OPTIMIZATION OF PHARMACEUTICAL CARE FOR CHILDREN WITH DISEASES OF THE UPPER RESPIRATORY TRACT IN OUTPATIENT POLYCLINIC INSTITUTIONS

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Introduction. The analysis of scientific and information materials has shown that the theoretical foundations and conceptual provisions of pharmaceutical management and pharmacoeconomic research have been developed in the works of domestic scientists. At the same time, research on optimization of pharmaceutical care for children in outpatient facilities is currently only fragmentary, and there is no systematic approach to solving this problem.

The aim of the study. On the basis of a systemic approach, form a system of research on the optimization of pharmaceutical care for children with ENT diseases in outpatient polyclinic institutions.

Materials and methods. The methodological basis is the approaches of modern management in the field of strategic management, pharmacoeconomics, and approaches to the assessment of drug consumption, legislative and regulatory documents. The objects of the study were family outpatient clinics and children’s outpatient polyclinic institutions in the city of Kyiv and the Kyiv region. The initial information was 390 outpatient charts of patients with ENT diseases aged 3 to 17 years for the period of 2022; 125 expert questionnaires of otolaryngologists; 50 questionnaires of a sociological survey of parents of patients with ENT diseases. The research used methods of logical, structural analysis, SWOT analysis, sociological methods (expert opinions, interactive survey, and questionnaire).

Results. A methodical approach to conducting pharmacoeconomic studies of pharmaceutical care for children in outpatient clinics has been developed. For the first time, an original method of multi-aspect matrix analysis was proposed, which makes it possible to evaluate and multi-factorially position the medicinal products of the researched assortment in order to justify its inclusion in the assortment list for the treatment of a certain nosology in ambulatory polyclinic conditions.

Conclusions. The practical significance of the research results lies in the creation of a system of approaches to optimizing pharmaceutical care for children in outpatient settings at the territorial level.

Keywords: pharmacoeconomic research, optimization of pharmaceutical care, diseases of the ENT organs.

Introduction. One of the most common pathologies of childhood is ENT disease [1-2], which ranks second in the structure of the total morbidity of children, accounting for 19% of all diseases.

In the event of a child’s illness, including diseases of the ENT organs, parents first seek medical care at the outpatient clinic.

However, currently there are negative trends in the provision of pharmaceutical care in outpatient clinics [3-4], due to the following problems: diversity of the range of medicines on the pharmaceutical market; lack of formulary lists of medicines for the treatment of a number of diseases in children in outpatient clinics; lack of software tools to facilitate the development of formulary lists of medicines, as well as rationalization of prescriptions by district doctors; prescription of pharmacotherapy without taking into account the special needs of children.

This situation often leads to irrational prescriptions of medicines for the treatment of children in outpatient clinics, the inability of parents to purchase the entire range of medicines, chronicity of the disease in the child, and increased further financial costs for the family. At present, research on optimizing pharmaceutical care for children in outpatient settings is only fragmentary, and there is no systematic approach to solving this problem [5].

The purpose. To develop methodological approaches to optimize pharmaceutical care for children in outpatient clinics on the example of patients with ENT diseases in Kyiv and Kyiv region.

Materials and methods. The methodological basis is based on the approaches of modern management in the field of strategic management, pharmacoeconomics, and approaches to assessing the consumption of medicines, legislative and regulatory documents [6-7]. The objects of the study were paediatric outpatient facilities in Kyiv and Kyiv region.

The source information was 390 outpatient records of patients with ENT diseases aged 7 to 17 years for the period from 2022; 125 expert questionnaires of otolaryngologists; 50 questionnaires of a sociological survey of parents of patients with ENT diseases.

The research used methods of logical, structural analysis, methods of strategic
management (SWOT analysis) [8], sociological (expert opinions, interactive survey, questionnaire).

Results. Outpatient facilities, which are the primary link of the child health care system, are of high social importance, as they are responsible for maintaining health, preventing chronicity and disability of the child population [9]. The quality of pharmaceutical care and the rationality of prescribed pharmacotherapy in healthcare facilities greatly affect the treatment of a sick child.

