42. Correlation between MCP-1 and TNFα in maternal plasma, fetal plasma and placenta in patients with pre-eclampsia

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Introduction: Monocyte chemotactic protein-1 (MCP1) main function is to recruit monocytes and other leukocytes into sites of inflammation. Inflammatory mediators, such as TNFα, regulate its expression.

Objectives/hypothesis: To analyze MCP1 levels in maternal, fetal plasma and placental in women with pre-eclampsia (PE) and correlate with TNFα. We hypothesized a positive correlation between both molecules.

Methods: Case-control study, 117 pregnant women consented to participate, PE (50)/controls (67). MCP1 and TNFα were quantified using MagPlexTH-C microsphere system and were analyzed using ANCOVA method, adjusted by BMI, gestational age at delivery (GA) and maternal age. To estimate the difference between groups, the mean ratio (MR) and the 95% confidence interval (CI) were calculated. The analysis between MCP1 and TNFα was made by Pearson's correlation. $p < 0.05$.

Results: Increased MCP1 were observed in fetal plasma of preterm (GA < 37 wks) PE pregnancy ($p = 0.029$). In placenta a correlation between MCP1 vs. placenta weight (PW) (r = 0.313, $p = 0.020$), and MCP1 vs. BMI (r = 0.366, $p = 0.004$) was seen. Also, in fetal plasma, in PE group, MCP1 vs. GA (r = −0.645, $p < 0.001$), birth weight (BW) (r = −0.603, $p < 0.001$) and PW (r = −0.512, $p < 0.001$) was seen. High levels of TNFα were found in the maternal plasma in PE group (MR = 1.29, 95% CI: 1.04–1.61, $p = 0.021$). Increased levels of TNFα in fetal plasma from preterm PE (GA < 37 wks) and in placenta from early preterm PE (GA < 34 wks) ($p < 0.05$), was seen. In placental tissue, a correlation between MCP1 vs. TNFα, entire group (r = 0.568, $p < 0.001$) and in PE group (r = 0.694, $p < 0.001$) was found.

Discussion: We observed a strong direct correlation between MCP-1 vs. TNFα in placenta PE groups, which suggests a possible regulation of TNFα molecule by MCP-1. Also, we observed that higher the levels of MCP-1 in fetal plasma, the lower the GA, FW and PW, which might indicate the involvement of MCP-1 in preterm delivery.

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43. The 3d-pd features of fetal middle cerebral with severe preeclampsia

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Background: The prevalence of preeclampsia was approximately 4.0% and 2.88% of all pregnancies worldwide and in mainland China. It is mainly characterized by the poor remodeling of the uterine spiral artery and the superficial implantation of placenta, which will contribute to maternal and neonatal complications.

Objective: The aim was to explore the changes of fetal middle cerebral artery flow indices and its relationship with severe preeclampsia.

Methods: From August 2016 to February 2017, 56 women with severe preeclampsia who hospitalized in the obstetric ward of the first affiliated hospital, Xi'an Jiaotong University were included as research group. 64 normal pregnant women without any complications during the same period were randomly selected as the control group. The matching principles are ±3 years age of maternal age and ±3 of gestational weeks. Color Doppler ultrasound were performed by GE Voluson E8. PI and RI of fetal middle cerebral artery and of umbilical artery were tested. VI, FI and VFI was calculated by VOCAL.

Results: The UA-PI was 0.94 (0.57–1.55) and UA-RI was 0.61 (0.44–0.83) in research group. CPR (PIMCA/PIUA) was significantly lower in research group [1.63 (0.73–3.02‰ vs. 1.85 (0.67–3.02‰, p = 0.019]. There were no significant differences in MCA-PI, MCA-RI and VI, FI and VFI of MCA between the two groups. There was a negative correlation between CPR and stillbirth or neonatal death in the research group (r was −0.294 and −0.306, p was 0.047 and 0.039 respectively). In the adverse perinatal outcome of research group, CPR was 1.66 (0.73–3.02‰). It was significantly higher compared with that of good perinatal outcome. When the cut-off values of CPR was taken as 1.05, 1.10, 1.15, respectively, the sensitivity was 7.7%, 12.8%, 17.9% and specificity was 100%, 100%, 87.5%, respectively, for predicting adverse perinatal outcome.

Conclusion: CPR could be used as predictive index for adverse outcome with severe preeclampsia.

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44. Evaluation of the clinical impact of the revised ISSHP and ACOG definitions on preeclampsia and on severe preeclampsia

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Background: In 2013/2014 both ISSHP and ACOG revised their original statement and postulated new criteria for (severe) preeclampsia, by which the diagnosis preeclampsia can also be established in the absence of proteinuria when other specific symptoms are present.

Objective: What is the clinical impact of the use of three different new criteria for the diagnosis of preeclampsia and severe preeclampsia?

Methods: Retrospective cohort study of all pregnant women who gave birth in the Erasmus MC between 01-01-2014 and 01-01-2016. Hypertensive disorders of pregnancy (HDP) were defined when ⩾2 times during pregnancy high blood pressure (⩾140 mmHg systolic and/or ⩾90 mmHg diastolic) was measured. All HDP cases were then classified according to the ISSHP 2001, ISSHP 2013/2014 and ACOG 2013 criteria.

Results: In our cohort (N = 4395) 878 patients had HDP (20,0%). The ISSHP 2014/ACOG 2013 criteria cause a significant increase in patients with (superimposed) preeclampsia versus the ISSHP 2001 criteria, from 272 patients (6,2%) to respectively 360 (8,2%)/290 (6,6%) (p < 0,001/p < 0,001). This increase is due to non-proteinuric preeclampsia cases. Use of the ACOG 2013 criteria increases severe preeclampsia cases from 113 (2,3%) using ISSHP 2013 to 154 (3,5%) (p < 0,001). Severe hypertension occurred less in pregnancies complicated by non-proteinuric preeclampsia (p < 0,001/p = 0,019). Prematurity, perinatal death and maternal complications were not different in pregnancies complicated by non-proteinuric or proteinuric preeclampsia.

Discussion: Implementation of the ISSHP 2014/ACOG 2013 criteria causes a shift from gestational hypertension and chronic hypertension towards (superimposed) preeclampsia (relative increase 10%/2%) and severe preeclampsia (4.6%). Since women with preeclampsia have an increased risk of developing cardiovascular disease later in life, we recommend further research into the course and prognosis of especially non-proteinuric preeclampsia.

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