Анотації наукових робіт

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ANALYSIS OF HOSPITAL BEDSPACE USAGE IN ZHYTOMYR REGION AND DETERMINATION OF ITS OPTIMIZATION

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The aim of the research: To analyze the hospital bedspace usage in Zhytomyr region since 1990 and to identify approaches concerning the possible ways of its optimization in the context of the creation of hospital districts.

Materials and methods: Analysis of hospital bedspace utilization was based on the following indicators: number of hospital beds, level of hospitalization, hospital bedspace usage, turnover of the hospital beds, hospital bed availability, average duration of patients' stay in hospital. We used statistical reports of medical institutions. The following methods were used: informational and analytical, statistical analyses.

Results: In-patient treatment at medical institutions decreased by 53.9%, hospital bedspace decreased by 53,4% during 1990-2013 in Zhytomyr region. The main decrease occurred during 1990-2001. The level of day-and-night hospital beds provision was 73.5 per 10 thousand people in 2013, which is 9% less than the overall index in Ukraine. The structure of the existing hospital bedspace is 36.9% of beds at the tertiary level, and 63.1% of beds at the primary and secondary level of health care. 66% of patients in need of medical care are concentrated at the secondary level, primary medical establishments provide help only in 5-6% of cases. The level of hospitalization in hospital institutions was 22.9% in 2013. We have determined approaches for the calculation of hospital bedspace while creating hospital districts.

Conclusion: We have found that despite optimization of the hospital bedspace in Zhytomyr region, it is used irrationally in special beds profiles. To improve the efficiency of hospital bedspace utilization, it is necessary to create an optimal territorial system of stationary institutions.

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STAFF STANDARDS AND QUALIFICATION REQUIREMENTS FOR PERSONNEL OF HOSPITAL PHARMACY IN EMERGENCY SITUATIONS

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The aim of the research: Identification and substantiation of staff standards and qualification requirements for personnel of hospital pharmacies for both peacetime and wartime emergencies.

Materials and methods: The objects of research were acts of the Ministry of Health of Ukraine concerning typical staff and qualification requirements for hospital pharmacy personnel. Methods of content analysis, synthesis, formalization, standardization and modelling were used.

Results: Ukrainian laws and regulations do not provide requirements for a hospital pharmacy staff intended to work in emergency situations. Staff standards and qualification requirements for the personnel of the hospital pharmacies were determined in the research. Pharmaceutical personnel was distributed into functional subdivisions of hospital pharmacy involving 200 beds for both peacetime and wartime emergencies.

Conclusion: It was established that the current acts do not involve typical staff and qualification requirements for pharmaceutical hospital personnel for emergency situations. Staff standards and qualification requirements for personnel of hospital pharmacies for peacetime and wartime emergencies were determined in the research.

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TREATMENT OF MIXED UROGENITAL INFECTIONS IN WOMEN OF REPRODUCTIVE AGE WITH PARASITE INVASION

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The aim of the research: to evaluate the effectiveness of a phased treatment for women of reproductive age with parasitic lesions and mixed infections of the lower parts of the genital tract.

Materials and methods: The studied group included 50 patients aged from 23 to 40 years with mixed infections of the lower genital tract and enterobiasis. The control group consisted of 20 healthy women aged from 20 to 36 years who visited gynecologist for prophylactic medical examination. All women were examined according to protocol guidelines and ethical standards. The treatment of parasitic infections included Albendazole («Aldazol») – 1 tablet once after food intake for 2 weeks, combined antibiotic Ofor (200 mg of Ofloxacin and 500 mg of Ornidazole) – for 5 days and vaginal suppositories Neotryzol nightly for 8 days. Treatment was initiated on 5-7 day of a menstrual cycle.

Results: All patients of the studied group were diagnosed with decompensated vaginal dysbiosis manifested with a sharp decrease (or complete absence) of *Lactobacillus spp.* strains and increase of opportunistic pathogens to 1011 CFU/ml with increasing number of microorganisms in microbial associations (from 3-4 to 5-6 and opportunistic pathogens). Thus, *Mobilincus spp., Enterococcus face, Streptococcus spp., Gardnerella vag. Ureaplasma urealyticum* were identified with significant frequency in 35 of 50 women. These microorganisms were not observed in women with vaginal normocenosis. *Ureaplasma urealyticum* in titer of 104 and more CFU/ml was revealed with conspicuous frequency in 54% of women, *Mycoplasma* homin is titer of 104 or more CFU/ml was identified in 20% of women and *Chlamydia trachomatis* – in 6%. The efficacy of complex treatment of 50 women with mixed infections of the lower part of the genital tract and enterobiasis with «Aldazol», «Ofor» and «Neotrizol» was evaluated.