In order to ensure a comprehensive approach to solving the problems we face, based on system analysis and targeted modelling, we have developed a system of studies aimed at optimizing pharmaceutical care for children with ENT diseases in outpatient clinics. The peculiarity of pharmaceutical care in outpatient clinics is the indirect participation of pharmacists and its implementation through a specialist doctor [10]. In this regard, in our opinion, the optimization system should be focused on the development of "pharmaceutical products" of an organizational, managerial and informational nature that facilitate doctor-patient interaction and contribute to improving the quality of care.

The concept of the system includes 4 research blocks: analysis of the strategic potential of pharmaceutical care for children; pharmacoeconomic research of pharmaceutical care for children; development of software for optimising pharmaceutical care; creation of a bank of pharmaceutical information and reference materials for patients (parents).

The proposed system of research is a multidimensional study of the process of providing pharmaceutical care using a set of modern economic, mathematical, statistical methods, approaches of modern management with the proposal of specific results of process optimization.

The effect of their implementation can be seen in the rationalization of prescriptions, reduction of labour costs for specialist doctors, financial costs for families for child treatment, reduction of child morbidity, and increased satisfaction of patients and their parents with the quality of treatment.

In the course of the first block of research, in accordance with the above framework, the strategic potential of pharmaceutical care for children was assessed. The purpose of this block is to characterize and analysis the state of pharmaceutical care in outpatient clinics, assess its strengths and weaknesses, and identify the main areas for improvement, taking into account opportunities and threats from the external environment.

The study characterized a health care facility as an open medical and social system, using strategic management methods [11, 12] to identify the main factors of influence of the macro-, micro-environment and internal potential, and substantiated the criteria for their analysis. The microenvironmental analysis included the following environmental factors that have a direct impact on pharmaceutical care: consumers of services; provision of resources; state regulation of outpatient care for children.

In particular, during the content analysis of 390 outpatient charts, a medical and social portrait of a child with ENT disease was developed. As a rule, it is a boy (60,0 %) of younger age (from 3 to 5 years – 27,8 %), with such ENT diseases as rhinitis (40,0 %), tonsillitis (33,0 %), otitis media (15,0 %), sinusitis (8,0 %), adenoiditis (4,0 %). The most common comorbidity is acute respiratory viral infections (60,7 %). As a rule, the patient is ill once a year (34,0 %), mainly in the winter season (40,0 %) (Fig.1).

A sociological survey of 50 parents of patients with ENT diseases analyzed the degree of satisfaction with the quality of service and pharmacotherapy provided in a healthcare facility; characterized the socio-economic profile of parents; and identified their preferences in choosing medicines for the treatment of children with ENT diseases at home: high therapeutic efficacy of medicines (37,0 %) is in the leading place; in second place – fewer side effects (26,0 %); in third place is the convenience of the dosage form (DF) (15,0 %) and affordable price (15,0 %); less important is the prescription of a modern or popular drug (7,0 %) (Fig.2).

It was found that the upper value limit of purchased medicines was: up to UAH 500 (53 %); from UAH 500 to UAH 1000 (35 %); and over UAH 1000 (12 %).

As part of the macro-environment analysis, a marketing analysis of the market of medicines for the treatment of ENT diseases was carried out. It has been established that the macro circuit is represented by 4145 drugs, 735 trade names and 155 international non-proprietary names of medicinal products from 11 pharmacotherapeutic groups. Its structure is dominated by antimicrobials for systemic use (50,9 %), with cephalosporins taking the leading position (26,4 %). Domestic drugs are the leaders in terms of manufacturing (52,0 %). Mono drugs dominate the overall structure – 75,9 %.
The mesocontour of the regional pharmaceuticals market is mainly formed by antimicrobials for systemic use (50.5%); the share of cephalosporins is 20.8%; in most cases, they are foreign-made (72.0%).

The main directions of development of the regional pharmaceutical market include: increasing the share of domestic pharmaceuticals, mainly in pediatric dosage forms in the middle price category, which is affordable for the majority of the region's population.

