The marketing research of the Ukrainian market of drugs for the treatment of arthritis

Rheumatoid arthritis (RA) is a chronic systematic disease of the connective tissue with peripheral joints damage and characteristic non-arterial effects. Rheumatic diseases affect the national economy, lead to considerable expenses for their treatment and reduce the quality of the patients’ life.

**Aim.** To study drugs used for the treatment of arthritis at the Ukrainian pharmaceutical market, determine the number of the domestic and imported producers.

**Materials and methods.** The analysis of the drug assortment was conducted in accordance with the State Register of Drugs of Ukraine and ATC-classification of the WHO. The sources of information used were Compendium 2016 – Drugs, and a Software Complex, a weekly journal “Pharmacy online”.

**Results and discussion.** It has been determined that the leading position of producers of drugs for the treatment of RA belongs to national manufacturers, and there is also a significant market share in manufacturers from Germany, Switzerland and Israel. By the pharmacological action the most common group (26 %) is presented by anti-inflammatory and anti-rheumatic drugs; 25 % of foreign and domestic drugs are antiviral drugs; 19 % are other drugs used in pathology of the locomotor system. The majority group of medicines consists of tablets, capsules and injectable dosage forms.

**Conclusions.** According to the ATC-classification data there are approximately 60 drugs presented at the pharmaceutical market of Ukraine for the treatment of rheumatic diseases. This market segment includes different pharma-cotherapeutic groups, a wide range of manufacturing countries and pharmaceutical companies. However, there is no original combined gel of the complex national production at the pharmaceutical market of Ukraine.

**Key words:** rheumatoid arthritis; marketing analysis; pharmaceutical market; gel
Rheumatoid arthritis (RA) is a chronic systemic disease of the connective tissue with peripheral joints damage and characteristic non-arterial effects. Rheumatic diseases lead to significant healthcare costs, affect the national economy and decrease the quality of life.

According to the data of the Ministry of Health RA is spread among 116492 patients, 52000 of which are persons of the working age. Incapacitation and the growth of disablement are the most important socio-economic consequences of RA. Annually, 90 % of patients with an aggressive form of the disease become disabled. The average life expectancy of patients with RA decreases by 10-15 years, i.e. it is one of severe therapeutic diseases [1, 2, 3, 4].

RA should be treated in a complex way in several stages: drug therapy, local therapy, sanatorium-resort care, physical and medico-social rehabilitation. One of the methods of RA therapy is phyotherapy. Herbal medicinal products help to alleviate the condition, as well as reduce pain in the affected joints. In RA the folk medicine has long used individual herbs, and it is possible to combine them with each other: birch leaves, stinging nettle, white willow bark, juniper fruit, wild strawberry herb, sage herb, etc. [4, 5, 6, 7].

The aim of the work was to study the range of drugs used for the treatment of arthritis at the Ukrainian pharmaceutical market, determine the number of the domestic and imported producers. Marketing research of the pharmaceutical market of Ukraine was performed in order to create an original combined gel with the complex action for the treatment of RA.

Materials and methods

The assortment of drugs was analyzed in accordance with the State Register of Medicines of Ukraine and the classification of the WHO. The sources of information used were Compendium 2016 – Drugs, and a Software Complex, a weekly journal “Pharmacy online” [8, 9, 10].

In order to determine the feasibility of creating new drugs for the treatment of RA the assortment of drugs presented at the pharmaceutical market of Ukraine was analyzed.

Results and discussion

In accordance with the ATC-classification data there are approximately 60 drugs presented at the pharmaceutical market of Ukraine for the treatment of rheumatic diseases. This market segment includes different pharmacotherapeutic groups, a wide range of manufacturing countries and pharmaceutical companies, such as SANDOZ, KRKA, Novartis Pharma, Berlin-Chemie AG, Teva, Gedeon Richter, Darmitsa, and Zdorovye (Table).

The share of manufacturing countries of drugs for the treatment of rheumatoid arthritis at the pharmaceutical market of Ukraine is shown in Fig. 1. According to the research results given in Fig. 1 it has been determined that the leading position belongs to domestic manufactures (34 %), a significant share of the market is also owned by manufacturers from Germany (18 %), Switzerland (9 %) and Israel (7 %).

The classification of drugs used in the treatment of rheumatoid arthritis by their pharmacological action is given in Fig. 2.
The assortment of drugs used in the treatment of RA by the ATC-classification

