

D-dimer after delivery in uncomplicated pregnancies

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Summary

D-dimer is now widely used as a coagulation marker. During pregnancy the D-dimer level increases until term even in uncomplicated pregnancies. The aim of the study was to establish the D-dimer immediately after delivery in uncomplicated pregnancies. A rapid immunoturbidimetric assay for D-dimer determination was employed in 100 consecutive deliveries. D-dimer level increased significantly in all women after delivery (increase from 1 to more than 10 times over the normal range). *Conclusion:* an increase in fibrinolysis is associated with pregnancy and delivery, and D-dimer level must be interpreted only in association with other clinical, laboratory and instrumental methods when pathological conditions (e.g. pulmonary embolism, deep vein thrombosis or disseminated coagulation) are suspected.

Key words: D-dimer; Pregnancy; Delivery; Coagulation.

Introduction

Pregnancy is accompanied by a physiological activation of intravascular coagulation, however without disorders. Normal markers of coagulation are unchanged despite this activation. However it has been demonstrated that special coagulation parameters such as D-dimer increase during normal pregnancy and in pathological pregnancy, particularly in hypertensive disorders [1, 2]. D-dimer determination is now widely used in detection and follow-up of coagulation disorders such as deep vein thrombosis (DVT), pulmonary embolism (PE) and disseminated intravascular coagulation (DIC). Its increase during pregnancy makes the interpretation of D-dimer levels difficult when pathologies are suspected. As far as we know, the range of D-dimer plasma levels after delivery or in the postpartum period has not been investigated. The aim of this study was to analyze the range of D-dimer plasma levels after delivery in uncomplicated pregnancies.

Material and Methods

One hundred consecutive deliveries in women with a normal course of pregnancy until term were selected. Pathological pregnancies (hypertensive disorders, fetal growth restriction, diabetes, premature birth) were excluded. In all cases D-dimer plasma level was determined within 24 hours from delivery, both after spontaneous or cesarean delivery. In 43 of the 100 cases D-dimer level was also determined two weeks before delivery. Cesarean deliveries were performed as repeated section, for fetal position or cord complication intrapartum.

Plasma D-dimer level was determined using an immunoturbidimetric method (kit Sta-Lia Test D-di, Boehringer Mannheim, Germany). The method uses specific mouse monoclonal antibodies against human D-dimer (8D2 and 2.1.16). Determination is selective without interference with fibrinogenolysis. Each determination requires 7 minutes and in case of

elevated levels is automatically controlled. The method determines D-dimer and X dimer derived from fibrin degradation. Values are expressed in mcg/ml. In normal subjects PE and DVT are excluded for values below 0.50 mcg/ml.

Results

In all cases, without exception, postpartum D-dimer level was over the normal range of 0.50 mcg/ml. In 12 patients D-dimer level ranged between 0.50 and 1.0 mcg/ml (value 2 times the normal) (12%). In 36 patients the value ranged between 1.0 and 2.0 mcg/ml (value between 2 and 4 times the normal) (36%). In 25 patients the value ranged between 2.0 and 3.0 (value between 4 and 6 times the normal) (25%). In 16 patients the value ranged between 3.0 and 4.0 mcg/ml (value between 4 and 8 times the normal) (16%). In 3 patients the value ranged between 4.0 and 5.0 mcg/ml (value between 8 and 10 times the normal) (3%). In 8 patients the value was above 5.0 mcg/ml (value above 10 times the normal) (8%). All the values ranged between 0.67 mcg/ml and 15.60 mcg/ml. No correlations were possible between D-dimer value and spontaneous or cesarean delivery, between D-dimer and maternal age, parity and fetal weight. In all cases the postpartum period was uneventful: in all cases where D-dimer was evaluated 2 weeks before delivery (43 cases) the value was above 0.50 mcg/ml (range 0.56 - 2.57). In all these cases the value determined antepartum was lower than the postpartum value.

Discussion

These results confirm previous reports [1, 2, 3]. Increased levels of D-dimer during pregnancy is indicative of a compensated intravascular coagulation state, which may be higher in complicated pregnancies. It is possible to stress that this phenomenon has a dramatic increase at birth or immediately after delivery. We can conclude that

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D-dimer levels should be considered cautiously in the postpartum period, particularly when hypertensive disorders are present. When a coagulative disorder is suspected D-dimer value must be interpreted together with other laboratory, clinical and instrumental information.

References

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