THE EXPEDIENCY OF USING POLYETHYLENE CONTAINERS IN THE PRODUCTION OF INJECTION DRUGS

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Introduction. Technical progress in pharmacy determines the creation of new and improvement of existing technological processes for the production of highly effective drugs, among which parenteral drugs occupy a significant place. The task of every pharmaceutical enterprise is to prepare high-quality pharmaceuticals under optimal conditions and deliver them reliably to the consumer. At the same time, along with great care in the production of sterile products, the same high requirements must be placed on containers for injection drugs and packaging materials.

Purpose of the research. Studying the advantages of polyethylene containers as a new type of packaging for the introduction of modern technology for the production of injectable drugs in Ukraine.

Materials and methods. Injectable dosage forms of factory production, released in glass containers (ampoules, bottles), plastic packages from polymer materials (vials, ampoules, flexible containers). The requirements of the SPhU articles 3.2.2 and 3.2.2.1 were used to test samples of polymer packaging with solutions of injection and also for studied the effect on some indicators of the quality of the drugs.

Results. Glass ampoules are the most common representative of primary packaging in the production of injectable drugs. Glass is a solid solution obtained as result of cooling a molten mixture of silicates, metal oxides and some salts, non-indifferent to injection solutions, the ingredients of which, interacting with glass, can cause the destruction of the latter and the transition of its constituent parts into the liquid phase. Depending on the operating factors (temperature, duration of sterilization, storage time, brand of glass, etc.), this process can be leaching or dissolution, which leads to the destruction of the inner layer of glass with the formation of a film that can peel off during storage, include mechanical inclusions, the absence strictly regulated in solutions for injections. Plastic ampoules are formed in a matrix, filled and sealed under sterile aseptic conditions in one production cycle. Then the containers are checked for tightness, visually controlled, autoclaved, labeled and packed. The main advantages of plastic ampoules are safe use without contamination, elimination of damage during use and the probability of cuts and pricks of the fingers, application of the contents of the ampoule without the use of a needle, elimination of the possibility of bacteria, glass or plastic particles getting into the solution, convenience and safety conditions of transportation.

Conclusions. The presented results of tests of samples polymer packaging with solutions of injectable drugs indicate the need to use more modern materials as the primary packaging of them, such as polyethylene, which, compared to glass, stiffness and surface hardness completely devoid of brittleness, chemically inert and neutral, but at the same time resistant to environments with different pH values. In addition, there are no changes during the production of drugs was confirmed, which will allow the use of polymer containers in the production of injectable drugs.