

Анотації наукових робіт

UDC 615:618.2/.3]:614.35

SAFETY ASSESSMENT OF PHARMACOTHERAPY IN PREGNANCY

K.I. Makukh, O.M. Neryuvoda, I.V. Tsapyk

Danylo Halytsky Lviv National Medical University,

Department of Clinical Pharmacy, Pharmacotherapy and Medical Standardization, Lviv, Ukraine

e-mail: hrystyna25@mail.ru

The aim of the research: assessment of safety of pharmacotherapy in pregnancy by means of identification of drug-related problems (DRP).

Materials and methods: The study design is a retrospective analysis of 65 individual cards of pregnant women (ICP). Information resources for analysis included: patients' ICP, drug's instructions for medical use; clinical protocols approved by the Ministry of Health of Ukraine as a standard of good practice prescribing pharmacotherapy; data of evidence-based medicine; drug interaction checker. The following methods were used: systems analysis; modern information search; analytical, comparative; clinical and pharmaceutical; clinical and pharmacological, questionnaire. Conflicts of interests were not present during the research.

Results: The results of analysis of ICP proved that pharmacotherapy was prescribed for all patients. The most frequently used drugs were vitamin supplements (87,7%), folic acid (50,8%), iron (33,9%). Almost ½ of women (50,8%) used only vitamins, minerals and iron. In general, 59 international nonproprietary drugs were prescribed. The results of analysis of prescribed medicines according to drug safety by FDA classification showed that only 6,8% of drugs belong to Category A (safe); 11,9% – to Category B (relatively safe); 27,1% – to Category C (potentially dangerous); 3,4% – to Category D (dangerous), but 50,8% of drugs are not included to FDA classification, their risk during pregnancy is unknown.

Conclusions:

1. The analysis of 65 individual cards of pregnant women identified 239 DRP, the largest part being technical problems – 54,8%, drug selection problems – 36%, drug-drug interactions – 5% and drug dosage problems – 4,2%. The identified DRP formed a potential negative impact on the safety of pharmacotherapy of pregnant women.
2. Only 60% of pregnant women used 1,2 safe drugs; practically all patients (89,2%) received 1,8 drugs with unknown safety; 61,5% used 2 drugs of Category C; 18,5% – 1,3 dangerous drugs (Category D); 10,8% of pregnant women used 1,6 relatively safe drugs; 40% of pregnant women were prescribed 5 drugs simultaneously. The results of the research revealed a problem of irrational use of medicines that potentially causes health risk for pregnant women and the fetus.
3. In our opinion, monitoring of prescribing drugs for pregnant women is an important issue. Forced use of drugs during pregnancy (in case of extragenital pathology), and, therefore, complications of the pharmacotherapy with negative effects on the fetus requires rational and reliable prescribing drugs and definitely necessitates clinical and pharmaceutical support. We believe that one way to rationalize pharmacotherapy in perinatology is to develop and introduce elements of pharmaceutical care by clinical pharmacists intended for doctors and patients.
4. Studies enabled to form an information leaflet designed for doctors for efficient and safe use of common drugs on the basis of evidence-based medicine as a component of applied pharmaceutical care. This leaflet was distributed in one health facility.