A conspicuous positive clinical effect was noted in 45 (90%) patients on the second day of treatment. It was manifested with a decrease of complaints, pathologic character of discharge from the vagina, improvement of the state of health. Positive microbiologic effect with the absence of *M. homynis, Gardnerella vag., Enterococcus faec.* was achieved in 47 (94%) cases. On the background of treatment with «Aldazol», clinical and laboratory effects were observed in 100% patients. The treatment efficacy of mixed genital infections with «Ofor» and «Neotrizol» made 94%. The side effects were observed in 12% women. The high efficacy of the treatment of mixed infections of the lower part of the genital system associated with enterobiasis with «Aldazol», «Ofor» and «Neotrizol» was noted, and a high level of safety of the administration of these drugs was shown.

Conclusion:

1. The high antiparasitic efficiency of a domestic drug «Aldazol» has been determined. The outcome enables to recommend it for complex treatment of inflammatory diseases of female reproductive organs associated with parasitic lesions.
2. A combination drug «Ofor» may be considered an effective medicine for treatment of acute and chronic relapsing forms of bacterial vaginosis and mixed infections.
3. The high efficiency of treatment of mixed infections of the lower genital tract associated with enterobioze with «Aldazol», «Ofor» and «Neotryzol» was determined. The high degree of safety of their complex administration has been shown. The incidence of adverse reactions was only 12% and did not require correction dose or discontinuation of drug administration.

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CHARACTERISTICS OF SIDE EFFECTS OF DRUGS USED IN THE PODOLSK REGION IN 2013

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The aim of the research: to characterize side effects and absence of efficacy of drugs used in health care practice in Podolsk region in 2013, to identify pharmacological groups and certain drugs that predominantly cause pharmacotherapy complications.

Materials and methods: the research studied 1213 card messages (Form 137/0) of adverse reactions / lack of efficacy of drugs processed at regional, city and district health care institutions during 2013.

Results: Analysis of adverse reactions showed that pharmacotherapy complications were mostly manifested as allergic and pyrogenic reactions – 40% of cases. Particularly, it refers to chemotherapeutic drugs, namely antibiotics. Complex disorders, including disturbances of body systems, accounted for 25% of cases. The most common adverse reactions occurred in adult patients (50,5%) and in the elderly patients (31,6%), in children up to 14-year-old (16,2%). Certain recent increase of pharmacotherapy complications in the elderly patients in our region may be accounted for unfavorable demographic situation in the country, and, for the increase of elderly patients sensitivity to xenobiotics.

Conclusion:

1. The results of our study showed that the most common adverse drug reactions included various allergic reactions. Particularly, it refers to chemotherapeutic drugs, namely antibiotics.
2. The complications of pharmacotherapy were more often observed in polypharmacy cases, less frequently – in case of monotherapy.

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INTERPRETATION OF DEFINING THE TERMS «COMPLIANCE» AND «ADHERENCE» AS COMPONENTS OF MEDICATION-TAKING BEHAVIOR OF PATIENTS

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The aim of the research: To define common characteristics and distinctive features of the terms «compliance» and «adherence» as components of patient's medication-taking behavior.

Materials and methods: Objects of the research: a totality of relevant terms and their interpretations regarding the terms «compliance» (n=24) and «adherence» (n=24). The following methods have been used: system analysis, bibliographic and bibliosemantic analyses, analysis of keywords, analytical and comparative analyses, standardization and modeling analyses.

Results: Identified common characteristics and distinctive features of defining the terms «compliance» and «adherence» enabled to distinguish clearly these terms as different and completely autonomous components of patient's medication-taking behavior.

Conclusion:

1. Despite numerous common characteristics identified in the conducted study, we believe that distinguishing features of the terms «compliance» and «adherence» may clearly differentiate them as different and completely independent components of patient's medication-taking behavior and use them as separate definitions.
2. Due to the results of the conducted bibliosemantic study, we consider that the term «compliance» should be interpreted as the patient's decision regarding prescribed treatment that may be positive (agreement) or negative (refusal). As for the term «adherence», we have formed a definition that is interpreted as a type of cooperation between a patient and healthcare specialist involving a particular format (degree) of relation (treatment) of a patient to the applied medical technology (in the given case – pharmacotherapy).
3. We believe that a clear interpretation of the studied definitions may enable a unified approach in both scientific researches and daily clinical-pharmaceutical practice as well as encourage researching other components of such an important, in our view, process as patient's medication-taking behavior.

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NORMATIVE-LEGAL FOUNDATIONS OF HEALTH INSURANCEIN GALYCHYNA DURING PRE-WAR PERIOD

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The aim of the research: analysis of the Austrian and Austro-Hungarian legislation and other available historical sources to retrace the normative-legal foundations of health insurance in Galychyna during pre-war period.

Materials and methods: Austrian and Austro-Hungarian legislation, documents, memoirs on the implementation of health insurance in pre-war Galychyna were studied in the research. The following methods were used: historical, retrospective, synthetical and analytical.

