Incidence of Retinopathy of Prematurity in a cohort of 12921 premature infants followed in the Kangaroo Mother Care Programs of Bogota and Medellin

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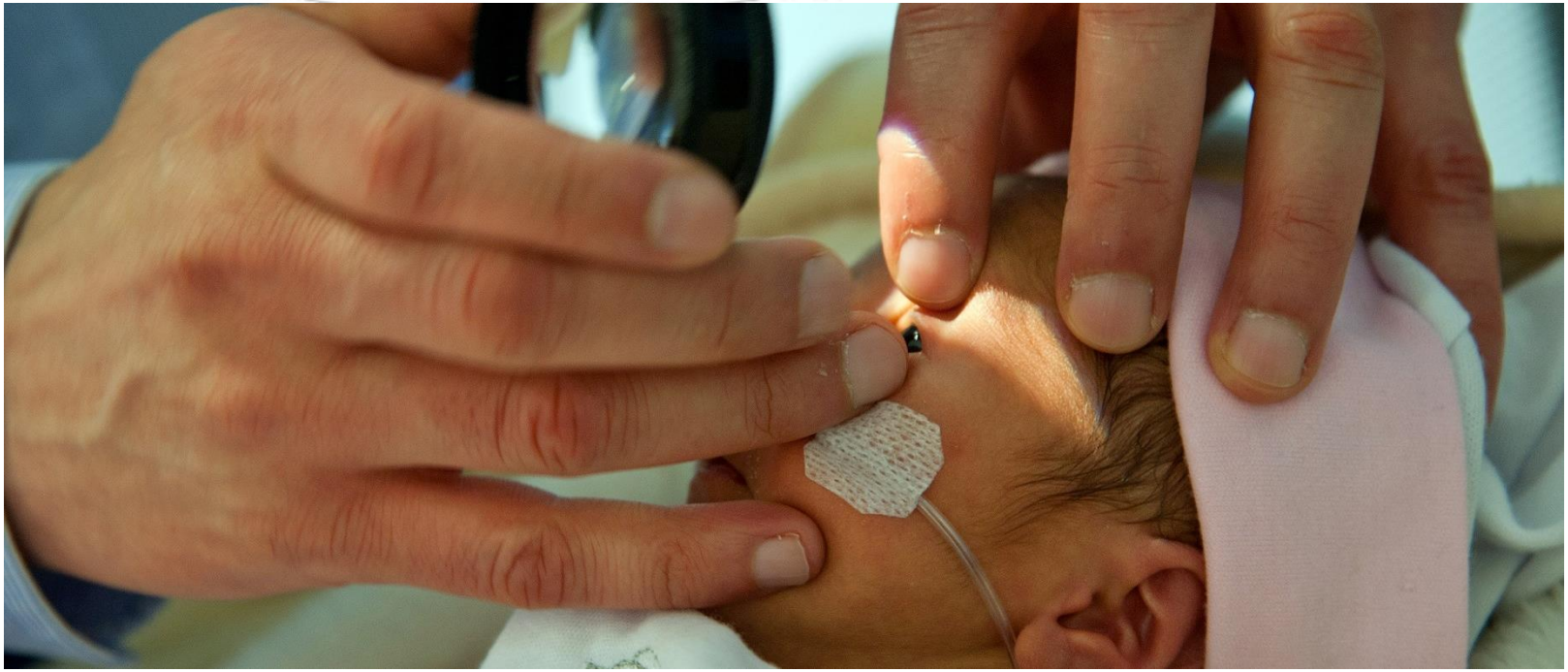
Retinopathy of Prematurity

ROP is a pathologic process that occurs only in immature retinal tissue and can progress to tractional retinal detachment, resulting in functional or complete blindness.

For nearly 2 decades, use of peripheral retinal ablative therapy with laser photocoagulation has resulted in a marked decrease in the incidence of this poor visual outcome, however ROP´s sequential nature requires that at-risk preterm infants be examined at proper times and intervals so that changes can be detected before they cause irreversible damage.



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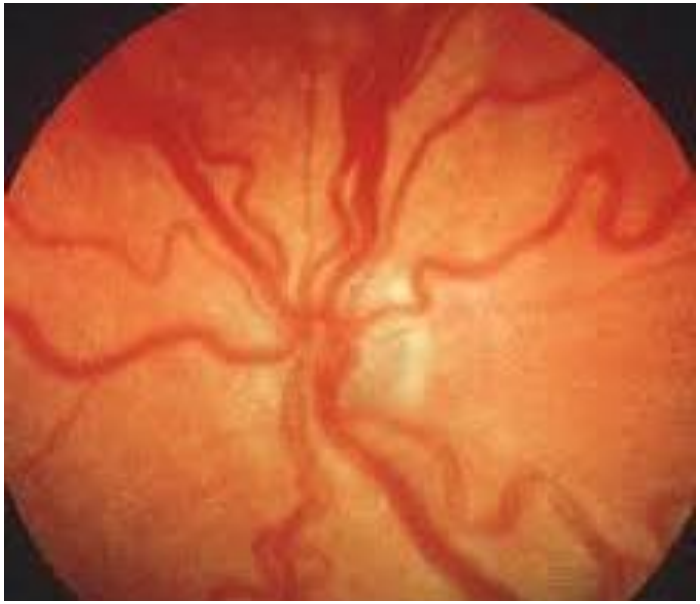

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Background: Retinopathy of prematurity (ROP) is the leading cause of preventable blindness in preterm infants. The prevalence of ROP is very high in developing countries because of the increased survival of preterm infants, the inadequate monitoring of oxygen saturation and the lack of screening programs.