References: ^[1] The base of health care standards in Ukraine (dated 26.12.2012) [in ukr.], available at: <http://www.moz.gov.ua/ua/portal/standards.html>; ^[2] The State Drug list of Ukraine [in ukr.], available at: <http://www.drlz.kiev.ua>; ^[3] The clinical protocol on obstetric health care «Unmaturing of pregnancy» (2008). Order of Ministry of Health care in Ukraine (№624, 03.11.2008) [in ukr.], available at: http://www.moz.gov.ua/ua/portal/dn_20081103_624.html; ^[4] On the organization of outpatient obstetrical and gynecological care in Ukraine (2011), Order of Ministry of Health care in Ukraine (№417, 15.07.2011), available at: http://moz.gov.ua/ua/portal/dn_20110715_417.html; ^[5] Protsyuk O.V., Lyntchak O.V., Tymchenko O.I. (2008), Ukrainian Medical Almanac [in ukr.], Vol.11, №5, p.126-128; ^[6] Strizhenuk E.A., Gudkov I.V., Stratchounski L.S. (2007), Clinical Microbiology, Antimicrobial Chemotherapy [in rus.], №2, p.162-175; ^[7] Tsypkun A.G. (2012), Neonatology, surgery and perinatal medicine [in ukr.], Vol.1, №3, p.77-83; ^[8] Crespin S., Bourrel R., Hurault-Delarue C. (2011), Drug Saf, Vol.34, №7, p.595-604; ^[9] Daw J.R., Hanley G.E., Greyson D.L. (2011), Pharmacoepidemiol. Drug Saf, Vol.20, №9, p.895-902; ^[10] Drug Interaction Checker (2013), available at: <http://reference.medscape.com/drug-interactionchecker>; ^[11] Drug.com (2013), available at: <http://www.drugs.com/pregnancy>; ^[12] Egen-Lappe V., Hasford J. (2004), Eur. J. Clin. Pharmacol., Vol.60, №9, p.659-666; ^[13] European Network of Teratology Information Services (2013), available at: <http://www.ents-org.com>; ^[14] Haas D.M., Ramsey P.S. (2008), Cochrane Database Syst. Rev., available at: <http://onlinelibrary.wiley.com/cochranelibrary/search>; ^[15] Irvine L., Flynn R.W., Libby G. (2010), Drug Saf., Vol.33, №7, p.593-604; ^[16] Medindia (2013), available at: http://www.medindia.net/doctors/drug_information/home.asp; ^[17] Motherisk Program, available at: <http://www.motherisk.org>; ^[18] MotherToBaby (2013), available at: <http://www.mothersbaby.org>; ^[19] National Birth Defects Prevention Network (2013), available at: <http://www.nbdpn.org>; ^[20] Potchoo Y., Redah D., Gneni M.A. (2009), Eur. J. Clin. Pharmacol., Vol.65, №8, p.831-838; ^[21] PubMed (2013), available at: <http://www.ncbi.nlm.nih.gov/pubmed>; ^[22] Rohra D.K., Das N., Azam S.I. (2008), BMC Pregnancy Childbirth, Vol.15, p.8-24; ^[23] Schirm E., Willemijn M.M., Hidle T. (2004), Eur. J. Obstet. Gynecol. Reprod. Biol., Vol.114, p.182-188; ^[24] The Cochrane (2013), available at: <http://onlinelibrary.wiley.com/cochranelibrary/search>; ^[25] The Teratology Society (2013), available at: <http://www.teratology.org>; ^[26] Rumbold A. (2005), Cochrane Database of Systematic Reviews, available at: <http://onlinelibrary.wiley.com/cochranelibrary/search>; ^[27] Zhu X., Qi X., Hao J. (2010), Eur. J. Clin. Pharmacol., Vol.66, №5, p.511-518.

UDC 614.2:615.2/.3 «363»

METHODOLOGICAL APPROACH TO FORMATION OF A DRUG LIST FOR REGIONAL RESERVE

P.V. Oliylyk

Danylo Halytsky Lviv National Medical University, Lviv, Ukraine

e-mail: olinikpetr@mail.ru

The aim of the research: processing of a methodological approach to formation of the Regional reserve list of medicines for elimination of medical and sanitary consequences of emergency situations.

Materials and methods: The following methods were used: systematic approach, observation and generalization, situational analysis, simulation. The objects of research included: the Legislative and Statutory acts concerning medical and pharmaceutical supply for population in emergency situations.

Results: It has been determined that the drug list for Regional reserve does not meet the current requirements of medical standards and clinical protocols, it requires revision and introduction of evidence-based number of titles of contemporary medicines. A methodological approach for standardization of optimal drug list for Regional reserve has been offered and the stages of its formation have been outlined.

Conclusion: Standardization of optimal drug list for Regional reserve will enhance the efficiency of medical care to the victims and reduce irreversible population losses at the prehospital and hospital stages in case of emergency situation.

References: ^[1] *Korets'ky B., Lukash E.* (2012), Galician Economic Bulletin [in ukr.], №2(35), p.95-100; ^[2] *Saltman R.B., Figuerras G.* (2000), European health care reform: analysis of current [in rus.], Moscow: Geotar, Meicine, 432; ^[3] *Shyshkin S.V.* (2003), Municipal Economy [in rus.], №4, p.82-86.

UDC: 547.455.623'233:612.66/.67:612.61

INFLUENCE OF GLUCOSAMINE HYDROCHLORIDE ON FERTILITY OF AGING MALES AND ON THE DEVELOPMENT OF THEIR OFFSPRING

L.V. Yakovleva, I.O. Kovalyova, O.Y. Koshova, T.K. Yudkevich

National University of Pharmacy, Central Scientific and Research Laboratory, Kharkiv, Ukraine

e-mail: janekovaleva@mail.ru

The aim of the research: to study the influence of glucosamine on males' reproductive system, sperm quality, and fertility.

Materials and methods: the study used male rats aged 18-month-old and 24-month-old. The following characteristics were studied: spermatogenesis, levels of testosterone and prostate-specific antigen, aptitude for fecundation and fertility, physical development the offspring of aged male.

Results: Aging has induced the disturbances in the spermatogenesis, aptitude for fecundation and fertility in rats due to decreasing of testosterone level and increasing of prostate-specific antigen level. The number of offspring in aging male was smaller than in young males. Glucosamine hydrochloride had positive action on spermogram parameters, improved sperm count and sperm motility, increased aptitude for fecundation and fertility and testosterone level and decreased the prostate-specific antigen level. Glucosamine hydrochloride promoted normal development of the offspring size of aging male rats, which did not differ from the offspring size of young males.

