Prediction and prevention of PE and IUGR

Eduard Gratacos

www.medicinafetalbarcelona.org
Preeclampsia

IUGR
Normal and abnormal placental implantation
EARLY-ONSET PE AND IUGR
Relation between placental and maternal disease

Endothelial disease (poor implantation)

- MOTHER
- DAMAGE
- DYSFUNCTION
- HYPERSTIMULATION

PREDISPOSITION

- HTA
- proteinuria
- platelets
- hemolysis
- liver
- HELLP
- eclampsia

- IUGR
- Fetal hypoxia
- DPPNI
EARLY-ONSET

LATE-ONSET

1 %

1 %

PREECLAMPSIA

PREECLAMPSIA + IUGR

IUGR

4-8 %

4-8 %

20 25 30 35 40

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PREECLAMPSIA
Disease of the vascular endothelium which requires

- baseline hyperstimulation state (gestation)
  
- maternal predisposition

 +/- additional insult (anomalous placentation)
EARLY-ONSET PE (1%)

PROBLEM: MANAGEMENT
Degree plac. insufficiency: HIGH
Maternal predisposition +
Prediction 1 trimester

LATE-ONSET PE (4-8%)

PROBLEM: DIAGNOSIS
Degree plac. insufficiency: LOW
Maternal predisposition +
Prediction 2-3 T

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# PREECLAMPSIA: EARLY VERSUS LATE

<table>
<thead>
<tr>
<th></th>
<th>EARLY (&lt;=34w)</th>
<th>LATE (&gt;=34w)</th>
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</thead>
<tbody>
<tr>
<td>Maternal severe disease</td>
<td>83%</td>
<td>30%</td>
</tr>
<tr>
<td>Association IUGR</td>
<td>78%</td>
<td>15%</td>
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<tr>
<td>Abnormal Umbilical Artery Doppler</td>
<td>78%</td>
<td>43%</td>
</tr>
<tr>
<td>Abnormal Uterine Artery Doppler</td>
<td>95%</td>
<td>46%</td>
</tr>
<tr>
<td>Abnormal placental pathology</td>
<td>+++</td>
<td>+</td>
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Sibai'06, Levine'06, Crispi'06, Egbor'06, Zhang'03, Sibai'03
Prediction of PE

INTEGRATED FIRST TRIMESTER APPROACH
maternal + UtA Doppler + biomarkers

Detection Rates (for FPR 10%)

<table>
<thead>
<tr>
<th>EARLY PE</th>
<th>LATE PE</th>
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<td>80-90%</td>
<td>25-50%</td>
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Prediction of PE

INTEGRATED FIRST TRIMESTER APPROACH

maternal + UtA Doppler + biomarkers
Epidemiological risk

- Previous PE / antiphospholipid syndrome \( \times 8 \)
- \( \text{BMI} \geq 35 \, \text{kg/m}^2 \) / Diabetes \( \times 4 \)
- Nuliparity/ Multiples /Familiar history \( \times 3 \)
- Age \( \geq 40 \, \text{y.}, \) HTA, renal/autoimmune disease \( \times 2 \)

**Blood Pressure 1T (10% FP)**

- Early PE \( \sim 50\% \)
- Late PE \( \sim 35\% \)
Prediction of PE

INTEGRATED FIRST TRIMESTER APPROACH
maternal + UtA Doppler + biomarkers

Detection Rates (for FPR 10%)

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<td>50%</td>
<td>25%</td>
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Uterine Artery Doppler
Transvaginally

- Feasible throughout pregnancy
- Sagittal plane
- Measurement at the internal cervical os level

Transabdominally

- Feasible after 12 weeks
- Lateral plane
- Measurement at the crossover with the iliac artery
This presentation is only partially previewed.