Research Institute of Clinical and Experimental Lymphology –
Branch of the Institute of Cytology and Genetics
Siberian Branch of Russian Academy of Sciences

The tendency to hypercoagulation in the perioperative period of uterine artery embolization.

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Uterine Artery Embolization (UAE) is an alternative to surgical treatment (level of evidence: II).

Severe complications are observed in approximately 3.5–4% and mild in 13.2–23% of patients.

The relatively high risk of pulmonary embolism after this intervention is noteworthy (1 case per: 500). The mechanism of UAE -associated pulmonary embolism is not clear yet, the risk of this complication determines the relevance of dynamic monitoring of the hemostasis system and the development of effective preventive measures.

In 37 patients in postoperative period after UAE with a risk degree of VTE complications not higher than 1A, according to the classification of C. Samama, a comprehensive assessment of the activity of the hemostasis system was carried out by determining the platelet count, activated partial thromboplastin time (APTT), PTI, fibrinogen level, soluble fibrin monomeric complex (SFMC) and D-dimer, TEG-recording.

The control of hemostasis was carried out at the following stages: initially, 24 hours and 48 hours after the UAE-operation.

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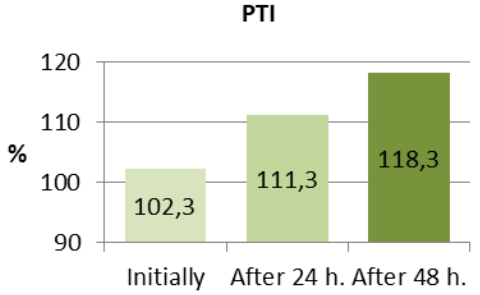
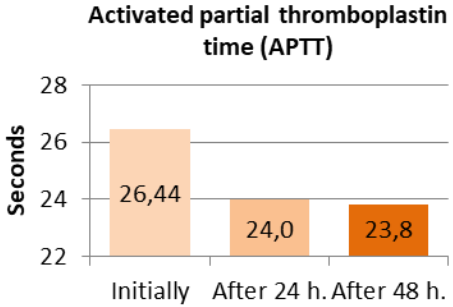
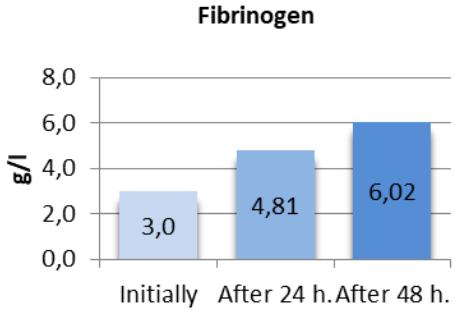
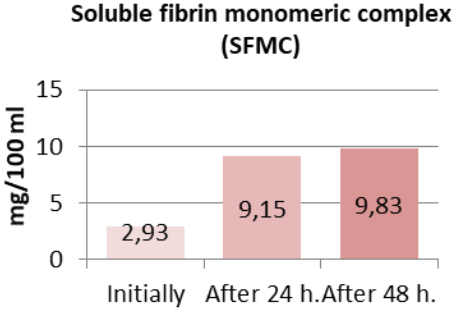
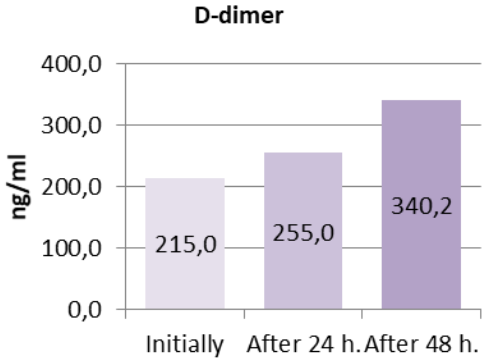
Dynamics of coagulation indicators











Indicator	Initially	24 hours after UAE	48 hours after UAE
PTI, % (78-142%)	102,3 (95,5; 106,0)	111,3 (103,4; 118,8)*	118,3 (103,7; 124,3)*
Fibrinogen, g/l (2,0-4,0 g/l)	3,0 (2,70; 3,40)	4,81 (4,02; 5,58)*	6,02 (5,65; 6,31)*
APTT, s (24,5-36,90	26,44 (24,05; 27,52)	24,00 (22,80; 25,67)*	23,80 (22,55; 24,87)*
SFMC, mg/100 ml (0-3,5 mg/100 ml)	2,93(2,81; 3,50)	9,15 (6,95; 15,73)*	9,83(7,53; 16,40)*
D-dimer ng/ml (200-443 ng/ml)	215,0 (198,5; 234,2)	255,0 (238,5; 283,4)*	340,2 (304,1; 356,5)*

* p <0.05 compared with baseline

In patients after UAE, the level of hypercoagulability markers (fibrinogen, D-dimer, SFMC) and PTI are increased in the blood, APTT is decreased.

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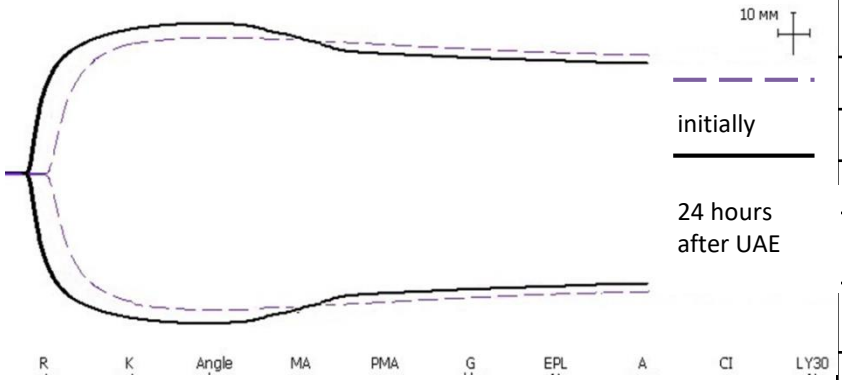
Dynamics of TEG-indicators



Indicators	Initially	After 24 h.	After 48 h.
R min. (N 2-8 min.)	7,20 (6,80; 7,80)	5,8 (5,0; 7,1)*	6,1 (5,2; 7,1)*
K min. (N 1-3 min.)	2,2 (1,80; 2,50)	1,1 (1,08; 1,23)*	1,30 (1,10; 1,73)*
Angel α° (N 55-78°)	62,9 (58,4; 70,2)	71,0 (69,1; 73,0)*	69,4 (68,15; 71,8)
MA mm. (N 51-69 mm)	63,10 (58,00; 68,40)	70,20 (66,10; 70,85)*	66,90 (66,45; 70,20)*
LY 30 (%) (N 0-8 %)	2,05 (1,75; 3,03)	6,03 (4,49; 6,84)*	5,5 (2,47; 6,28)*

* p <0.05 compared with baseline

According to TEG data revealed: an increase in the rate of clot formation and its density, compensatory activation of fibrinolysis.

Conclusion: **After UAE, there is a tendency to hypercoagulation, which is confirmed by an increase in the level of fibrinogen, D-dimer, SFMC, an increase in PTI, a decrease in APTT, a change in TEG indices (an increase in the rate of clot formation and strength, activation of fibrinolysis), which indicates an increase in the risk of VTE complications, the need for monitoring hemostatic system and effective preventive measures with the use of LMWH.**