Conclusion: It was found that glucosamine hydrochloride promoted restoration of reproductive function of aging males. The results showed expediency of further study of glucosamine hydrochloride in the treatment of age-related disorders of male's reproductive system.

References: ^[1] *Andrology. Men's health and reproductive system dysfunction* (2005), [in rus.], The Medical Information Agency, 356; ^[2] *Barylyak I.R., Neumerzhitska L.V., Byshovets T.F., Danilenko V.S.*; Ed. *O.V. Stefanov* (2001), Preclinical investigation of drugs. The guidelines [in ukr.], Kiev, Avicena, p.139-152; ^[3] *Zaychenko H.V., Brechka N.M., Korenyeva Ye.M.* (2009), The problems of endocrin pathology [in ukr.], №1, p.65-71; ^[4] *Zupanets I.A.* (1993), Experimental substantiation of glucosamine and its derivatives use in medicine, thesis of dissertation [in rus.], 90; ^[5] *Yakovleva L.V., Yegorova Ye.A., Laryanovskaya Yu.B., Koshevaya Ye.Yu.* (2012), Physiology, medicine, pharmacology. High technology, theory and practice [in rus.], Sankt-Peterburg, p.169-171; ^[6] *Sikora V.V., Shevtsova Yu.M.* (2011), Visnyk of Sumy State University. Series «Medicine» [in ukr.], №1, Vol.2, p.79-83; ^[7] *Khalafyan A.A.* (2007), STATISTICA 6. Statistical analysis of the data. 3rd ed. [in rus.], Moscow: Binorm-Press, 512; ^[8] *Yakovleva L.V.* (1992), Finding and studying new non-steroidal anti-inflammatory drugs - derivatives of dicarboxylic acids, dissertation [in rus.], Charkiv, 442; ^[9] *Yakovleva L.V., Yegorova Ye.A., Koshevaya Ye.Yu.* (2012), Integration of education, science and industry in Pharmacy, collection of papers of scientific and practical conference [in rus.], Tashkent, p.530-532; ^[10] *Brucato S., Bocquet J., Villers C.* (2002), Eur. J. Biochem., Vol. 269, № 14, p.3461-3469; ^[11] *Grudet N., Bonnamy P.J., Le Goff D., Carreau S.* (1999), J. Steroid. Biochem. Mol. Biol., Vol.68, №3-4, p.153-162.

UDC: 615.276.4+615.28).014.2:616.314.17-002.3

SUBSTANTIATION OF THE COMPOSITION AND PRE-CLINICAL MICROBIOLOGICAL INVESTIGATION OF GEL COMPOUND «POVICHONDROHEXYZOL» FOR TREATMENT OF PERIODONTAL TISSUE DISEASES

O.I. Hodovana, S.B. Bilous, A.I. Martovlos, M.S. Gonevych

Danylo Halytsky Lviv National Medical University, Lviv, Ukraine

e-mail: ohodovana@gmail.com

The aim of the research: implied creation of anti-inflammatory, antimicrobial gel compound «Povichondrohexyzol» based on sulphate chondroitin (SCh) for optimization of reparative processes in periodontal tissues.

Materials and methods: The objects of the research were gel patterns, composed of gel basis and active substances – SCh, metronidazole, povidone-iodine and chlorhexidinedigluconate. Quantitative correlation of the components of a gel basis was established experimentally. Microbiological investigation of antimicrobial properties of the gel compound «Povichondrohexyzol» was carried out by means of disc-diffusive method.

Results: Composition of a gel compound «Povichondrohexyzol» has been suggested for treatment of periodontal tissue diseases. Choice of active and additional components and their optimal concentration has been substantiated. Microbiological investigations enabled to detect high antimicrobial property of a gel compound «Povichondrohexyzol», containing active components SCh, metronidazole, povidon-iodine and chlorhexidinedigluconate in comparison with gel patterns which contained some antimicrobial components, and in comparison with a tooth gel «Metrodent» containing chlorhexidine and metronidazole.

Conclusions: The gel compound «Povichondrohexyzol» with high antimicrobial properties has been produced for the treatment of general and dystrophic inflammatory periodontal diseases, based on combination of SCh, the substance which influences, first of all, the reparative processes in connective and osseous tissues.

