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# Evaluation of physical stability of lipid emulsions containing various surfactants and co-surfactants for parenteral application

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Lecithin, a mixture of phospholipids, is a commonly used emulsifier in intravenous marketed emulsions. This is due to significant biocompatibility of lecithin with human tissues since phospholipids are natural components of cell membranes. Due to the fact that lecithin is a substance of natural origin, its composition is variable. Lecithins of different origin as well as isolated or modified fractions of phospholipids are available. It is purposeful to investigate them in terms of their applications in preparationof submicron emulsions.The first part of the present work was focused on preparation of stable submicron emulsions in which egg lecithin (Lipoid E80) was replaced with soybean lecithin (Lipoid S100 and Lipoid S75) and isolated phospholipids: PC egg natural (Lipoid E PC), PC egg hydrogenated (Lipoid E PC-3), PC soybean hydrogenated (Lipoid S PC-3). Moreover, attempts have been made to replace half of the amount of lecithin with non-ionic co-surfactant (poloxamer, Cremophor EL, Solutol HS 15, polysorbate).Stable submicron emulsions stabilized with egg lecithin (Lipoid E80; 80% PC) and soybean lecithin (Lipoid S75; 71.5% PC) have been prepared. It was not possible to achieve soybean (Lipoid S100; 97.5% PC) stabilized emulsion due to phase separation during manufacturing. Emulsions stabilized with isolated phospholipids (Lipoid E PC, Lipoid E PC-3, Lipoid S PC-3) were characterized by non-submicron droplet size and emulsion with egg hydrogenated PC was unstable during 2 month storage. Combination of egg lecithin (Lipoid E80) with non-ionic co-surfactant significantly improved physical properties of the emulsions, which first of all were characterized by smaller droplet size of the oily phase in comparison with emulsions without co-surfactant.

## Biography

DorotaWatrobska-Swietlikowska has completed his PhD at the age of 28 years from Medical University of Gdansk. She is aScientistat Department of Pharmaceutical Technology of Medical University. She has published 4 papers, two of them in reputed journals. She collaborated with hospitals to study the physical stability of parenteral admixtures with high electrolytes concentrations.

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