MATERNAL PREECLAMPSIA PROTECTS PRETERM INFANTS AGAINST SEVERE RETINOPATHY OF PREMATURITY

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PROROP - PREVENTION OF BLINDNESS DUE TO ROP RESEARCH GROUP
Background:

Association of maternal factors with retinopathy of prematurity (ROP) has not been extensively studied, and the few available data are inconclusive until now.

Objective:

This study aims to investigate the influence of the maternal preeclampsia and the occurrence of any stage and severe ROP among very low birth weight (VLBW) preterm neonates.
Study design: Institutional and prospective cohort study

Population:

**VLBW preterm infants** (BW ≤ 1,500 g and GA ≤ 32 weeks) **screened** for ROP who survived from the initial ophthalmological examination to 45 weeks of postmenstrual age (PMA = GA + weeks of life)

Those babies and their mothers had complete data collected from 2002 to 2009

There were no exclusion criteria

The study protocol was approved by Research Ethics Committee
**MAIN OUTCOMES**

Any stage of ROP
Severe ROP requiring treatment

**MATERNAL VARIABLES**

Maternal age
Number of prenatal attendances
Hours since rupture of membranes
Antenatal steroid treatment
Preeclampsia
Previous premature births
Essential hypertension
Mode of delivery (vaginal / cesarean section)

**METHODS**

**POSTNATAL VARIABLES**

Apgar score at 5th min
SGA (< 10th percentile)
Male gender
Gemelarity
BW (grams)
GA (weeks)
Oxygen therapy nasal CPAP
Oxygen therapy mechanical ventilation
Indomethacin
Surfactant
Erythropoietin
Blood transfusion
Intraventricular hemorrhage
Sepsis
Meningitis
Persistent ductus arteriosus
1st OPHTHALMOLOGICAL EXAMINATION

PERFORMED BETWEEN 4th and 6th WEEKS OF LIFE

0.5% tropicamide and 2.5% phenylephrine eye drops

THE SCREENING SESSIONS WERE PERFORMED ACCORDING TO THE
BRAZILIAN GUIDELINES TO DETECT AND TREAT ROP

Arq Bras Oftalmol 2007; 70(5):875-83.
Patients: 324 neonates and 294 mothers were included in our study.

Mean BW (grams): 1,128 ± 240 (range 505 - 1,500 grams)
Mean GA (weeks): 29.7 ± 1.9 (range 24 - 32 weeks)

Prevalence of ROP:

Non-ROP: 227 (70.1%),

Any stage ROP: 97 (29.9%),

Severe ROP: 24 (7.4%)
### RESULTS

**MULTIVARIATE ANALYSIS**

Table 5. Adjusted logistic regression for any stage and for severe ROP

<table>
<thead>
<tr>
<th></th>
<th>For any stage of ROP</th>
<th>95% CI</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td><strong>OR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BW (grams)</td>
<td>0.997</td>
<td>0.996 - 0.998</td>
<td>&lt;0.001</td>
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<tr>
<td>Maternal preeclampsia</td>
<td>0.263</td>
<td>0.133 - 0.519</td>
<td>&lt;0.001</td>
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<tr>
<td>Antenatal steroid treatment</td>
<td>0.573</td>
<td>0.332 - 0.991</td>
<td>0.046</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>For severe ROP</th>
<th>95% CI</th>
<th>p-value</th>
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<tbody>
<tr>
<td><strong>OR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BW (grams)</td>
<td>0.997</td>
<td>0.995 - 0.999</td>
<td>0.001</td>
</tr>
<tr>
<td>Maternal preeclampsia</td>
<td>0.182</td>
<td>0.040 - 0.822</td>
<td>0.027</td>
</tr>
</tbody>
</table>

ROP: retinopathy of prematurity; OR: odds ratio; CI: confidence interval; BW: birth weight

Preeclampsia and complete antenatal steroid course had 74% and 43% reduction in risk for any stage of ROP, respectively.

Preeclampsia had 84% reduction in risk for severe ROP.
MATERNAL PREECLAMPSIA LOWERED THE RISK FOR ANY STAGE OF ROP IN 74% AND IN 84% FOR SEVERE ROP

In developing countries spontaneous preterm delivery and hypertensive disorders, as preeclampsia, are the most important determinants of perinatal death.
