SUPLIMENT

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PLACENTAL VOLUME IN THE FIRST TRIMESTER OF PREGNANCY EVALUATED BY 3D ULTRASOUND AND VIRTUAL ORGAN COMPUTER-AIDED ANALYSIS (VOCAL) AS PREDICTOR FOR PREECLAMPSIA

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Introduction: The placenta is an essential fetal organ, with multiple functions, that ensures the interchange between mother and fetus. All the changes in the normal development of the placenta are in accordance with its functions and any disturbance in the normal process of placentation can generate abnormal perinatal outcomes. Pregnancies affected by preeclampsia continue to be challenging for obstetricians since ancient times. The main reason for the occurrence of this entity is the abnormal placental development and in some cases, abnormal placental volume can predict the apparition of this pathology, sooner or later during pregnancy.

Objective: The aim of this study was to investigate if the placental volume measured in the first trimester by 3D ultrasound and Visual Organ-Aided Analysis (VOCAL) could be an early predictor for the apparition of hypertensive disorders, especially preeclampsia.

Material and methods: This is a prospective study conducted during the period January 2017 – December 2017. The study included a number of 140 pregnant women with singleton pregnancies and with low risk for the development of preeclampsia. Placental volume was measured by 3D ultrasound between 11-14 weeks of gestation and analyzed using VOCAL software. The affected cases were divided into two categories: early-onset preeclampsia and late onset preeclampsia, depending on the gestational age at which this hypertensive disorder was diagnosed.

Results: From the total number of patients included in our study- 140 cases, only 10 women (7,14%) developed preeclampsia: 6 cases (4,28%) developed early-onset preeclampsia (EPE) and 4 cases (2,85 %) developed late-onset preeclampsia (LPE) . The mean placental volume in normal pregnancies was approximately 43, 6 $cm^{3.}$. In preeclampsia group, the mean placental volume of the EPE was significantly reduced than the unaffected women: 36,1 cm^3. The difference between the placental volume of the women with late onset preeclampsia and the normal women was insignificant: 40,5 cm^3 vs 43, 6 cm^3.

Conclusion: A slightly smaller placental volume could be discover at the 3D ultrasound examination in the first trimester at the low risk women who will develop preeclampsia. This pathology seems to be induced by any abnormalities in the placental development, which could be identified even in the late first trimester and used as possible early predictors for the developing diseases. Despite the fail to reach statistical significance, our small study revealed placental modifications that could be more refined in the future and could find a place in the preeclampsia screening for low risk pregnancies.

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ALGORITHM OF DIAGNOSIS AND TREATMENT OF THROMBOPHILIA IN PREGNANCY – THE EXPERIENCE OF THE OBSTETRICS-GYNECOLOGY DEPARTMENT OF THE EMERGENCY UNIVERSITY HOSPITAL BUCHAREST

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Thrombophilias defines a group of disorders associated with an increased tendency for thrombosis. They may also be seen as a heterogeneous group of conditions which have been associated during time with a variety of pregnancy complications, including early and late fetal loss, intrauterine fetal death, placental abruption, poor fetal growth (IUGR) and preeclampsia.

Our clinical retrospective study was performed between 1st January 2006 and 30th June 2008. We evaluated 11518 pregnant women, who delivered in our Clinic, out of which 254 (2.20%) had different types of thrombophilias: antiphospholipid antibody syndrome (62.20%), factor V Leiden (16.93%), protein S deficiency (14.17%), protein C deficiency (3.94%), antithrombin III deficiency (2.76%).

Preeclampsia was present at 27.17% of patients, out of which most cases were recorded in the APLS (36.08%), followed by APCR (30%) and the protein S deficiency (8.33%). There were mild forms of preeclampsia and they occurred in the patients who started treatment late (after the 26th week of pregnancy, due to the moment of diagnosis).