Results: it is established that the problem of social security existed in Galychyna since the epoch of middle ages. In the 19th century, Austrian and later Austro-Hungarian authorities tried to solve it by the implementation of health insurance.

Conclusions:

1. Health insurance was introduced in Galychyna in the middle of 19th century and was regulated by the Austrian and Austro-Hungarian legislation.
2. The first normative-legal standards of the Austrian authorities in this direction were laws on voluntary health insurance for miners and industrialists.
3. Austro-Hungarian authorities adopted legislation on compulsory health insurance in all regions of the Empire at the end of the 19th century under the influence of German experience. These legal standards became the basis for the insurance relations in Galychyna.
4. Voluntarily and compulsory, accident and disability health insurance functioned in Galychyna during Austro-Hungarian period.
5. The experience of implementation of health insurance in Galychyna in pre-war period can be applied in the formation and crystallization of health insurance in modern Ukraine.

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COMPARATIVE ANALYSIS OF PHARMACOPOEIAS OF THE LEADING COUNTRIES REGARDING THE CLASSIFICATION OF SEMI-SOLID MEDICINAL PREPARATIONS

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The aim of the research: Studying the approaches of different Pharmacopoeias to the classification of ointments, creams, gels and their bases.

Materials and methods: The objects of the study are semi-solid medicinal preparations for topical use. The comparative method of the study of various Pharmacopoeias regarding the classification of and semi-solid medicinal preparations and their bases was used.

Results: According to the State Pharmacopoeia of Ukraine (Supplement 3, 2009), semi-solid preparations for topical use are divided into ointments, creams, gels, pastes, poultices, medical patches and skin patches.

The differentiation between creams and ointments in the State Pharmacopoeia of Ukraine is based on the single-phaseness of the base and the multiphaseness of the medicinal preparation.

The 37th edition of the US Pharmacopoeia Monograph provides clear differentiation between creams and ointments by component composition and the type of a disperse system.

The 16th edition of the Japanese Pharmacopoeia Monograph bases the distinction between ointments and creams on the type of a disperse system.

Carriers in combination with an active pharmaceutical ingredients create effective and safe medicinal preparations, they are the main components of semi-solid preparations and make 90% and above. Due to the composition, the base can affect the activity of preparations. The type of base, it's rheological properties, the presence of surfactants and solvents affect the release and absorption of active substances.

During comparative analysis of various Pharmacopoeias regarding ointment carriers, we have established the following approaches to the classification. Thus, the soft carriers according to the State Pharmacopoeia of Ukraine are classified by an affinity for water: in ointments – hydrophobic, water-emulsion and hydrophilic; in creams and gels – lipophilic and hydrophilic; by the type of disperse systems: single-phased and multiphased.

The classification of bases according to the US Pharmacopoeia is based on the following features: the affinity for water, the ability to absorb water and the type of a disperse system.

Conclusions: The obtained results of the comparative study indicate that the determination of the type of a dosage form of semi-solid medicinal preparations in cases of emulsion systems is a difficult and controversial issue. Therefore, when it is necessary to develop a semi-solid emulsion and prepare materials for a registration dossier, the recommendation of different pharmacopoeias regarding this group of semi-solid preparations should be taken into consideration, and differentiate one dosage form from another due to the composition of the carriers.

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SYNTHESIS OF THIOPYRANO[2,3-*d*]THIAZOLES BASED ON B-AROYLACRYLIC ACIDS AS DIENOPHILE

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The aim of the research: Investigations of thiopyrano[2,3-*d*]thiazole derivatives, the isosteric mimics of biologically active 5-ylidene-4-thiazolidinones, led to the synthesis of compounds with anticancer, antitrypanosomal, and antimycobacterial properties which may provide an opportunity for further studying the pharmacological activity of these heterocyclic systems. We decided to combine the thiazolidinone moiety and a fragment of ß-aroylacrylic acids in a single heterocyclic system. ß-Aroylacrylic acids and its derivatives exhibit antineoplastic, antibacterial, cytoprotective actions. Consequently, we have synthesized thiopyrano[2,3-*d*]thiazoles using ß-aroylacrylic acids as the dienophile in the reaction of hetero-Diels-Alder.

Materials and methods: All materials were purchased from Merck, Sigma-Aldrich, or Lancaster and were used without purification. 5-Aryl(hetaryl)idene-4-thioxo-2-thiazolidinones were employed as starting materials and prepared according to the method described previously. Melting points were determined in open capillary tubes and were uncorrected. The elemental analyses (C, H, N) were performed using the Perkin–Elmer 2400 CHN analyzer and were within 0,4% of the theoretical values. The 1H NMR spectra were recorded on the Varian Gemini 400 MHz or Bruker 125 MHz for frequencies of 100 MHz in DMSO-d_6 using tetramethylsilane as an internal standard. Chemical shifts are reported in ppm units with the use of a δ scale. The purity of all obtained compounds was checked by ^{1}H-NMR and TLC.

