Introduction

Thrombophilia is a genetic or acquired condition, with an increased thromboembolic risk which results in excessive coagulation of the blood. The coagulation of the blood is the collection of events which leads to the formation of a thrombus. Under normal conditions, together with the coagulation cascade, a series of antagonistic mechanisms are activated which prevent excessive coagulation and finally degrade the thrombus itself.

Thrombophilia in a pregnant woman is correlated to an adverse outcome of the pregnancy. The pregnant state is as a matter of fact, itself characterized by a physiological hypercoagulation, caused by an increase in almost all coagulation factors (I, II, VII, VIII, IX, X) and a reduction in anticoagulating and fibrinolytic factors, changes which essentially happen on a hormonal basis. At the moment of delivery, a further emphasis of these alterations in a procoagulating sense is generated, through tissue release of particular substances called thromboplastins. They activate the coagulation cascade.

The completion of the delivery by caesarean section partly because of the stay in bad to which the patient obliged for some days, increases even more the risk of thromboembolic events, hence the importance of proper preoperative evaluation and management.

Case report

Patient B.L., 33 years old, came to our observation at the Anesthesia Clinic of the “Gaspare Rodolico” University Hospital Catania on 22 January 2009. The patient underwent a preoperative check-up for a caesarean section at 38 weeks, scheduled seven days after our anesthetic evaluation. From the anamnestic investigation a thromboembolic episode emerged, happening 20 months previously, after which a genetic thrombophilic state was diagnosed: mutation G1691A of Factor V (Leiden mutation). It was decided to begin treatment with low molecular weight heparin (LMWH-Clexane-4000 U.I./s.c. die) upon prior I.N.R. (International Normalized Ratio) inspection, to take...
place up to the day before the operation and therefore it proceeded the planning of the same.

Considering the fact that the prothrombotic state of the pregnancy had persisted for some weeks, postpartum prophylaxis was advised for six weeks.

Discussion

The activated Factor V Leiden is an essential cofactor for the activation of prothrombin (factor II) to thrombin. Its pro-coagulant effect is normally inhibited by the activated Protein C which splits the activated factor V into amino acid arginine in position 506.

A mutation of the gene at the nucleotide triplet coding for arginine at 506 (substitution of a G-Guanine with an A-Adenine), involves the replacement of arginine with another amino acid, glutamine, and prevents cutting by the activated protein C. The consequences are a resistance to activated protein (APC) in laboratory tests and greater pro-coagulation activity of activated factor V, which predisposes to thrombosis.

This variant is called G1691A Leiden (the place where it was discovered) and has a gene frequency of 1.4-4.2% in Europe, with a carrier frequency of heterozygotes in Italy equal to 2-3%. Heterozygous subjects have an 8 times higher risk of developing venous thrombosis, while homozygotes have a risk of 80 times. Such a thrombotic event is favoured in the presence of certain predisposing conditions such as pregnancy and surgical operations.

Conclusion

Woman who are carriers of thrombophilia have higher risk of venous thromboembolism (VTE) during pregnancy varying dependency on the type of thrombophilia, but also the presence of VTE in first-degree relatives of the patient. In pregnancy a genetic condition of heterozygosity by the Leiden factor, increases the risk of miscarriage, pre-eclampsia, placental defects and HELLP SYNDROME. Such manifestation would be linked to thrombosis of uterine spiral arteries resulting in inadequate placental perfusion.

Maternal thrombophilia is therefore, as previously stated, a condition that exposes both mother and foetus to adverse events. In the light of what has been said, it emerges that subjects with Leiden factor V mutation should undergo anticoagulation prophylaxis during pregnancy in anticipation of a caesarean section and that prophylaxis should be suspended 12 hours before the operation in order to avoid bleeding complications, only to be then undertaken after completion delivery.

From this a need for a preoperative evaluation to be performed in a timely fashion derives, unless it is an emergency caesarean section and accuracy of the assessment in order to be able to determine the planning of the operation in safety.

Bibliografia


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