MEDICAL SCHOOL

FEDERAL UNIVERSITY OF RIO GRANDE DO SUL

HOSPITAL DE CLÍNICAS DE PORTO ALEGRE - BRAZIL

MATERNAL PREECLAMPSIA PROTECTS PRETERM INFANTS AGAINST SEVERE RETINOPATHY OF PREMATURITY

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PROROP - PREVENTION OF BLINDNESS DUE TO ROP RESEARCH GROUP

INTRODUCTION

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.

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METHODS

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

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METHODS

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)

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
Inraventricular hemorrhage
Sepsis
Meningitis
Persistent ductus arteriosus

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METHODS

1st OPHTHALMOLOGICAL EXAMINATION

PERFORMED BETWEEN 4th and 6th WEEKS OF LIFE

0.5% tropicamide and 2.5% phenylephrine eye drops

28 D lens

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

Zin A, Florêncio T, Fortes Filho JB, Nakanami CR, Gianini N, Graziano RM et al. Proposta de diretrizes brasileiras para a detecção e o tratamento da retinopatia da prematuridade (ROP). Arq Bras Oftalmol 2007; 70(5):875-83.

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RESULTS

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%) ←

MULTIVARIATE ANALYSIS

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

For any stage of ROP	OR	95% CI	p-value
BW (grams)	0.997	0.996 - 0.998	<0.001
Maternal preeclampsia	0.263	0.133 - 0.519	<0.001
Antenatal steroid treatment	0.573	0.332 - 0.991	0.046
For severe ROP	**OR**	**95% CI**	**p-value**
BW (grams)	0.997	0.995 - 0.999	0.001
Maternal preeclampsia	0.182	0.040 - 0.822	0.027

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.

CONCLUSIONS

MATERNAL PREECLAMPSIA PROTECTED THE BABIES AGAINST THE OCCURRENCE OF 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.

Ngoc NT et al. Causes of stillbirths and early neonatal deaths: data from 7993 pregnancies in six developings countries.
Bull World Health Organ 2006; 84:699-75.