

FM and D-di in Preeclampsia and in vitro Fertilization

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Background: Coagulation activation is observed during pregnancy and its complications. Laboratory markers may rate the degree of activation and predict complications or help to determine prevention tactics. Fibrin monomer (FM) seems to be promising though less investigated than D-dimer (D-di) in pregnancy.

Aims: To compare the level of FM and D-di in women with normal pregnancy (NP), preeclampsia (PE) and in the process of in vitro fertilization (IVF).

Methods: 180 females were included: during IVF at the stage after the cycle of ovulation induction (n=78), with mild or severe PE (n=47) and uncomplicated NP (n=55) as the control. FM and D-di levels were measured by immunoturbidimetry (STA-Liatest FM and STA-Liatest D-Di, Stago, France). The results are presented as median, 2.5th – 97.5th percentile, Mann-Whitney comparison p-value or rank correlation coefficient (r; p).

Results: The median FM level in NP did not exceed the reference interval for population and was 5 µg/ml (5.0-31.24). The median levels FM-IVF and FM-PE were the same but with larger spread of values in PE group – 5 µg/ml (5.0-16.71) and 5.0 µg/ml (5.0-97.09), respectively. There were significant differences in IVF (p=0.0457) and PE (p=0.0054) in comparison to NP. FM was also higher in PE vs IVF group (p< 0.0001). D-di was 0.50 µg/ml (0.27-1.82), 0.47 µg/ml (0.27-2.44) and 1.77 µg/ml (0.52-8.25) in NP, IVF and PE, respectively. Significant D-di differences were observed between control and PE (p< 0.0001), PE and IVF (p< 0.0001). We also observed FM and D-di correlation in PE (r=0.469; p=0.0013).

Conclusions: The results reflect a significant coagulation activity scatter in the studied groups, as well as in NP. However, women with PE show increased cross-linked fibrin formation (D-di) and coagulation activity in progress (FM), reflecting a higher VTE and complications risk. Further research is required to enable prediction of adverse outcomes based on the markers studied.

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