Results: The starting 5-aryl(hetaryl)idene-4-thioxo-2-thiazolidinones **1.1–1.7** were obtained by the treatment of 4-thioxo-2-thiazolidinone with the appropriate aldehydes in glacial acetic acid with a catalytic amount of fused sodium acetate. The ß-aroylacrylic acids were synthesized by the Friedel-Crafts reaction of an aromatic nucleus with maleic anhydride. The *hetero*-Diels-Alder reaction of **2.1-2.5** with 5-aryl(hetaryl)idene-4-thioxo-2-thiazolidinones **1.1–1.7** yielded series of novel *rel*-(5R,6S,7S)-2-oxo-6-phenyl-7-aryl(hetaryl)-3,7-dihydro-2*H*-thiopyrano [2,3-*d*]thiazole-5-carboxylic acids.

Conclusions: The synthesis of thiopyrano[2,3-*d*]thiazole-5-carboxylic acids derivatives has been performed based on the hetero-Diels-Alder reaction of 5-ylidene-4-thioxo-2-thiazolidinones and ß-aroylacrylic acids.

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SYNTHESIS AND BIOLOGICAL ACTIVITY OF SYMMETRIC BIS-4-THIAZOLIDINONES

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The aim of the research: the design and synthesis of new double/twin molecules bearing 4-thiazolidinone scaffolds within the privileged substructure based approach; evaluation of anticancer and antimycobacterial activites of synthesized compounds.

Materials and methods: traditional (wet) synthesis, spectral and analytical methods, anticancer and antimycobacterial screening (within DTP and TAACF NIH screening programmes).

Results: Following the privileged substructure based approach the structure of nonfused bis-4-thiazolidinones bearing C2 linkage group and 5-ylidene-4-thiazolidinone scaffolds was designed. Symmetrical unfused dicarboxylic acids (**5-8**) with two 4-thiazolidinone moieties under Knoevenagel condensation of 4- thiazolidinone-3-alkanecarboxylic acids and bis-O-substituted salicylic aldehyde were synthesized. The transformation of carboxylic groups (via acid chlorides stage) led to new bis-4-thiazolidinone based diamides (**9-12**). The synthesised compounds were screened for their anticancer (NCI, 60 cancer cell line assay) and antimycobacterial activities (Mycobacterium tuberculosis $H_{37}R_v$, TAACF program).

Conclusion: The new nonfused bis-4-thiazolidinone carboxylic acids and N-(R-phenyl)-3-(5-{2-[2-(2-{3-[2-(R-phenylcarbamoyl)-ethyl]-4-oxo-2-thioxothiazolidine-5-ylidenemethyl}-phenoxy)-ethoxy]-benzylidene}-4-oxo-2-thioxothiazolidine-3-yl)-alkylamides were synthesized. The anticancer and antimycibacterial activities of the synthesized compounds were evaluated.

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EVALUATION OF VIRTUAL LEARNING ENVIRONMENT IMPLICATION BY STUDENTS OF «PHARMACY» AND «BIOTECHNOLOGY» SPECIALTIES

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The aim of the research: The main goal is to study and analyze the «Virtual Learning Environment» resource for determining influence of this resource on the educational process.

Materials and methods: The objects of the research were the questionnaires elaborated by the Department of the Technology of Biologically Active Substances, Pharmacy and Biotechnology at Chemistry and Chemical technologies Institute of National University «Lviv Polytechnics». Modeling, comparative analysis, statistical analysis methods were used.

Results: The elaborated questionnaire included 15 main questions. Students were suggested to provide recommendations regarding usage and content of «Virtual Learning Environment». The survey included a free field for questionnaire analysis, which was not intended to be processed by students.

The survey was processed by the most active students of «Pharmacy» and «Biotechnology» course. The survey involved 46 students of 3rd year and 22 students of 4th year of «Pharmacy» course; 17 students of 3rd year and 10 students of 4th year of «Biotechnology» course.

This comparative analysis of the survey data enables to set certain patterns, benefits, disadvantages and resource perspectives for students who use «Virtual Learning Environment» at National University «Lviv Polytechnics».

Conclusions:

1. The National University «Lviv Polytechnics» provided survey to determine the efficacy of the learning process and innovative technologies implementation.
2. This analysis enables to determine the level of «Virtual Learning Environment» usage activity at National University «Lviv Polytechnics» fr
3.
4. om the students' point of view.
5. Further research is to improve survey and re-questioning students of all years of studying for «Pharmacy» and «Biotechnology» specialties, and create a questionnaire for teaching staff for a comparative analysis.

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