

The International Debate on Phospholipid Micelles as the Medicines Themselves and Drug Delivery System

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Phospholipids, especially phosphatidylcholine, are very commonly used in medicine as a drug delivery systems: most investigated of them are liposomes. The aim of work was the use of phospholipid micelles rather liposomes as drug delivery systems and as drugs themselves. To obtain the phospholipid micelles are extremely small size we used homogenization under high pressure, ultrafiltration and freeze-drying. Phosphogliv is Russian original drug, which includes the phospholipid micelles with a size of 30-50 nm in diameter with incorporated glycyrrhizinic acid, which possesses weak detergent properties and the ability to induce the synthesis of γ -interferon was used for the treatment of liver diseases including viral hepatitis (B and C). Phosphogliv exists on pharmaceutical Russian market with volume of ~ 30

millions of dollars. Nowadays the other phospholipids micelles with size of 15-25 nm in diameter without glycyrrhizinic acid were produced for improvement of reverse cholesterol transport and normalization of lipid metabolism.

Phospholipid micelles as drug delivery system are biodegradable, biologically inert, do not cause allergic, antigenic, or pyrogenic reaction. The new technology was created to produce phospholipid micelles with particles diameter 15-25 nm, in the form of lyophilic powder, which is stable at storage. The main principles of incorporation of pharmacologically active substances such as doxorubicine, arbidole, rifampicine etc. into phospholipid micelles considerably increased their bioavailability and therapeutic efficiency.