22. Decidual killer immunoglobulin-like receptor (kir)2dl1 expression and the onset of preeclampsia, birth weight and placental weight in early and late onset preeclampsia

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Introduction

Successful remodelling of spiral artery ensures adequate uteroplacental perfusion and sufficient nutrient supply to the fetus. HLA-C interaction with maternal KIR determines the outcome of spiral artery remodelling. Strong inhibitory KIR2DL1 lower the expression of cytokines and angiogenic factors affecting uteroplacental perfusion and nutrient supply.

Material and methods

We analysed the decidual expression of KIR2DL1 in early and late preeclampsia groups by quantitative immunohistochemistry using anti human-KIR2DL1/CD158a antibody and its correlation with preeclampsia onset, birth weight and placental weight. 35 patients, 14 patients with early onset preeclampsia (EO-PE) and 21 with late preeclampsia (LO-PE) were analysed.

Result

There was a significant difference between the expression of KIR2DL1 between the EO-PE and LO-PE group ($p<0,001$) with a strong negative correlation between decidual expression of KIR2DL1 and preeclampsia onset ($p<0,001$, $r=-0,723$), birth weight ($p<0,001$, $r=-0,770$) and placental weight ($p<0,001$, $r=-0,770$).

Conclusion

In patients with EO-PE, the higher placental of KIR2DL1 and inhibitory KIR2DL1 contributes to earlier onset of preeclampsia, lower birth weight of the baby and low placental weight. The strong negative correlation might be due to much lower expression of cytokines and angiogenic factors in higher KIR2DL1 expression samples. The different expression of KIR2DL1 between EO-PE and LO-PE is in line with current concepts on different pathophysiologic pathway leading to these different PE phenotypes.

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Results: STAT-3 expression differed by pregnancy type (p = 0.001) and not HIV status (p = 0.0859), while MEK-1 differed by HIV status (p = 0.0102) and not pregnancy type (p = 0.1526).

Conclusion: This study demonstrated a downregulation of STAT-3 and MEK-1 in pre-eclampsia, corroborating limited trophoblast invasion. HAART and non-phosphorylation of HIV regulatory proteins may account for the downregulation of STAT-3 and MEK-1, respectively. Additional studies are required to further investigate the role of signal transduction pathways and its effect on HAART in pre-eclampsia development.

21. 3D versus 2D echocardiography assessment of maternal cardiac remodeling in gestational hypertension

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Introduction: Considering that the left ventricle (LV) is losing its standard elliptical shape during pregnancy and that these changes are more pronounced if pregnancy is complicated by hypertension, we assumed that there was a difference in geometric remodeling of the LV evaluated by 2D compared to 3D echocardiography in gestational hypertension (GH).

Objective: To establish the difference between 2D and 3D evaluation of maternal cardiac remodeling in GH and reversibility of these changes after delivery.

Methods: 55 women with GH and 26 normotensive pregnant women as controls underwent a complete echocardiography in the third trimester and 6 weeks after delivery, to assess parameters of chamber quantification, wall thickness and LV myocardial mass index. The LV remodeling was determined as normal geometry (NG), concentric hypertrophy (CH), eccentric hypertrophy (EH) and concentric remodeling (CR) according to the reference values of Relative wall thickness and LVmass index due to recommendations of Europian Association of Cardiovascular Imaging and American Society of Echocardiography.

Results: Hypertensive women had statistically significant higher values of almost parameters of the LV geometry, that caused most abnormal geometry in women with GH (p < 0,0005). Considering the difference between values of LVmass*i* evaluated by 3D and 2D, there was also the difference in geometric remodeling but only in GH group. Thus, evaluated by 3D, NG was presented in GH in 25% vs 26,8% meassured by 2D (p < 0,0005), CR in 38,3% vs 40,5% (p < 0,0005), CH in 28,3% vs 26.3% (p < 0,0005), and EH in 8,3% vs 6,4% (p < 0,0005). Also all changed echocardiographic parameters became improved six weeks after delivery. Only 25,8% previously hypertensive women had CR, but without significance 3D versus 2D assessment.

Conclusion: There was statistically significant diference between 3D and 2D estimation of the maternal cardiac remodeling in gestational hypertension.

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Introduction: Successful remodelling of spiral artery ensures adequate uteroplacental perfusion and sufficient nutrient supply to the fetus. HLA-C interaction with maternal KIR determines the outcome of spiral artery remodelling. Strong inhibitory KIR2DL1 lower the expression of cytokines and angiogenic factors affecting uteroplacental perfusion and nutrient supply.

Material and methods: We analysed the decidual expression of KIR2DL1 in early and late preeclampsia groups by quantitative immunohistochemistry using anti human-KIR2DL1/CD158a antibody and its correlation with preeclampsia onset, birth weight and placental weight. 35 patients, 14 patients with early onset preeclampsia (EO-PE) and 21 with late preeclampsia (LO-PE) were analysed.

Result: There was a significant difference between the expression of KIR2DL1 between the EO-PE and LO-PE group (p < 0,001) with a strong negative correlation between decidual expression of KIR2DL1 and preeclampsia onset (p < 0,001, r = −0,723), birth weight (p < 0,001, r = −0,770) and placental weight (p < 0,001, r = −0,770).

Conclusion: In patients with EO-PE, the higher placental of KIR2DL1 and inhibitory KIR2DL1 contributes to earlier onset of preeclampsia, lower birth weight of the baby and low placental weight. The strong negative correlation might be due to much lower expression of cytokines and angiogenic factors in higher KIR2DL1 expression samples. The different expression of KIR2DL1 between EO-PE and LO-PE is in line with current concepts on different pathophysiologic pathway leading to these different PE phenotypes.

23. Implementation and effects of risk-dependent obstetric care in the Netherlands: A clinical impact study (Expect study II)

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Introduction: This study evaluates former obstetric care as usual (Expect I) with risk-dependent care using a prediction tool (Expect II). The Expect I study externally validated 39 prediction models using data of 2,614 women prospectively included from 2013 to 2015. Clinically useful models were embedded in a web-based prediction tool. Additionally, risk-dependent care paths were developed, resulting in antenatal care tailored to the outcomes of individual risk assessments. Risk-dependent care was embraced by a consortium of obstetric healthcare professionals in the Dutch province of Limburg.

Objective: This part focuses on adherence of healthcare professionals and compliance of women to key recommendations; e.g. adequate calcium intake in all women and low-dose aspirin treatment in women at increased risk of preeclampsia.

Methods: Women receiving risk-dependent care are being enrolled in a prospective multicenter cohort (Expect II) and receive four questionnaires at intervals.