

Kangaroo Mother Care Intervention in Premature Infants with Broncho-pulmonary Dysplasia

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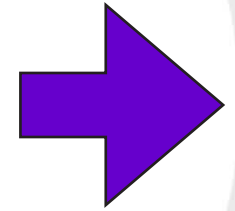
2600 mts above sea level

Our experience..



Introduction

- * Respiratory problems are the most common cause of long-term complications in premature infants
- * Advances in neonatal care, Antenatal steroids
 - Surfactant replacement therapy
 - Non invasive ventilation techniques
 - Optimal nutritional support
- * Increased survival of extremely premature infants and increased incidence of BPD.

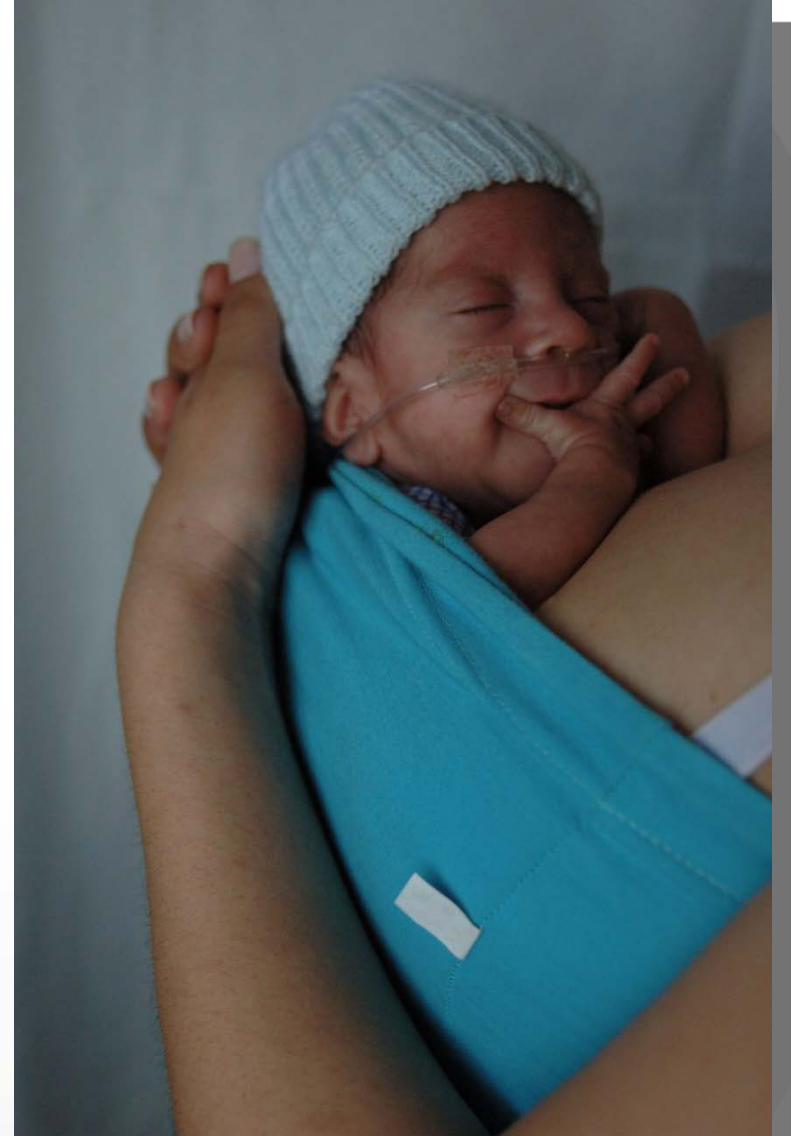


BPD at the entry in KMCP

A preterm infant, who needs oxygen in order to maintain his/her O₂ saturation above 90%.

With a chronological age > 28 days and/or with a postconceptional age >36 weeks at the entry in the KMC program.

Pulmonary hypertension has been ruled out.



Discharge Guidelines for “Kangaroo” Newborns with BPD

Basic Discharge Guidelines for Kangaroo Newborns

The baby is considered eligible for release, independent of its weight or gestational age when :

- * The baby regulates temperature in the kangaroo position.
- * The baby has finished treatment if he/she had one.
- * The baby has had a successful in-hospital “kangaroo” adaptation process.

Discharge Guidelines for “Kangaroo” Newborns with BPD

Basic Discharge Guidelines for Kangaroo Newborns

- * Adequate techniques of breast-feeding and milk extraction.
- * Acceptance by and education of the mother in the kangaroo method.
- * Family and social support.
- * Correct coordination of suckling-swallowing-breathing.
- * Adequate weight-gain in incubator.
- * Family commitment to attend follow up sessions.

Training in O₂ Handling



CANULAS NASALES Y HUMEDIFICADOR



- * Precautions in the handling of the portable O₂ tanks.
- * Precautions in the handling of the pressure-gauge and humidifier.
- * Proper care and handling of the cannula



Warning signs

- * **Agitation**
- * **Color**
- * **Drowsiness**
- * **Respiratory distress**
- * **Irritability**
- * **Loss of appetite**



Proper Care of “Kangaroo” Infants with BPD

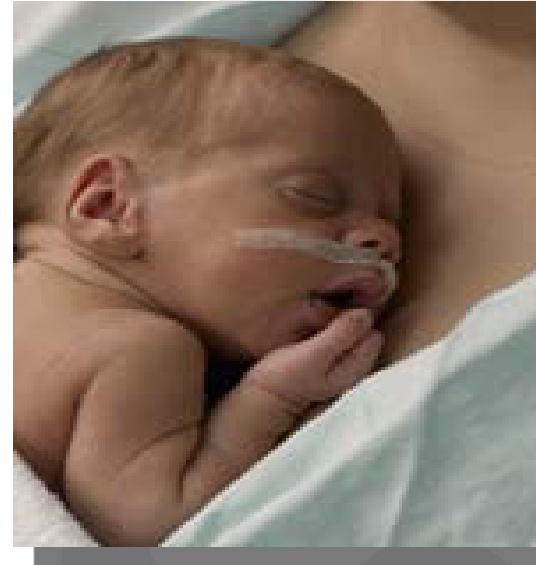
Kangaroo Position

Kangaroo Nutrition

Basic Goal: Pulmonary growth.