At the next stage, a comprehensive assessment of the influence factors was carried out using a SWOT analysis (Table 1).

At the same time, during a detailed intra-group analysis with expert doctors, irrational approaches to prescribing medicines were identified: the prevalence of polypharmacy - prescribing several medicines from the same pharmacological group and, most often, in the same dosage form; lack of indication of the course of treatment and dosage of the medicine; inappropriateness of prescribing a number of dosage forms (e.g. injectable) for use in outpatient clinics; irrationality of prescribing medicines.

Fig. 1. Medical and social portrait of a child with ENT disease

Fig. 2. Preferences in choosing medicines for the treatment of children with ENT diseases at home
The next step was to analyze whether the medicines prescribed in outpatient settings meet the consumer criteria identified earlier in the sociological survey. It was found that more than 40% of the medicinal products do not meet the following criteria: therapeutic efficacy – 12%; absence or low number of side effects – 10%; convenience of use of the dosage form at home – 9%; accessibility for people with different economic capacities – 8%.

In the course of the marketing analysis of the range of medicinal products, the completeness and degree of use of the range of medicinal products was determined; segmentation by composition and type of dosage forms was carried out; a polyclinic microcontour of medicinal products prescribed in outpatient clinics was formed; marketing measures to optimize the range policy were proposed. In particular, it was found that the degree of use of the range of medicinal products in outpatient clinics in the treatment of, for example, chronic tonsillitis and acute otitis media in children is 22.9% and 16.8%, respectively, which indicates insignificant use of the medicinal products market offers and, in our opinion, may be due to the preferences of specialist physicians, the use of traditional treatment regimens, and insufficient awareness of new medicinal products.

In accordance with the methodological approach, a segmentation analysis of the range of medicinal products was carried out. In particular, the ABC analysis of medicinal products for the treatment of acute otitis media revealed that
drugs with a high frequency of prescription accounted for 22.5%: Dioxidin, Otipax, Dimexid, Vibrocil, etc. A group with an average frequency of prescription (32.5% of the assortment) is formed by: Augmentin, Pharyngosept, Paracetamol, etc. The group of rarely prescribed drugs (32.5%) includes the following drugs: Lincomycin, Furacilin, etc.

ABC-analysis of the range of medicines by monetary costs per treatment course revealed that most prescribed medicines have an average cost (from 100 to 300 UAH) of 37.5%, low-cost medicines (up to 100 UAH) account for 32.5%, and expensive medicines (over 300 UAH) account for 30% of prescriptions. It is noteworthy that doctors tend to prescribe expensive drugs, which increases the cost of pharmacotherapy many times over, given the need to purchase a complex of drugs rather than a single drug.

At the next stage, an expert analysis of medicinal products was carried out, the main tasks of which were Identification of groups for the formation of an outpatient pharmacotherapeutic drug complex for each nosology, examination of pharmacotherapeutic efficacy, and assessment of the degree of its compliance with consumer criteria.

The experts in the study were 25 leading otolaryngologists in Kyiv. The average expert competence coefficient is 0.92.

The study identified pharmacotherapeutic groups of medicines that form a pharmacotherapeutic complex for the treatment of chronic tonsillitis and acute otitis media in outpatient settings. Also, based on the calculated weighted average estimates, the range of medicines was segmented into groups: essential (E), important (I) and minor (S) drugs.

In particular, 18 medicinal products with a high "weighted average" score of 1.5 to 1.9 formed the group of "must-have" medicines for the treatment of acute otitis media: Otrivin, Otrinum, Bifidumbacterin, Augmentin, etc. with high or partial compliance with consumer criteria (82%).

Our further research will be related to the sixth and seventh stages, where an original methodology of multidimensional matrix analysis will be proposed, which will allow the positioning of medicinal products measured during a pharmacoeconomic study into a multidimensional analytical matrix in order to make a decision on its inclusion in the assortment list for the treatment of a specific nosology in an outpatient clinic. Thus, as a result of the seventh stage of the research, optimal portfolios of medicinal products for the treatment of chronic tonsillitis and acute otitis media will be formed based on pharmacotherapeutic, economic and consumer criteria. Assortment portfolios of medicinal products that will enable doctors and patients to choose a complex that best meets the requirements of pharmacotherapeutic efficiency, as well as expected and economic efficiency.