Fetal pathology was represented by IUGR (20.47%) and premature birth (11.81%). The health condition of new borns, expressed by Apgar index was very good in most of the cases (IA=10: 8.66%, IA=9: 71.26%, IA=8: 14.96%, IA=7: 3.94%, IA-6: 1.18%). The favorable evolution of the fetuses was due to the early diagnosis established and the properly treatment administrated.

We had no fetal death in the group of diagnosed and treated thrombophilia patients, as well as no other thrombembolic complication.

As a conclusion, we think that there are several important issues that should be taken into account when managing a pregnant thrombophilic woman. It is of a great importance:

- To think that pregnancy is a state of acquired hypercoagulability, and that a women hiding a trombophilia may present with clinical symptoms for the first time during gestation or the puerperium – so think THROMBOPHILIA
- To correctly select the patients for thrombophilia testing
- To choose the correct moment for testing
- To provide thromboprophylaxis before the occurence of any obstetrical complication mentioned above.
- To judge correctly especially during the second half of pregnancy the ultrasonic appearence of the placenta, the growth curves of the fetus and the placental circulation, elements that can modulate the management of that pregnancy (modifying the dosage of anticoagulant, establishing the right time for delivery).

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DE-INSTALLATION OF THE MULTI-ORGANIC DYSFUNCTION SYNDROME BY ASSOCIATING THE MITOCHONDRIAL MICROCIRCULATORY RECRUITMENT WITH MULTIPLE ORGAN SUPPORT THERAPY IN EXTRACORPOREAL LIFE SUPPORT ORGANIZATION

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Key words: microcirculatory - mitochondrial distress syndrome (MMDs); microcirculatory - mitochondrial recruitment; multi-organ support therapy (MOST); extracorporeal life support organization (ELSO); hypo - (an) - ergic mitochondria; mitochondrial energy collapse; lysosomal clearance (mitophagia); mitochondrial permeability transition pore; canal uniporte - Ca^{++} ; the marker of tissue hypoxia, pCO_2; systemic perfusion pressure; mean blood pressure; capillary resistance; extravascular lung water index (EVLWI); thoracic epidural block; alveolar recruitment; microcirculation; macro-circulation; pulmonary distress syndrome (ARD_S); area metabolic capillary - cell; syndrome of multi-organic acute dysfunction (MODS).

Introduction: The installation of macro - circulation centralization in MODS triggering in critical obstetric states caused by intravascular coagulation , HELLP, shock, SIRS, septicemia, CARS, embolism of the pulmonary artery, cerebral and other, – microcirculation will also be seriously damaged, as the reduction in blood flow perfusion affects the venous return to eliminate the waste of cellular metabolism, where a marker of tissue hypoxia is the increase in carbon dioxide.

Objective: The mitochondrial microcirculatory recruitment with multiple organ support therapy in extracorporeal life support.

Material and methods: This is a retrospective study over 35 years, in a lot of critical situations in obstetrics.

Results: This disorder generates microcirculatory - mitochondrial distress syndrome, mitochondrial energy collapse, which can be recovered by microcirculation – mitochondrial recruitment to optimize systemic perfusion pressure (SPP), in turn dependent on mean blood pressure and capillary resistance. Microcirculation - mitochondrial recruitment decentralizes macro circulation benefits microcirculation in the capillary-cell metabolic area.

In cases of manifestation respiratory-pulmonary CO_2 ↑ (ARD_S), confirmed ↓ PaO2/FiO2 ↓300 to Acute Respiratory Distress Syndrome (Berlin definition, 2012), thus also aggravates the microcirculatory-mitochondrial distress syndrome, mitochondrial collapse and the recruitment of the microcirculatory-mitochondrial is supplemented with multi-organ support therapy (MOST). 1. Alveolar recruitment through respiratory support in specific ventilation modes, predominantly APRV, with permissive hypercapnia at a normal pH. 2) MOST - extracorporeal with technical support. Extracorporeal Life Support Organization – ELSO. 3) Modeling of extra - vascular pulmonary fluid; 4) Th_4 - Th_5 thoracic epidural block.