



THE MODERN MARKET OF TRANSDERMAL DRUG DELIVERY SYSTEMS: ANALYSIS OF REGISTRIES OF THE REPUBLIC OF KAZAKHSTAN AND THE EAEU

Sadvakas A.K.
Zhandabayeva M.A.

Kazakh national medical university named by S. D. Asfendiyarov,
Almaty city, Republic of Kazakhstan
e-mail: akniyetsadvakassova@gmail.com
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Relevance: transdermal therapeutic systems (TTS) represent one of the most promising directions in the development of dosage forms, as they enable controlled delivery of active substances while bypassing the gastrointestinal tract and reducing the risk of adverse effects. In light of the growing interest in innovative drug delivery technologies, analysis of the TTS market in the Republic of Kazakhstan and the Eurasian Economic Union (EAEU) is of significant scientific and practical importance.

Purpose of the study: to examine the range and registration dynamics of transdermal drug delivery systems in the Republic of Kazakhstan and the EAEU based on the analysis of official registries.

Materials and methods: the study involved the analysis of scientific publications indexed in international databases such as PubMed, ScienceDirect, Elibrary, and Google Scholar, addressing the use and development of transdermal therapeutic systems. In addition, marketing reports and statistical reviews reflecting global TTS market trends were reviewed. Furthermore, data from the State Register of Medicines of the Republic of Kazakhstan and the Unified Register of Medicines of the EAEU were analyzed to determine the assortment of registered TTS, their distribution by manufacturing countries, and therapeutic applications. Methods of content analysis, comparative and statistical analysis were applied to ensure objectivity and comprehensiveness of the study.

Results: the analysis of the State Register of Kazakhstan demonstrated that the total number of registered medicinal products exceeds 6,900 items, of which less than 0.5% are represented by transdermal systems. Within the TTS category, 18 products were identified, predominantly manufactured abroad: Germany (33%), Switzerland (22%), and the USA (17%). The assortment mainly includes nicotine replacement patches, analgesics (fentanyl), and hormonal preparations (estrogen-progestogen systems). At present, domestic production of TTS in Kazakhstan is absent. The study of the Unified Register of the EAEU revealed 41 TTS products, with leading positions held by Russia (39%), Germany (24%), France (12%), and Switzerland (10%). Russian manufacturers are actively expanding their portfolios of nicotine replacement and analgesic systems, reflecting the growth of this segment in the domestic market. Comparative analysis indicated that the EAEU market for TTS is largely oriented toward imported products and multinational companies; however, Russia is gradually developing its own production base. For Kazakhstan, this presents significant potential for localization and import substitution within the framework of strategic objectives for pharmaceutical sector development.

Conclusions: the market of transdermal therapeutic systems in Kazakhstan and the EAEU demonstrates growth and increasing interest from both consumers and the medical community. Despite the limited product range and dominance of foreign manufacturers, Kazakhstan possesses prerequisites for the development of its own TTS production. The existing scientific and technical



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potential, pharmaceutical clusters, and government measures aimed at stimulating innovation create favorable conditions for the introduction of this advanced dosage form. The establishment of domestic TTS manufacturing will reduce dependence on imports, improve access to modern therapeutic technologies, and strengthen the national pharmaceutical industry.