took the first place in sales of immediate levodopa-carbidopa drugs, although patients bought it with extra charge. Despite the possibility of a free purchase, Confundus<sup>®</sup> was in last place in terms of the number of packages sold. It can be assumed that the price is not the main criterion for choosing immediate levodopa-carbidopa drugs.

The presence of an electronic prescription, which the patient can obtain from a neurologist, is a prerequisite for these drugs purchase. During the war, the prescription can be electronic or paper. The patient can apply for a prescription at any pharmacy, regardless of the place of registration. The main condition is the existence of a contract with the National Health Service of Ukraine. The patient can recognize such a pharmacy by the sticker «Available drugs». The pharmacist will offer available drugs that contain the required active ingredient. And it will also inform you which drug is completely free of charge, and which you need to pay extra for. The pharmacy will reimburse the cost of the drugs to the National Health Service of Ukraine.

**Conclusions.** For the treatment of motor symptoms in PD progression, it is rational to use drugs with a fixed combination of LD-CD IR to minimize the burden of

symptoms and maximize the quality of life. It is important not to ignore the person's wishes or priorities. It is about the choice of the type of treatment or individual drug, the conditions of treatment, and ways of further contact. The dose of LD-CD IR has to be adjusted to relieve progressive motor symptoms by increasing doses (the smallest single dose and adding dosing intervals). As part of pharmaceutical care of drugs containing a fixed combination of levodopa-carbidopa immediate release (250/25 mg) under an electronic prescription, the pharmacist has the opportunity to explain to the pharmacy visitor the criteria for choosing the trade name of the drug. Of course, this does not mean that the patient imposes his ideas about treatment on the pharmacist. It's about joint decision-making. Firstly, it is a basic human right. And secondly, it helps to establish a trusting relationship between the health worker and the person receiving care.

## **PROSPECTS FOR NEW DOSE FORMS OF COMPLEX DRUGS CONTAINING LEVODOPA AND CARBIDOPA**

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**Introduction.** Parkinson's disease (PD) drugs can be divided into three categories. The generic (unbranded) name – co-careldopa is a combination of levodopa (LD) and carbidopa (CD). The brand name is Sinemet® is the name that the pharmaceutical company, MSD, uses to sell co-careldopa. It also may see that the medication is written as modified release (MR), controlled release (CR), and prolonged release medication (PR). All of these labels mean the same thing, but drug companies can choose which one to use with their drug. LD is the name used to describe one of the main types (classes) of drugs and is the «gold standard» for PD treatment. For some people with PD, protein (which is found mainly in meat, fish, eggs, cheese, beans, and pulses) seems to interfere with how well levodopa medications are absorbed by the body. Because of this, it may benefit from taking the medication 30-60 minutes before eating. It may also benefit from a protein redistribution diet, where patients take most of their daily protein in the evening. This can help the levodopa treatment to be more effective in the daytime when patients are likely to need it more. PD causes progressive disability that can be slowed but not halted by treatment. Therefore, the goal of medical management of PD is to control the signs and symptoms of the disease for as long as possible while minimizing adverse effects. The challenge in maintaining LD plasma levels within this progressively narrowing therapeutic window is complicated by LD's narrow absorption window, with absorption limited to the upper GI tract, as well as LD's short clearance half-life when taken with CD. As high levels of LD are associated with dyskinesia development, it is preferable to maintain peak LD levels just high enough for efficiency. Reducing LD dosage while maintaining stable LD levels