References: ^[1]Grudyanov A.I., Ovchynnikova V.V., Dmitriyeva N.A. (2004), Antimicrobial and anti-inflammatory therapy in parodontology [in rus.], Moscow: Medical information agency; ^[2]Grigorian A.S., Rakhmetova S.Yu., Zyryanova N.V. (2007), Microorganisms in periodontal diseases: ecology, pathogenesis, diagnosis [in rus.], Moscow: Geotar-Sedia; ^[3]Davtyan L.L. (2005), Achievements and prospects of the pharmaceutical branch of Ukraine: The thesis of VI National Congress of Pharmacists of Ukraine [in ukr.], Charkiv: National Pharmaceutical University of Ukraine; ^[4]The State Register of medicines of Ukraine [in ukr.], available at: <http://www.drlz.kiev.ua>; ^[5]Larionov Ye.V., Glybina T.A. (2007), Stomatology today [in rus.], Vol.62, №2, p.52-53; ^[6]Lyuta V.A., Kononov O.V. (2006), Microbiology with techniques of microbiological investigation and fundamentals of immunology. Part 1. The general microbiology [in ukr.], Kiev: Zdorovja; ^[7]Zelenova Ye.G., Zaslavskaya M.I., Salina Ye.V., Rasanov S.P. (2004), Oral microflora: norm and pathology. Study Guide [in rus.], Nizhny Novgorod; ^[8]Panasyuk A.F., Lekishvili M.V., Larionov Ye.V. (2004), Clinical and basic aspect of soft tissue therapy: Materials of the II All-Russian symposium with international participation [in rus.], Samara; ^[9]Godovana O.I., Martovlos A.I., Bilous S.B., Gonevitch M.S. The medicine in the form of gel composition for the treatment of inflammatory and dystrophic-inflammatory periodontal diseases by photophoresis [in ukr.], Patent of Ukraine №102500, A61K 6/00, №2013 02259; ^[10]Sukmansky O.I., Horohivsky V.N. (2009), The Bulletin of Stomatology [in ukr.], №3, p.113-18; ^[11]Ushakov R.V., Tsaryov V.N. (2009), The local antimicrobial treatment in Stomatology: Study Guide [in rus.], Moscow: Medical Information Agency; ^[12]Shpulina O.O. (2005), Odessa Medical Journal [in ukr.], №2, p.119-22; ^[13]DeCarlo A.A., Whitelock J.M. (2006), J. Dent. Res., Vol.85, №2, p.122-32; ^[14]Swarbrick J. (ed.) (2007) Encyclopedia of pharmaceutical technology, NY: Informa Health-care USA, Inc.; ^[15]Haffajee A.D. (2004), J. Clin. Periodontology, Vol.33, №5, p.359-61; ^[16]Cantore S., Ballini A., Nardi G. (2010), Journal of orthopedics, Vol.2, №1-3, p.1-8.

UDC 616.517:616.4

AUTOIMMUNE FACTOR OF PSORIASIS DEVELOPMENT

H.E. Astsaturov

Danylo Halytsky Lviv National Medical University, Lviv, Ukraine

e-mail: H.Atsaturov@gmail.com

The aim of the research: investigate changes of content of autoantibodies to thyroperoxidase (TPO) and thyroglobulin (TG) in patients with psoriasis, depending on the clinical course (forms and stages) and disease duration.

Materials and methods: 64 patients with psoriasis (35 men and 29 women) aged 19 to 64 years have been investigated. The control group was formed 15 healthy persons comparable by age and sex. Studying the content of autoantibodies to TPO and TG in patients with psoriasis was conducted using the «sandwich»-method of solid phase immuno-enzyme analysis using reagent collection accordingly, «AB-TPO ELISA» and «AI TG-ELISA». The levels of autoantibodies market in IU / ml.

Results: The clinical and laboratory study of changes in the contents of autoantibodies to thyreoperoxydase (TPO) and thyreoglobuline (Tg) in 64 patients with psoriasis, depending on the clinical course (form and stage) and disease duration have been conducted. It was found, that changes in the contents of autoantibodies to TPO and Tg are accentuated dependent on the clinical course of psoriasis and duration of the dermatosis. It is shown that autoimmune processes are of certain importance in the pathogenesis of psoriasis.

Conclusions:

1. The study of autoantibodies levels to thyroperoxidase and thyroglobulin in 64 patients with psoriasis with various clinical forms, stages and duration of disease certainly proved that changes in the content of autoantibodies to the thyroperoxidase and thyroglobulin are accentuated dependent on the clinical course of psoriasis and duration of dermatosis.
2. Within the framework of already actually proven immunopathogenic theory of psoriasis development, in our opinion, the further research of correlative relationship established autoimmune processes and cytokine profile in patients with psoriasis, and, consequently, possible interrelation these processes and their systemic role in psoriasis development are very interested.

