

KMC AND BREASTFEEDING THE PREMATURE INFANT: EXPERIENCE AND RESULTS AT ONE YEAR OF CORRECTED AGE IN A COHORT OF 19071 INFANTS DISCHARGED HOME IN KANGAROO POSITION (2001-2014)

Adriana Montealegre¹, Nathalie Charpak¹, Sylvia Fernández²

On behalf of the kangaroo Foundation team

¹*Fundación Canguro.*

² Programa Madre Canguro - Hospital Universitario San José
Bogotá, Colombia.

fundacion.canguro@gmail.com.



- **Background:** Breastfeeding for premature infants is a controversial and very important issue, particularly in developing countries. Promotion of breastfeeding is part of the KMC intervention. This research is about monitoring this feeding policy.
- **Objective:** To evaluate rate of breastfeeding and growth results at one year of corrected age in a cohort of 19071 preterm and/or low birth weight LBW infants cared in our ambulatory KMC program between 2001 and 2014.
- **Method:** Prospective cohort of 19071 LBW infants discharged home in kangaroo position (KP) with periodical follow-up until 12 months of corrected age.



KMC intervention:

- 1) Continuous KP (skin-to-skin contact 24 hours)
- 2) Exclusive breastfeeding whenever possible and
- 3) Early discharge in KP with close monitoring and follow-up

Breastfeeding intervention:

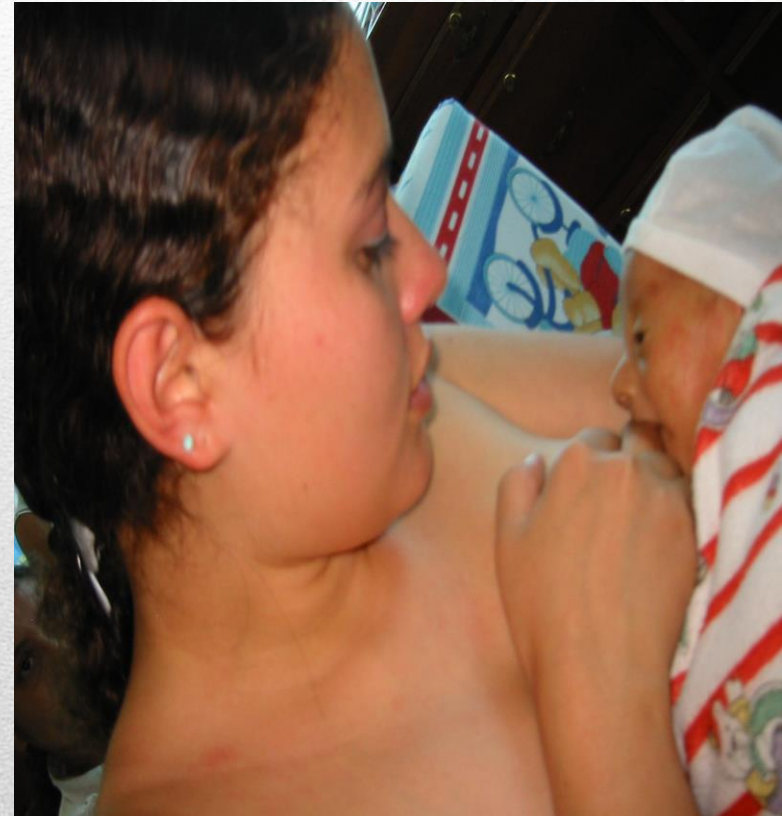
- The kangaroo nutrition strategy is designed for babies in the steady growth period, which is divided in 2 during KMC: in the hospital, and at home in KP during the follow up. Breastfeeding is the main nutritional source for the baby. The growth objective is a weight gain at least as significant as that of the intrauterine growth. When this goal is not attained, the first option should be using hind milk from the same mother to provide supplementary caloric intake before considering supplementation. Only when hind milk has failed, breastfeeding supplementation or fortification will be considered apart from a deep psychological support.

Intervention



Goals of intervention

- ✓ Obtain adequate growth and short term nutrient retention, which allow the preterm infant to come close to the intra uterine growth charts and to the fetal composition of reference.
- ✓ Decrease neonatal morbidity by improving food tolerance; reduce the incidence of necrotizing enterocolitis (NEC) and minimize nosocomial infection.
- ✓ Achieve a nutrition that contributes to optimal short and long term neurological development.
- ✓ Reduce atopy and allergy index.
- ✓ Decrease the potential risk of hypertension, cardiovascular disease and hypercholesterolemia in adulthood.



What do we have?