Conclusions

Using the approaches of system analysis and target modelling, a system of research on optimization of pharmaceutical care for children with ENT diseases in outpatient clinics was developed, which includes 4 blocks: analysis of the strategic potential of pharmaceutical care for children; pharmacoeconomic study of pharmaceutical care on the example of ENT diseases;

A methodological approach to assessing the strategic potential of an outpatient facility in the field of pharmaceutical care has been developed, which includes 5 stages: awareness and identification of pharmaceutical care problems through system analysis; analysis of the strategic environment within the macro- and micro-environment; systematization of results using SWOT analysis; assessment of strategic potential and formation of the main directions of strategic efforts of an outpatient facility to improve pharmaceutical care.

Prospects for further research. Taking into account consumer criteria, conduct a marketing analysis of the pharmaceutical market of phytopreparations used in the treatment of this pathology and develop information and reference materials for parents of children of child age, which will contribute to their involvement in the pharmacotherapy process, acceptance of responsibility for the timeliness and systematicity of treatment, and will also provide the patient with the opportunity participation in the selection of a complex of medicines, based on his preferences and economic possibilities.

Bibliography


2. Марушко Ю. В., Асонов А. О. Засоби місцевої терапії при гострих запальних захворюваннях ротової залози у дітей. Сучасна педіатрія. 2018 ; (6) : 98-102.


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Вступ. Аналіз наукових та інформаційних матеріалів засвідчив, що теоретичні засади та концептуальні положення фармацевтичного менеджменту, фармаекономічних досліджень розроблені в працях вітчизняних учених. Водночас ці дослідження з оптимізації фармацевтичної допомоги дітям в амбулаторно-поліклінічних закладах мають лише фрагментарний характер, немає системного підходу до розв'язання цієї проблеми.

Мета. На основі системного підходу сформувати систему досліджень оптимізації фармацевтичної допомоги дітям з ЛОР-захворюваннями в амбулаторно-поліклінічних закладах.

Матеріали і методи. Методологічною основою є підходи сучасного менеджменту у сфері стратегічного управління, фармаекономіки, підходи до оцінки споживання лікарських засобів, мінімізації небезпек, оптимізації фармацевтичної допомоги дітям з ЛОР-захворюваннями в амбулаторно-поліклінічних закладах.
законодавчі та нормативні документи. Об'єктами дослідження були сімейні амбулаторії та дитячі амбулаторно-поліклінічні заклади м. Києва та Київської області. Вихідною інформацією були 390 амбулаторних карт хворих на ЛОР захворювання віком від 3 до 17 років за період 2022 рік; 125 експертних анкет лікарів-отоларингологів; 50 анкет соціологічного опитування батьків хворих на ЛОР захворювання. У дослідженні використовувалися методи логічного, структурного аналізу, SWOT-аналіз, соціологічні методи (думки експертів, інтерактивне опитування, анкетування).

Результати. Розроблено методичний підхід до проведення фармацеоекономічних досліджень фармацевтичної допомоги дітям в умовах амбулаторій. Уперше запропоновано оригінальну методику багатоаспектного матричного аналізу, що дає змогу здійснити оцінку та багатофакторне позиціонування лікарських засобів досліджуваного асортименту з метою обґрунтування включення його до асортиментного переліку для лікування певної нозології в амбулаторно-поліклінічних умовах.

Висновки. Практична значущість результатів дослідження полягає у створенні системи підходів до оптимізації фармацевтичної допомоги дітям в амбулаторних умовах на територіальному рівні.

Ключові слова: фармацеоекономічні дослідження, оптимізація фармацевтичної допомоги, лікарські засоби, захворювання ЛОР-органів.

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A – research concept and design; B – data collection; C – data analysis and interpretation; D – article writing; E – article editing; F – final approval of the article.

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