Objective: To determine the prevalence of ROP in a cohort of premature infants born weighing <2500g followed in an outpatient program.

Design/Methods: Cohort of 12.921 infants followed in the Kangaroo Mother Care Programs of Bogota and Medellin. Of the original cohort of 17.003 premature or LBWI admitted to the KMCPs between 2002 and 2013, 76.0% (12.921) of the children were candidates to be evaluated by the retinologist.

Results

Out of 12921 patients candidates for ophthalmological evaluation, 608 suffered fromROP of some degree (4.7%), Of the ROP diagnosed patients 72.5% were <1501 gr and 91.7% were < 34 weeks to birth.

148 underwent surgery (1,1%). 13 children in the sample (0.1%) were blind: 69.3% were born with < 1501 gr or < 34 weeks.

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Distribution of ROP in the sample of 12921 children categorized by weight and gestational age at birth

	< 1500 gr	≥ 1500 gr	Total
Any degree of regressive ROP	442	166	608
%	17.3	1,6	4.7
Surgery	105	43	148
%	4,1	0,4	1.1
Blindness	9	4	13
%	0,4	0,04	0.1
Normals	1992	10108	12100
%	78	97,5	93.6
TOTAL	2555	10366	12921

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Distribution of ROP in the sample of 12921 children categorized by weight and gestational age at birth

	Regressive ROP	Surgery	Blindness	Total Sample
Gestational Age (weeks)				
<30	342	92	6	1630
%	56.5	62.6	46.2	12.7
31-32	145	30	2	1857
%	24	20.4	15.4	14.4
33-34	74	10	1	3728
%	12.2	6.8	7.7	28.9
35-36	34	11	3	4109
%	5.6	7.5	23.1	31.9
>37	10	4	1	1560
%	1.7	2.7	7.7	12.1
TOTAL	605	147	13	12884

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Results

of Hospitalization <1500g

	ROP(%)	No ROP (%)
Diagnosis of BPD	64.9	62.1
Nosocomial Infection	30.8	16.8
Maternal death	0	0.2
In-hospital stay (days)	44	36
Oxygen at entry	53.2	49.1

Neurological risk at entry <1500g

	ROP (%)	No ROP (%)
Intraventricular Hemorrhage	18.9	13.8
Seizures	5	2.8
Neurological impairments	33.5	26.6
No anoxia	40.6	49.6
Any grade of Anoxia at 5'	32.6	20.5

tatus at entry <1500g

		ROP (%)	No ROP (%)
NICU		76.9	71
Ventilatory Support	Ventilat	49.8	41.3
	CPAP	10.3	8.2
Prenatal Steroids		79..6	78.2

Optometry and Audiometry

		ROP (%)	No ROP (%)
Optometry	Myopia	2.8	1.2
	Astigmatism	8.1	7.4
	Hiyperopia	15.5	23.3
	Hyperopic astigmatism	15.9	38.4
	Myopic Astigmatism	2.4	1.2
Audiometry	Abnormal	4.4	3.2

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Results

Nutrition and somatic growth<1500g

		ROP (%)	No ROP (%)
40 weeks	LME	39.2	35.9
	LM + LA	56	60.8
	LAE	4.9	3.3

		ROP	No ROP
At birth	Weight	1149	1228
	Height	36.8	38.7
	HC	26.7	28
40 weeks	Weight	2581	2662
	Height	45.2	45.6
	HC	33.9	34.3

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Results

GA <30 weeks increases the risk 12 times;

GA of 31-32 weeks increases the risk 6 times,

GA of 33-34 weeks increases 2 times the risk.

For severe ROP the risk only increases in the category of GA ≤ 32 weeks (7 times if ≤30).

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Results

Each additional day with oxygen increases ROP risk of any degree by 2.4% and severe ROP by 1.6%.

Each day in the NICU increases ROP risk of any degree by 1.5% (times), and severe ROP risk by1.8% , regardless of the administration.

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Conclusions

During the follow-up there was a gradual decrease of ROP incidence until 2007, which remained stable until 2013.

In 2013 ROP rates increased probably due to new units that began to operate in Bogota and elsewhere in Colombia, all are going through a learning curve.

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Conclusions

Currently, in Colombia BPD and ROP affect infants of all ranges of weight and gestational age who are being treated in these KMCPs.

It depends on the treatment received within neonatal units which sometimes include aggressive behaviors.

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Conclusions

It seems unreasonable to use American or European standards in the treatment of our children: since the incidence of BPD and ROP in this type of population is low in those countries.

It seems more reasonable for us to screen all preterm and LBW infants in the KMCP program. As improved kangaroo practices and monitoring have demonstrated ,ROP and BPD tend to disappear in children at higher gestational ages; therefore, we can consider lowering the cut off that determines which children need systematic ophthalmologic screening.

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Conclusions

Retinopathy of prematurity is the leading reversible cause of blindness in newborns in Latin America. Early detection is needed for early intervention. It is important that visual screening strategies be available for premature infant care in order to decrease the incidence of this condition.

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