References: ^[1]Andrashko Yu.V. (2008), Ukrainian Journal of dermatology, venerology, cosmetology [in ukr.], №2(29), p.35-36; ^[2]Atsaturov H.Ye., Andrashko Yu.V., Litus O.I. (2008), Ukrainian Journal of dermatology, venerology, cosmetology [in ukr.], №4 (31), p.24-26; ^[3]Atsaturov H.Ye. (2011), The practical medicine [in ukr.], №1, Vol. XVII, p.106-109.; ^[4]Hluhenky B.T. (2001), Healthcare in Ukraine [in ukr.], № 6, p.8; ^[5]Kutasevych Ya.F., Mashtakova I.O. (2010), Optimization of psoriasis topical treatment based on clinical stage and severity. The guidelines [in ukr.], Kyiv, 20; ^[6]Shevchenko T.N., Shlopov V.T. (2001), Pathological anatomy of psoriatic disease [in rus.], Kiev: UkrINTEC, 358; ^[7]Baker H. (1994), Brit. Med. J., Vol. 13, №11, p.231-233; ^[8]Fry L. (2004), An Atlas of Psoriasis, London and New York: Taylor and Francis, 99; ^[9]Menter A., Griffiths C.E. (2007), Lancet, Vol. 370, p.272-284; ^[10]Schon M., Bochner W.H. (2007), N. Engl. J. Med., Vol. 352, №1, p.1899-1904; ^[11]

ISSN 2070-3112

«Клінічна фармація, фармакотерапія та медична стандартизація»

2014, №1-2

Stern R.S. (2007), N. Engl. J. Med., Vol. 357, №1, p.682-690; ^[12] *Strober B.E., Siu K., Menon K.* (2006), J. Rheumatol., Vol. 33, №2, p.1442-1450; ^[13] *Veale D.I., Ritchlin C.T., Fitzzyerdal O.* (2005), Ann. Rheum. Dis., Vol. 64 №2, p.26-29; ^[14] *Wolkenstein P.* (2006), J. Eur. Acad. Dermatol. Venerol., Vol.20, №2. p.28-32.

UDC 617.(092)/477)

**HISTORY OF NATIVE UKRAINIAN MEDICINE REVISITED:
BIOGRAPHIC RESEARCH OF PROFESSIONAL ACTIVITY
OF AN OUTSTANDING PROVINCIAL SURGEON OVKSENTIY BOHAYEVSKY**

A.L. Fedushchak, O.Yu. Gorodnycha, A.B. Zimenkovsky

Danylo Halytsky Lviv National Medical University,

Department of Clinical Pharmacy, Pharmacotherapy and Medical Standardization, Lviv, Ukraine

e-mail: edandrij@gmail.com

The aim of the research: objective and the most complete biography reproduction of *O. Bohayevsky*, Ukrainian physician, in our opinion, will enable to systematize and analyze biographical material, improve the methodology of modern historical and biographical searching, investigate the place and role of Ukrainian medicine in the context of provincial medical history, formation and development of surgical gastroenterology

Materials and methods: printed and electronic information sources, archive materials and memories of *Olexander Borysovych Bohayevsky*, a descendant of *Jacov Bohayevsky* (paternal grandfather of a surgeon *Bogaevsky*) have been used in investigation. Applied methods: systematic, comparative, historical, bibliographical, biographical analyses.

Results: Restoration and enrichment of certain pages of Ukrainian history of medicine, particularly biographies of outstanding doctors are still topical issues nowadays. Performed historical and biographic researches resulted in analysis and systematization of information on professional biography of *Ovksentiy Trohymovych Bohayevsky* and helped to arrange his bibliography, enlighten his outstanding role in the formation of Ukrainian surgical gastroenterology and development of provincial medicine in Ukraine. At the same time, it is determined that his life and professional biography has not been yet studied enough. Certain facts of his biography in academic and especially electronic online sources are far from being entirely elucidated and interpreted impartially. The research material analysis showed as well insufficient systematization of the scientific handling of the biographies of other symbolic personalities who had direct or mediated relations to Ukrainian medicine and culture. On the example of *O. Bohayevsky's* biography analysis in the context of Ukrainian medical history the significant data restriction is shown as well as usage of unproven fact material even in up-to-date historical and biographic research works. Ideologized methodological approach of the soviet historical science to the problem, and, hence, inconsistent interpretation and conclusions affect the quality of historical research, distort the real history and become the basis for further citations in scientific issues which is especially dangerous in case of online sources intended for mass consumers.

Conclusions:

