APPLYING INTERGROWTH 21ST IN A PORTUGUESE MATERNITY HOSPITAL

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BACKGROUND AND AIMS

- Birth weight is important in neonatal morbidity and mortality.¹
- Newborns who are small or large for gestational age present a greater risk in neonatal outcomes and increased risk of chronic disease in adults.²⁻⁵

Small for Gestational Age	Large for Gestational Age
Neonatal Asphyxia	Traumatic Delivery
Meconium Aspiration Syndrome	Hyperbilirubinemia
Bronchopulmonary Dysplasia	Neonatal Asphyxia
Neurodevelopmental Disorders	Neonatal Death
Hypoglycaemia, Polycythemia	
Metabolic Syndrome, Arterial Hypertension, Dyslipidemia, Coronary Disease, Type 2 Diabetes <i>Mellitus</i>	

Objective

- Compare **Fenton & Kim 2013** and **Intergrowth 21st** growth charts in the diagnosis of SGA and LGA in term and preterm newborns.

METHODS

- **Descriptive** and **retrospective** study
- **Data:** birth notification of the years 2006 to 2015; national database of very low birth weight infants of the years 2010 to 2015.
- **Inclusion Criteria:** maternal age between 18 and 35 years, absence of chronic maternal pathology and adequate pregnancy surveillance.
- **Exclusion Criteria:** maternal obesity, tobacco, alcohol or drugs usage, multiple pregnancy, high risk pregnancy, assisted reproductive treatments, foetal growth restriction, foetal malformations, stillbirths and deaths.
- **Definitions:**
 - ✓ Small for gestational age (SGA) - birth weight below the 10th percentile;
 - ✓ Adequate for gestational age (AGA) - birth weight between the 10th and 90th percentile;
 - ✓ Large for gestational age (LGA): birth weight above the 90th percentile;
 - ✓ Term newborns: gestational age of 37 weeks or more (259 days);
 - ✓ Preterm newborns: gestational age less than 37 weeks (258 days).
- **Statistical analyzes:** Software: IBM®SPSS® Statistics v.22.0®

RESULTS

TERM NEWBORNS

	Gestational Age	Birth Weight
Median	39s	3 250g
Min-Max	37s-42s	1 240g-5 150g

13 199 (94%)
term

14 056 Newborns

857 (6%)
preterm

PRETERM NEWBORNS

	Gestational Age	Birth Weight
Median	35s	2 315g
Min-Max	24s-36s	430g-3 905g

TERM NEWBORNS WITH GESTATIONAL AGE IN WEEKS (N= 12 081)

		Fenton & Kim 2013					
		SGA		AGA		LGA	
		n	%	n	%	n	%
Intergrowth 21 st	SGA	792	47.2	0	0.0	0	0.0
	AGA	887	52.8	9 223	90.8	0	0.0
	LGA	0	0.0	932	9.2	247	100.0
Total		1 679	100.0	10 155	100.0	247	100.0

52.8% of SGA by Fenton & Kim 2013 were AGA by Intergrowth 21st, and 9.2% of AGA by Fenton & Kim 2013 were LGA by Intergrowth 21st.

PRETERM NEWBORNS WITH GESTATIONAL AGE IN WEEKS (N=617)

		Fenton & Kim 2013					
		SGA		AGA		LGA	
		n	%	n	%	n	%
Intergrowth 21 st	SGA	33	62.3	0	0.0	0	0.0
	AGA	20	37.7	496	94.1	0	0.0
	LGA	0	0.0	31	5.9	37	100.0
Total		53	100.0	527	100.0	37	100.0

37.7% of SGA by Fenton & Kim 2013 were AGA by Intergrowth 21st, and 5.9% of AGA by Fenton & Kim 2013 were LGA by Intergrowth 21st.

TERM NEWBORNS WITH GESTATIONAL AGE IN DAYS (N=1 118)

		Fenton & Kim 2013					
		SGA		AGA		LGA	
		n	%	n	%	n	%
Intergrowth 21 st	SGA	62	42.2	0	0.0	0	0.0
	AGA	85	57.8	864	90.8	0	0.0
	LGA	0	0.0	88	9.2	19	100.0
Total		147	100.0	952	100.0	19	100.0

57.8% of SGA by Fenton & Kim 2013 were AGA by Intergrowth 21st, and 9.2% of AGA by Fenton & Kim 2013 were LGA by Intergrowth 21st.

PRETERM NEWBORNS WITH GESTATIONAL AGE IN DAYS (N=240)

		Fenton & Kim 2013					
		SGA		AGA		LGA	
		n	%	n	%	n	%
Intergrowth 21 st	SGA	49	90.7	14	7.9	0	0.0
	AGA	5	9.3	162	91.5	2	22.2
	LGA	0	0.0	1	0.6	7	77.8
Total		54	100.0	177	100.0	9	100.0

9.3% of SGA by Fenton & Kim 2013 were AGA by Intergrowth 21st, and 0.6% of AGA by Fenton & Kim 2013 were LGA by Intergrowth 21st.

However, 7.9% of AGA using Fenton & Kim 2013 were SGA using Intergrowth 21st and 22% of LGA were AGA, all with gestation age < 231 days.

CONCLUSION

The use of Intergrowth 21st in this study resulted in a lower number of term newborns being classified as small for gestational age. However, this difference in classification was not apparent in preterm infants with gestational age of 231 days or less (less than 33 weeks).

This findings would influence their neonatal approach and risk of chronic disease as adults. Consequently, the use of more suitable growth charts in birth weight evaluation would lead to more appropriate attitudes for each newborn.