Feeding Protocol:

- *Breast-feeding whenever possible.
- *Complementation with powdered milk for premature newborns



Proper Care of “Kangaroo” Infants with BPD

Ambulatory Follow-up

Daily Control:

- * Monitoring of weight and O₂/saturation (rest, suckling, postprandial) until obtaining suitable growth (15g/kg/day).
- * Follow up: Weekly oxymetry check-up to 40 wks gestational age and then, Oxymetry check-up once a week, until oxygen-therapy ends.



Proper Care of “Kangaroo” Infants with BPD

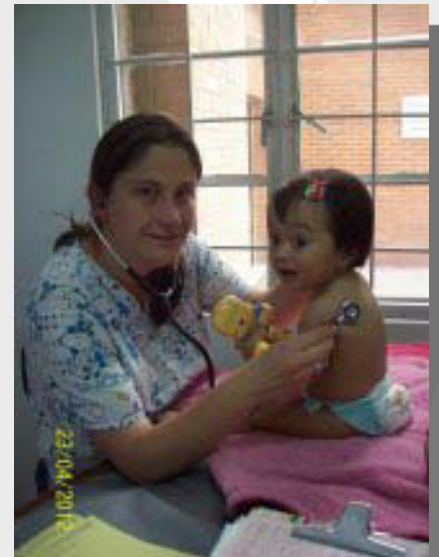
Ambulatory Follow-up (II)

Systematic Exams:

- * Ophthalmologic Exam after 6 weeks of birth.
- * Cranial ultrasound: for all newborns (in or out of hospital).
- * Audiometry : > 40 weeks of gestational age
- * Optometry evaluation : after 3 months of chronological age

Routine follow-up of high risk newborns:

- * From term to 1 year of corrected age .
- * Neurological and psychomotor development test at 3, 6, 9 and 12 months of corrected age.
- * Vaccines (DPTPolio Hib HepB MMR BCG).





Objective

To evaluate clinical course and prognosis at one year of corrected age of a cohort of 4,247 preterm infants oxygen-dependent, cared for in our ambulatory KMC program between 2002 and 2012.



Patients and design

Prospective cohort of 4,247 preterm infants oxygen-dependent (OD), discharged home in kangaroo position (KP), with periodical follow-up until 12 months of corrected age to determine survival, growth, development and morbidity.

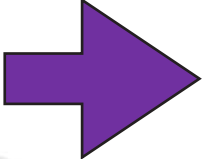


Intervention

- * Continuous KP (skin-to-skin contact 24 hours)
- * Exclusive breastfeeding whenever possible
- * Early discharge in KP with close monitoring and follow-up (dynamic oxymetry each week up to weaning)



Results

- * 12.564 eligible infants (≤ 37 weeks of gestational age or weight $\leq 2.000\text{g}$ at birth)
- * 4.247 were discharged home with supplementary use of oxygen and hence entered our study cohort. 
- * Cohort patient data
 - Weight at birth: 11,7% $< 1.000\text{g}$.
 - 41,9% $< 1.500\text{g}$.
 - 24,5% $> 2.000\text{g}$.

Results

- * Gestational age at birth
 - 30,7% < 30 wks. of GA
 - 22,3% < 32 wks. of GA
 - 4,2% > 37 wks. of GA

- * Post-natal age at entry
 - 1-15 days for 26,6%,
 - 15-30 days for 30,2%
 - and more than 1 month for 43,2%

Results

- * 65,7% were NICU graduates
- * 86,1% of them have been ventilated
- * 14,4% had intra ventricular hemorrhage.
- * 15,0% had history of nosocomial infection at entry.



Results

- * Mortality in the cohort was 1,7% up to one year. 1,3% of deaths occurred between discharge and 3 months.
- * 32,4% of infants were readmitted at least once.
- * Main causes of readmission:
 - Before 40 weeks GA were anemia (40,7%)
 - Before 3 months was acute respiratory infection (70,6%).

Results

- * Oxygen was discontinued at 4155 g of weight.
- * Received exclusive breastfeeding
42,9% up to term,
24,7% up to three months,
14,0% up to 6 months.
- * Average weight, length and head circumference, were
2874g, 46,5cm, 34.6cm at term and,
8587g, 71,5 and 45,6 cm at one year of corrected age



Results

- * Retinopathy was detected in 9,1%,
- * Blindness in 0,2%.
- * Mild auditive impairment 2,7% and severe 0,7%.
- * Diagnosis of cerebral palsy at one year was 3,9%.

Conclusions

- * Our experience shows that weight, more than age is the main indicator to discontinue oxygen.
- * Weaning in our cohort peaked at 3431g.
- * There is an unacceptable rate of OD in infants > 32 weeks GA, which could be explained by inadequate ventilation practices in NICU, poor oxygen supply and others factors to be explored in further prospective studies.

