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POSSIBILITY AND PERSPECTIVE IN PRACTICAL USE OF PERFLUORO-CHEMICALS (PFC) AND THEIR EMULSION

F. F. Belojartsev

Institute of Biological Physics, Academy of Sciences USSR, Pushchino (U.S.S.R.)

Synthesis of new types of PFC provided a wide range of fundamental and applied investigations on practical use of PFC and their emulsions in biology and medicine. The factors responsible for toxicity of industrial PFC have been found and criteria of their purity have been designed which resulted in obtaining a great volume of highly purified compounds suitable for practical use.

The main directions of their application are the following:

1. Extracorporal blood oxygenators on liquid membranes.
2. System of 'artificial blood' as blood substitutes.
3. Emulsions for perfusion and nonperfusion organ preservation.
4. Cultivation of animal and microbe cells.
5. Media and methods for liquid breathing.

An experimental programme on the above directions has been completed now.

There is ample evidence for prospective usage of PFC in medicine, which can be proved by the following cases: liquid-membrane oxygenator (120 patients), fluorocarbon cardioplegia in open heart surgery (over 100 patients), limb regional perfusion, blood substitution, treatment of hemorragic shock and disfunctioning microcirculation with 'artificial blood' (400 patients). Some perspective use of PFC has been outlined in biotechnology and lungs lavage.