THE PERSPECTIVE OF USE OF CLATHRATE COMPOUNDS COMBINED WITH MEDICAL SUBSTANCES

Kovalevskaya I. V., Popovich O.
National University of Pharmacy, Kharkiv, Ukraine
inga.kovalevskaya@gmail.com

Introduction. Much attention has been payed to creation of clathrate compounds of active pharmaceutical ingredients (API).

Clathrate complexes are supramolecular structures. These structures are formed by inclusion of APIs ("guest") into the hollows in the crystal frame of molecules of the supplementary substance ("host"). The compounds do not form any kind of specific link between molecules of the "guest" and the "host".

Aim. Thus, the aim of this research is reviewing the perspectives of use of clathrate compounds combined with medical substances.

Results. At the present time the process of clathration has a number of advantages. Production of clathrate compounds improves the process of API transportation through mucosae to the target organs, widens the therapeutic potential of substances.

The technology of transportation of clathrate compounds with API can radically change the idea of existing substances, improving their bio-availability and lessening the therapeutic dose. The analysis of written data shows that there are way of obtaining water-soluble medicinal compounds for such substances as Sibasone, Mesapam, Indometacyne. The results of research suggest lowering of therapeutic dose of medicinal substances several times. The use of clathrate compounds allows lessening the dosage of the substance, thus lowering its toxicity.

As the basis of clathrate compounds high-molecular supplementary substances are used, such as β-cyclodextrin, propylene glycol, non-organic polymers, etc. Compositions with NSAIDs (paracetamol, ibuprofen, ketoprofen, flufenamic and mefenamic acid, etc.), steroids, prostaglandins and prostacyclins, barbiturates, sulfonamides, heart glycosides might be examples of compounds with β-cyclodextrin.

Conclusion. The results of research have shown that the perspective of use of clathrate compounds with API is developing rapidly. Clathrate compounds are suitable for most forms of medicines and entering ways. The acquired data suggests superiority of physical-chemical properties of clathrate compounds, which boosts the absorbability of medicinal substances with low bio-availability, allows lessening of therapeutic dose and the substance's toxicity, boosts the dissolution of the substance in water.