**Title of the project:** Title of the project: Liposoms (drug delivery systems) in kinetically guided therapy of ovaria platinum-resistant carcinoma with doxorubicin using plasmafiltration.

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**Principal Investigator:** S.Filip

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**Summary of 2017 results**

**Title of the presentation:** Plasma filtration for the controlled removal of liposomal therapeutics.

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**Introduction.**

Nanoparticle-based drug delivery systems can overcome the dose-limited toxicity of cytostatics. Pegylated doxorubicin-containing liposomes (PLD) are able to reduce cardiotoxicity. PLD quickly (in 2 days) attains therapeutic concentration in tumorous tissue (kinetic targeting), while its distribution in normal tissue, which is a cause of mucocutaneous toxicity (MCT), is delayed. We examined PLD extracorporeal removal effectivity, using plasma filtration (PF) to determine whether the drug could be withhold prior to its organ distribution responsible for MCT toxicity.

**Methods.**

Nine patients suffering from platinum-resistant ovarian cancer were treated with an infusion of 50 mg/m2 of PLD/cycle - for four cycles q4w. Over 44 (46)-47 (49) hours postinfusion, the patients (14 cycles in total) underwent PF using the cascade method. Doxorubicin blood concentration was monitored by the High Performance Liquid Chromatography Metod (HPLC) during 116 h. Individual pharmacokinetic parameters of doxorubicin were estimated.

**Results.**

Over 44 (46)-47 (49) hours postinfusion, a single one-volume plasma filtration removed 35 (22-45)% of the remaining doxorubicin amount in the body. Symptoms of MCT - PPE-like syndrome (grade 3) appeared in one patient. Only one adverse reaction (1/14-7%) - short-term malaise and nausea - was reported as being related to PF.

**Conclusion**

PF does remove a clinically important amount of doxorubicin in a kinetic targeting approach, which can be a useful tool for the increased efficacy and tolerability of therapy with PLD. There were no serious signs of drug toxicity and/or PF-related adverse events.

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