- Available information about biography of *Ovksentiy Trohymovych Bohayevsky* has been collected, systematized and analyzed; his bibliography was arranged; his outstanding role in the development of native surgical gastroenterology and provincial medicine in Ukraine was highlighted. The results of information sources showed that Ukrainian provincial physician *O.T. Bohayevsky* is an outstanding figure in the history of native medicine, one of the pioneers of stomach surgery. However, his life story and professional biography has not been sufficiently studied and elucidated.
- Searching and investigation of source materials concerning *O.T. Bohayevsky's* contribution to surgical science and practice have shown insufficient systematic scientific processing of biographies of significant figures, directly or indirectly related to the native medicine and Ukrainian culture. The results of the research showed not only a high level of surgery in Eastern Europe, but also innovations in surgical treatment of stomach diseases in the second half of the 19th century. The performer of the first gastrectomy operation *L. Rydiher*, provincial physicians *O. Bohayevsky*, *B. Kozlovsky*, *I. Solovov*, Odessa surgeons *S. Kolachevsky* and *Yu. Holdenhorn* belong to the pioneers of surgical gastroenterology. The world known surgeons *J. Mykulich-Radetsky* and *N. Monastyrsky*, the disciples of famous *T. Billroth*, were the immigrants from Ukraine. Undoubtedly, more profound historical and medical researches will enable to find new names, fill information gaps in historical heritage, to estimate the contribution of native medicine to world culture objectively.
- The significant limitation of sources even in modern historical-biographical studies, tendentious politically engaged historical and methodological approaches and cliches of Soviet history period, unproven factual material, incorrect interpretations and, therefore, conclusions have been shown on the example of *O.T. Bohayevsky's* biography analysis in the context of the history of domestic medicine. These aspects, in our opinion, not only affect the quality of research, but also systematically distort the real history, become the foundation for compilation of publications, further citations and spreading false data in scientific papers, and what is particularly dangerous – in Internet publications designed for the mass consumers.

References: ^[1] Abdominal surgery [in rus.], available at: <http://sohmet.ru/medicina/item/f00/s00/e0000006/index.shtml>; ^[2] *Bakay L.A.* (2003), Medical Newspaper of Poltava region [in urk.], №23 (41), p.1; ^[3] *Balalykin D.A.* (2001), The surgery [in rus.], №3, p.64-66; ^[4] *Balalykin D.A.* (2003), The history of the formation and development of stomach surgery, as a scientific and clinical areas in Russia of 19-20 centuries [in rus.], Moscow, available at: [ISSN 2070-3112](http://www.dissercat.com/content/istoriya-</p></div><div data-bbox=)

stanovleniya-i-razvitiya-zheludochnoi-khirurgii-kak-nauchnogo-i-klinicheskogo-napra#ixzz3Dx3oFmEU; ^[5] Bohayevsky Ovk-sentiy Trohymovych [in ukr.], available at: <http://ru.wikipedia.org/wiki/>; ^[6] *Bakulyev A.N.* (1957), The Big Medical Encyclopedia. Vol. 3, 2nd ed. [in rus.], Moscow: State Publishers of the medical literature, 1171; ^[7] *Petrovsky B.V.* (1976), The Big Medical Encyclopedia. Vol. 3, 3rd ed. [in rus.], Moscow: Publisher «The Soviet encyclopedia», 268; ^[8] *Petrovsky B.V.* (1984), The Big Medical Encyclopedia. Vol. 22, 3rd ed. [in rus.], Moscow: Publisher «The Soviet encyclopedia», p.16; ^[9] *Prohorov A.M.* (1970), The Big Medical Encyclopedia. Vol. 3, 2nd ed. [in rus.], Moscow: Publisher «The Soviet encyclopedia», 640; ^[10] The great citizen of Russia [in rus.], available at: <http://www.geol.msu.ru/deps/geochems/rus/pub/solovov100.pdf/>; ^[11] The great surgeon O.T. Bohayevsky [in ukr.], available at: http://slavia.do.am/index/velikij_khirurg_a_t_bogaevskij/0-100/; ^[12] The domestic medicine of the late 19th –early 20th century [in ukr.], available at: <http://hismed.net/node/99/>; ^[13] *Hanitsevych Ya.* (2004), Ukrainian history of medicine in dates and names [in ukr.], Lviv, 368; ^[14] Encyclopedia of Ukrainian Science [in ukr.], available at: <http://izbornyk.org.ua/encycl/eu.htm>; ^[15] The provincial medicine in the second half of the 20th century [in ukr.], available at: <http://hismed.net/node/126/>; ^[16] The famous Lviv residents: Myths and Realities [in rus.], available at: <http://relicfinder.info/forum/viewtopic.php?f=9&t=2332&start=40/>; ^[17] The history of Poltava [in rus.], available at: <http://histpol.pl.ua/ru/biblioteka/ukazatel-ponazvaniyam?id=8485/>; ^[18] The Kremenchuk city infirmary. Beginning. [in ukr.], available at: <http://okrain.net.ua/article/read/Kremenchugskij-gorodskoj-lazaret.html>; ^[19] Medicine in Ukraine. Medical biographistics. Volume 2. The second half of the 19th century. The letters A-K. Bibliographical Dictionary (2005), [in ukr.], Kyiv: Publisher of Ukrainian fitosocial center, 616; ^[20] Medicine requires Museum [in ukr.], available at: http://panorama.pl.ua/tema_nomera/8940-medicini-potriben-muzej/; ^[21] Nikolay Vladimirovich Ekk [in rus.], available at: <http://garbuzenko62.ru/Ekk.htm>; ^[22] O.P. Walter, V.O. Betz, O.T. Bohayevsky. Contribution to the medicine development [in ukr.], available at: <http://5fan.info/jgeqasatyr-najgeyfs.html>; ^[23] *Pavlovsky I.F.* (1912), The Brief Biographical Dictionary of scientists and writers of Poltava province from half of the XVIII century [in rus.], Poltava, available at: <http://histpol.pl.ua/ru/biblioteka/ukazatel-po-avtoram/avtoryp/pavlovskij-ivan-frantsevich?id=3/>; ^[24] *Pundi P.* (1994), Ukrainian doctors. Bibliographic dictionary. Book 1.: Relay Race of generations of national renaissance [in ukr.], Lviv-Chicago, 327; ^[25] Ratimov Vasily Aleksandrovich [in rus.], available at: <http://www.rulex.ru/01170269.htm>; ^[26] The development of surgery in Ukraine [in ukr.], available at: <http://dhp.com.ua/blogs/489/>; ^[27] Ukrainian Soviet Encyclopedis. Volume 1 (1959), [in ukr.], 640; ^[28] Ukrainian Soviet Encyclopedis. Volume 1 (1978), [in rus.], 558; ^[29] The Ukrainian Soviet Encyclopedic Dictionary (1988), [in rus.], 756; ^[30] Surgery in Ukraine in the second half of the 19th century [in ukr.], available at: <http://hismed.net/node/116/>; ^[31] *Cheban V.* The outstanding scientists, surgeons in the history of scientific medicine in Chernivtsi [in ukr.], available at: <http://www.bsmu.edu.ua/uk/news/digest/1167-vidatni-naukovtsi-hirurgi-v-istorii-naukovoi-meditsini-chernivtsiv/>; ^[32] *Yudin S.S.* (2003), Etudes of stomach surgery, 3rd ed. [in rus.], Moscow: Binom, 423.