An immature newborn not tolerating any enteral food and probably suffering and feeling alone

A stressed mother feeling alone and unable to produce milk just preoccupied for her baby

What do we all need as health professionals in a neonatal unit?

A newborn maturing and growing well (including his brain) in a neutral environment, learning how to suck and swallow and breath in coordination with access to the more tolerable food for his immature digestive function: the milk of his own mother

A mother occupied and learning how to carry her baby, how to offer him the nipple for non nutritive suction, how to express her milk , how to do the gavage and finally how to breastfeed him



Results

- 19071 eligible infants (≤ 37 weeks of gestational age or weight ≤ 2500 at birth) were admitted to the ambulatory KMC program. 749 infants (4%) of them were less than 1000g of birth weight, 2663(13.3%) between 1001 and 1500 g and 6156 (32.3%) between 1501-2000g. The other 50% were between 2000-2500g.
- 2174 (11.4%) infants were < 30 weeks. 2535(13.3%) between 30-32 weeks, 5122 (26.9%) between 33-34 weeks, 6290 (33%) between 35 - 36, and 2931(15.5%) > 37 weeks.
- In the cohort 57.5% Infants reached 40 weeks gestational age with exclusive breastfeeding and 40% with mixed feeding. 77% of the less than 1000g of weight infants had mixed feeding and 15% exclusive breast-feeding.
- At three months, 34.1% infants were still exclusively breastfed, 49.6% with mixed feeding and 16.3% with exclusive artificial feeding.



- Anthropometric mean data at 40 weeks were: weight 2920 g (± 490), height 47 cm (± 2) and 44.6 cm (± 1.7) for head circumference. At one year the mean weight was 8664 g, (± 1000) height 72 cm (± 3) and head circumference 46 cm (± 2).
- The overall mortality was 0.8% from discharge up to one year of corrected age.

Results

CHARACTERISTICS AT BIRTH		
	Stratum	%
Weight (g)	<1000	4.1
	1001-1200	4.5
	1201-1500	10.1
	1501-1800	16.3
	1801-2000	16.8
	>2000	48.1
	Gestational age (weeks)	<30
31-32		13.7
33-34		27.4
35-36		32.3
>37		14.7
Lubchenco	PTAEG	74.8
	PTPEG	10
	ATPEG	15.2

ANTHROPOMETRIC DATA DURING THE YEAR OF FOLLOW UP ACCORDING TO IUGR AT BIRTH				
Age	IUGR	Weight (g)	Height (cm)	HC (cm)
40 weeks	No	2997	47.2	34.8
	Yes	2619	45.9	33.9
3 months	No	5574	57.5	40.1
	Yes	5252	56.4	39.5
6 months	No	7044	63.8	42.9
	Yes	6604	62.4	42.2
9 months	No	7889	68.1	44.9
	Yes	7488	66.8	44.4
12 months	No	8773	72.1	45.8
	Yes	8311	70.7	45.1

Results



DISTRIBUTION OF THE COHORT ACCORDING TO FEEDING PATTERN DURING ONE YEAR OF FOLLOW UP

Age	Exclusive BF %	BF+ formula %	Exclusive formula %
40 weeks	56.9	40.5	2.6
3 months	34.1	48.5	17.5
6 months	17.9	33.5	48.5
9 months	10.4	25.2	64.3
12 months	5.7	15.7	78.6

ANTHROPOMETRIC DATA ACCORDING TO FEEDING PATTERNS DURING ONE YEAR OF FOLLOW UP

Age	Feeding patterns	Weight (g)	Height (cm)	HC (cm)
40 weeks	Exc BF	2928	47.1	34.6
	BF+formula	2860	46.7	34.6
	Exc Formula	3145	47.6	34.9
3 months	Exc BF	5519	57.2	39.9
	BF+formula	5486	57.2	40
	Exc Formula	5440	57.4	39.9
6 months	Exc BF	6927	63.1	42.6
	BF+formula	6939	63.4	42.8
	Exc Formula	6924	63.5	42.8
9 months	Exc BF	7741	67.5	44.6
	BF+formula	7738	67.7	44.6
	Exc Formula	7799	67.8	44.9
12 months	Exc BF	8558	71.5	45.6
	BF+formula	8516	71.4	45.5
	Exc Formula	8688	71.8	45.7

Results





- In premature babies as in term infant, there is evidence showing that KMC increase the number of mothers who breastfeed their infants and the duration of breastfeeding.
- This is explained by different mechanisms including biological effects of the skin to skin contact, as well as changes in the emotional behavior of mothers, and shortening of separation between mother and baby.

Conclusion