| ATC Code | Description | Brand Names |
|----------|-------------|-------------|
| L03AB10 | Peginterferon alfa-2b | Alphaferon, Valartin Pharm; Pegintron, Schering-Plow Central East; Unitron, LumiereFarm |
| L03A X21** | Others | Amixin IC, InterChem; Blastomunil, Enzipharm NBS; Glutoxim, “ZDRAVO”; Inflamafertin, NIR; Olfen-100 Rectocaps, Teva; Olfen-100 CP Depokaps, Teva; Olfen-50 Laktab, Teva; Olfen-75, Teva; Rapten-75, Stada-Nizhpharm; RaptenRapid, Stada-Nizhpharm; Voltaren, sol for inj., Novartis Pharma; Voltaren Retard, Novartis Pharma; Voltaren suppositories, Novartis Pharma; Voltaren, tab., Novartis Pharma; Dicloberl, Berlin-Chemie AG; Dicloberl, suppositories, Berlin-Chemie AG; Diclobru, Brupharmaexports.p.r.l.; Diclofenac, NIKO; Diclofenac, Lekhim-Kharkiv; Diclofenac, Red Star; Diclofenac, GlaxoSmithKlineExport; Diclofenac Natrium, Lekhim-Kharkiv; Diclofenac Natrium, Lubnyfarm; Diclofenac Natrium, Monopharm; Diclofenac Natrium, Zdorovyя narodu |
| M01A B05 | Diclofenac | Almiral, Medochemie Ltd., Cyprus; Aertal, GedeonRichter; Diclotol, Kusum; Zerodol, IPCA |
| M01A B16 | Aceclofenac | Butadion, Gedeon Richter |
| M01A C05 | Lornoxicam | Xefokam, Takeda; Xefokam Rapid, Takeda; Larfix, Kusum |
| M01A E03 | Ketoprofen | Artrocold/i, World Medicine; Ketonal, Sandoz; Ultrafastin, Medana Pharma S.A. |
| J05F A10 | Azithromycin | Azibiot, KRKA; Azimed, capsules, Arterium; AzithroSandoz, Sandoz; Azithromycin Grindeks, Grindeks; Azicin, Darnitsa; Ziomycin, Kusum; Azithromycin, Borisovskiy ZMP; Azithromycin, Alembic Pharmaceuticals Limited; Azithromycin 1000, Ananta Medicare; Azithromycin 250, Ananta Medicare; Azithromycin 250, Euro Lifecare; Azitromycin 500, Ananta Medicare; Azithromycin-Astrapharm, Astrapharm |
| J05A B04 | Ribavirin | Virobil, Kusum; Copegus, Roche; Livet, Valartin Pharma; Maxvirin, Pharmex Group; Rebetol, Schering-Plough Central East; Ribavirin – Astrapharm, Astrapharm; Ribarin, Pharma Start |
| A11G10** | Ascorbic acid in combination with other ingredients | Ascozin, Kusum; Ascorbic acid with glucose, Kyiv vitamin factory |
| A11GA01 | Ascorbic acid (vitamin C) | Ascorbic acid, KVF; Vitamin C 500, KVF; Ascorbic acid (vitamin C) with sugar, KVF; Ascorbic acid, Lekhim-Kharkiv; Ascorbic acid, Technolog; Ascorbic acid, Lubnyfarm; Ascorbic acid, OZ GNТSLS; Ascorbic acid, Exon; Ascorbic acid – Darnitsa, Darnitsa; Ascorbic acid – Darnitsa, Darnitsa; Vitamin E, Unipharm; Enat 400, Mega Lifeciences |
| A11H A03 | Tocopherol (Vitamin E) | Vitamin E, KVF; Alpha-Tocopherol acetate, Technolog; Vitamin E – Zentiva, Zentiva; Vitrum Vitamin E, Unipharm; Enat 400, Mega Lifeciences |
| L04A A13 | Leflunomide | Lefno, Kusum; Leflubat, Medac |
| M09A X10** | Different drugs | Aflutilop, S.C. Biotehnos S.A.; Discus Compositum, Heel; Incena, Omega Pharma Ukraine; Incena, Richard Bittner; Doctor Schussler salt No.1 calcium fluoratum, Alpen Pharma AG; Doctor Schussler salt No.2 calcium phosphoricum, DHU; Doctor Schussler salt No. 2 calcium phosphoricum, Alpen Pharma AG; Doctor Schussler salt No. 1 calcium fluoratum, DHU; Sustamarin, Esparma; Traumel C, Heel; Zeel T, Heel; Artiflex, Zdorovie; Arthron Triactive Forte, Unipharm; Arthrophon, Materia Medica-Ukraine; Osteoarthritis, N. Kapharma Pharmaceuticals Export; Osteoarthritis Active, N. Kapharma Pharmaceuticals Export; Osteoarthrosis Active Plus, N. Kapharma Pharmaceuticals Export; Osteoarthrosis Max, N. Kapharma Pharmaceuticals Export; Solvencium, Ukrainian Farmaceutical Kompany; Homvio-Revman, Homviora Arzneimittel |
As can be seen from Fig. 2, the most common group (26%) are anti-inflammatory and anti-rheumatic drugs; 25% of foreign and domestic drugs are antiviral drugs; 19% are other drugs used in pathology of the musculoskeletal system.

Distribution of drugs by dosage form is given in Fig. 3.

As can be seen from Fig. 3, the most numerous dosage forms are tablets (56%), capsules (14%) and injectable dosage forms (15%). Medicines in the form of gels, powders, oral drops and others occupy 15% of the market.