UDC 615.225:339.13:338.517

ANGIOTENSIN II RECEPTOR BLOCKERS IN THE UKRAINIAN PHARMACEUTICAL MARKET: ANALYSIS OF ECONOMIC AVAILABILITY

O.Ya. Mishchenko, V.Yu. Adonkina

National University of pharmacy, Kharkov, Ukraine

e-mail: mischoksana@yandex.ru

The aim of the research: to identify the most affordable angiotensin receptor blockers II (BRAs II) for the consumers on the basis of marketing analysis and evaluation of economic availability indicators.

Materials and methods: the study of economic availability indicators of BRAs II: price liquidity (C_{liq}), adequacy of solvency ($C_{a.s}$) and accessibility (D) was conducted during 2008-2013 years, using data on price and range of medicines from the system «Morion».

Results: the number of trade names (TNs) of BRAs II increased from 88 TNs in 2009 to 156 TNs in 2013 in the pharmaceutical market during the study period. 82.1% of BRAs II TNs in the market of Ukraine were foreign agents and 17.9% were agents of domestic pharmaceutical manufacturers. The price liquidity indicator (C_{liq}) of BRAs II was less than 0,5, indicating the ethics of pricing policy in relation to the consumers in this market segment. The most available INNs of BRAs II monodrugs were losartan, candesartan and valsartan. Eprosartan, olmesartan, irbesartan and telmisartan were less available. The availability of fixed combinations of BRAs II with diuretics and amlodipine was smaller in comparison with monodrugs. The rate of prices growth for all INNs of BRA II during the period did not exceed the rate of wages growth.

Conclusions: Quantitative and qualitative increase in BRAs II range in the pharmaceutical market of Ukraine during 2009-2013 were mostly due to increase of foreign agents. BRAs II belong to the category of average available. Economic availability of BRAs II increased rather on the background of the high rate of wages growth than the prices growth. The most available INNs of BRAs II monodrugs were losartan, candesartan and valsartan.

References: ^[1] *Mishchenko O.Ya., Adonkina V.Yu., Chinush I.V.* (2013), Pharmaceutical Journal (Uzbekistan) [in rus.], №1, p.4–9; ^[2] *Mnushko Z.M., Timanyuk I.V.* (2007), Bulletin of Pharmacy [in ukr.], №1 (49), p.52–57; ^[3] *Fretheim A., Odgaard-Jensen J., Brors O.* (2012), BMC Medicine, Vol. 10, №33, p.1-14; ^[4] *Dahlof B.* (2009), European Heart Journal, Supplements 11 (Supplement F), F.33–F38; ^[5] *Sawada T., Yamada H., Dahlof B.* (2009), Eur. Heart J., Vol. 30, p.2461-2469; ^[6] *Narkiewicz K., Redon J., Zanchetti A.* (2013), Blood Press., Vol. 22, №4, p.193-278; ^[7] *Psaty B.M., Tumley T., Furberg C.D.* (2003), JAMA, Vol. 289, №19, p.2534-2544; ^[8] *Law M.R., Morris J.K., Wald N.J.* (2009), BMJ, Vol. 338, available at: <http://www.bmj.com/content/338/bmj.b1665.pdf%2Bhtml> <http://dx.doi.org/10.1136/bmj.b1665/>; ^[9] *Suzuki H., Kanno Y.* (2005), Hypertens. Res., Vol. 28, p.307-314; ^[10] *Lithell H., Hansson L., Skoog I.* (2003), J. Hypertens., Vol. 21, p.875-886.

UDC 615.214.24:543.05:543.544.5.068.7

DETERMINATION OF VENLAFAXINE IN BLOOD PLASMA BY HIGH PERFORMANCE LIQUID CHROMATOGRAPHY AFTER PURIFICATION ON H-CLINOPTILOLITE COLUMNS

I.J. Halkevych, B.S. Zimenkovsky

DanyloHaltskyLvivNationalMedicalUniversity, Lviv, Ukraine

e-mail: galkirin@meduniv.lviv.ua

The aim of the research: studying of H-clinoptilolite sorption properties of venlafaxine and establishing conditions of effective solid-phase extraction with this sorbent.

Materials and methods: natural clinoptilolite with grains 0,20-0,25 mm was used for preparation of SPE sorptions columns containing 0,6 g of the sorbent H-form. H-form of clinoptilolite was obtained by treatment with 0,1 M HCl solution. Both aqueous solutions and plasma containing 0,4-20,0 µg of venlafaxine were flown through H-clinoptilolite SPE cartridges. The H-clinoptilolite SPE cartridges were conditioned with 2 ml of 0,1 M HCl in methanol and 2 ml of water. Elution liquid was 0,1 M HCl in methanol. Venlafaxine amount in samples was determined with HPLC on ACE 5 C18 column. Mobile phase was mixture of acetonitrile and 0,05% of TFA.

Results. H-form of natural clinoptilolite is an effective sorbent for venlafaxine purification in aqueous solutions and plasma. Recycled H-clinoptilolite packed columns can be used 10-12 times. Sorption capacity of H-clinoptilolite is 1430 µg of venlafaxine per 1 g of the sorbent. 95,5-100,5% of venlafaxine is resorbed from aqueous solutions and 78,8-77,7% – from plasma. Maximum RSD is 6,25% in aqueous solutions and 9,09% – in plasma. Optimal eluent for venlafaxine desorption from H-clinoptilolite is 0,1 M HCl solution in methanol.

Conclusions.

1. Optimal conditions of venlafaxine concentration on H-clinoptilolite columns from aqueous solutions and plasma were chosen. 95,5–100,5% of venlafaxine is isolated from water and 75,8-77,7% – from plasma by SPE cartridges with H-clinoptilolite.
2. Conditions of venlafaxine determination on HPLC column ACE 5 C18 at $\lambda=224$ nm are elaborated.

References:^[1] Kanayeva L.S., Zaharova K.V. (2008), *Pharmateca* [in rus.], №3-08, p.45-49; ^[2] Dziurkowska E., Wesolowski M. (2013), *Psychiatr.Pol.*, №5, p.909-919; ^[3] Goeringer K.E., Mc Intyre I.M., Drummer O.H.(2001), *Forensic.Sci.Int.*, Vol.121, p.70-75; ^[4] Jarema M., Rabe-Jablonska J. (2011), *Psychiatria*, Warszawa: PZWL; ^[5] Leikin J.B., Watson W.A. (2003), *Journal of toxicology: clinical toxicology*, №1, p.47-56; ^[6] Lopez Ibor J.J., Carrasco J.L., Prieto R. (2008), *Arch. Geront. Geriatrics*, Vol.46, p.317-326; ^[7] Mandrioli R., Mercolini L., Cesta S. (2007), *J. Chromatogr. B.*, Vol.856, p.88-94; ^[8] Milner A., Kolves K.E., Leo D.De (2011), *Suicide research: selected reading*, Griffith University; ^[9] *Natural zeolite in medicine* (2010), SWB Bourgas; ^[10] Plesničar B.K. (2010), *Psychiatria Danubina*, Vol.22, №3, p.413-417; ^[11] Qin X., Meng J., Sanches A. (2008), *J. Chromatogr. B.*, Vol.872, p.38-42; ^[12] Uzun S., Kozumplik O. (2009), *Psychiatria Danubina*, Vol.21, p.91-94; ^[13] Vasylechko V.O., Gryshchouk G.V., Zakordonskiy V.P. (2013), *Microporous and Mesoporous Materials*, Vol.167, p.155-161; ^[14] Vasylechko V.O., Gryshchouk G.V., Kuz'ma Yu.B. (2003), *Microporous and Mesoporous Materials*, Vol.60, p.183-196.