CONCLUSIONS

According to the ATC-classification data there are approximately 60 drugs presented at the pharmaceutical market of Ukraine for the treatment of rheumatic diseases. The market segment covers various pharmacotherapeutic groups, a wide range of manufacturing
countries and pharmaceutical companies such as SAN-
DOZ (Germany), KRKA (Slovenia), Novartis Pharma,
Berlin-Chemie AG (Germany), Teva, Gedeon Richter
(Hungary), Damita (Ukraine), Zdorovye (Ukraine). How-
ever, at the pharmaceutical market of Ukraine there are
many types of gels for the treatment of RA, but the
original combined gel of the complex action produced in
Ukraine is not presented.

Conflict of Interests: authors have no conflict of
interests to declare.

REFERENCES
1. Kovalenko, N. A., Supichenko, G. N., Leontev, V. N., Shutova, A. G., Kulinchik, A. I. (2010). Zhurnal Trudy BGTU, 1 (4).
2. Agarwal, S. K. (2011). Core Management Principles in Rheumatoid Arthritis to Help Guide Managed Care Professionals. Journal of Managed Care Pharmacy, 17 (9 Supp B), S03–S08. doi: 10.18553/jmcp.2011.17.s9.b.s03
3. Morozov, A. M., Yakovliova, L. V., Bezditko, N. V. et al. (2013). Otsinka klinichnoi ta ekonomichnoi dotisnosti vykorystannya lkar-
skykh zasobiv u likuvalno–profilaktychnomu zakladi (suprovod formuliaroi systemy). Kharkiv: Styl–Yzdat, 36.
4. Gaujoux–Viala, C., Smolen, J. S., Landewe, R., Dougados, M., Klareskog, L., Valkenburg, H. A., van Vollenhoven, R. F., Pavelka, K., Valesini, G., Hensor, E. M. A., Buch, M. H. (2010). Current evidence for the management of rheumatoid arthritis with biological disease–modifying antirheumatic drugs: a systematic literature review informing the EULAR recommendations for the management of RA / J. Nam, K. Winthrop et al. // Ann. Rheum. Dis. – 2010. – Vol. 69, Issue 6. – Р. 976–986. doi: 10.1136/ard.2009.126573
5. Current immunotherapy in rheumatoid arthritis / F. M. Meier, M. Frerix, W. Hermann, U. Muller–Ladner // Immunotherapy. – 2013. – Vol. 5, Issue 9. – Р. 955–974. doi: 10.2217/imt.13.94
6. Gaujoux–Viala, C., Smolen, J. S., Landewe, R., Dougados, M., Klareskog, L., Valkenburg, H. A., van Vollenhoven, R. F., Pavelka, K., Valesini, G., Hensor, E. M. A., Buch, M. H. (2010). Current evidence for the management of rheumatoid arthritis with synthetic disease–modifying anti–rheumatic drugs: a systematic literature review informing the EULAR recommendations for the management of rheumatoid arthritis. // Annals of the Rheumatic Diseases, 69 (6), 1004–1009. doi: 10.1136/ard.2009.127225
7. Meier, F. M., Frerix, M., Hermann, W., Müller–Ladner, U. (2013). Current immunotherapy in rheumatoid arthritis. Immunotherapy, 5 (9), 955–974. doi: 10.2217/imt.13.94
8. Derzhavnyi reiebut lkarovskykh zasobiv Ukrainy. (2015). Kyiv: MOZ Ukrainy. Available at: http: // www. drlz.kiev.ua
9. Blikhar, V. I., Maltsev, V. I., Morozov, A. M., Parii, V. D., Stepanenko, A. V., Dumenko, T. M. (2012). Current evidence for the management of rheumatoid arthritis with synthetic disease–modifying antirheumatic drugs: a systematic literature review informing the EULAR recommendations for the management of RA. // Annals of the Rheumatic Diseases, 69 (6), 976–986. doi: 10.1136/ard.2009.126573
10. Meier, F. M., Frerix, M., Hermann, W., Müller–Ladner, U. (2013). Current immunotherapy in rheumatoid arthritis. Immunotherapy, 5 (9), 955–974. doi: 10.2217/imt.13.94

Information about authors:
Vynhnevskaya L. I., Doctor of Pharmacy (Dr. habil), professor of the Department of Pharmaceutical Technology of Drugs, National University of Pharmacy.
E-mail: liliavynhnevskaya@gmail.com
Postoy V. V., PhD student of the Department of Pharmaceutical Technology of Drugs, National University of Pharmacy. E-mail: 19_vладик_91@ukr.net

Sведения об авторах:
Вишневская Л. И., д-р фарм. наук, профессор кафедры аптечной технологии лекарств, Научно-фармацевтический университет.
E-mail: liliavynhnevskaya@gmail.com
Постой В. В., аспирант кафедры аптечной технологии лекарств, Научно-фармацевтический университет.
E-mail: 19_vладик_91@ukr.net

Надійшла до редакції 14.11.2017 р.