

“Does my baby look big in this?” Scan accuracy in suspected macrosomia.



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Introduction

Big babies are at increased risk of difficult births¹. Despite uncertainty over the baby’s size until birth, large for gestational age (LGA) babies are at risk of intervention even though neither local nor national guidelines^{2,3} recommend induction of labour (IoL) or elective caesarean (ELCS) in non-diabetic women with suspected LGA babies.

Our aim was to investigate the accuracy of estimated fetal weight (EFW) at the final ultrasound scan before birth in suspected LGA babies as well as the management of suspected LGA babies at North Middlesex University Hospital.

Design and Methods

This was a retrospective study comparing suspected LGA to appropriate for gestational age (AGA) babies at a North London DGH. The LGA dataset included all women presenting to the Maternity Day Unit during June-August 2020 with customised EFW>90th centile or AC>95th centile at >34 weeks’ gestation whose babies had EFW>90th centile at final scan before birth (n=91). The AGA dataset included all babies born in 2020 with EFW obtained within four weeks of birth; and fetal size, growth and liquor deemed normal at final scan (n=414).

Inclusion criteria were singleton pregnancies, no known abnormalities, and an alive neonate born at our unit. We calculated actual percentage error in scan EFW (positive or negative) using birthweight and a growth-adjusted projection formula from the Perinatal Institute. We also collected pregnancy and birth outcomes including mode of birth.

Using STATA-12 we compared variables in the two datasets using t-tests, chi-squared tests and Wilcoxon rank-sum tests.

Results

The datasets did not differ significantly regarding gestation at final scan, scan-to-birth interval, maternal age or BMI. Categorisation of ethnicity was different hence not comparable. 20.9% of the LGA group had GDM.

Accuracy of ultrasound EFW

- Birthweights were significantly higher among suspected LGAs compared to AGAs: mean 3.72kg compared to 3.27kg, p<0.001.
- Only 31/91 (34.1%) babies in the LGA group were LGA at birth (customised centile>90)
- 85.7% of EFWs were overestimated in the LGA group, compared to 21.2% of AGAs.
- EFW error was significantly higher in the LGA group: mean actual EFW error +9.6% compared to -5.4% in the AGA group, p<0.001.
- The proportion of observations within 10%, 15% and 20% EFW error margins were significantly lower in the LGA group compared to AGA group (p<0.001 for all 3 error margin groups), and were worse than the quoted research standard. Errors in the AGA group were similar to the quoted research standard (table 1).

Table 1: Proportion of scans that lie within 10, 15 and 20% absolute EFW error, comparing suspected LGA babies, AGA babies and a research standard⁴

	Within 10%	Within 15%	Within 20%
Suspected LGA babies, N=91	52.8%	75.8%	87.9%
AGA babies, N=414	71.0%	90.8%	96.9%
GAP-grow standard⁴, >=37 wks, N=1625	72.80%	89.60%	95.90%

Results

Mode of birth

Mode of birth was significantly different between the two groups, p<0.001, with more caesareans in the LGA group (Table 2). 50% of ELCS among suspected LGAs were due to LGA, with 8/14 (57%) being LGA at birth. 32/91 (35.2%) of the LGA group had IoL, with 14/91 (15.4% of LGA group) having IoL due to LGA alone.

Table 2: Mode of birth comparing LGA and AGA groups

	LGA babies (N=91)	AGA babies (N=414)	Hospital stats 2020-21
Unassisted vaginal births	35.2%	61.7%	52.5%
Elective caesarean rate	30.8%	15.0%	14.5%
Emergency CS rate	30.8%	17.7%	22.7%
Instrumental birth rate	3.3%	Unknown	10.2%
Unknown	0%	5.6%	0%

Conclusion and recommendations

- Most suspected LGA babies are normal size at birth.
- Ultrasound EFW error appears to be greater in suspected LGA compared to AGA babies, and the errors are greater than standards quoted by GAP-Grow.
- Women need counselling about uncertainty in baby size to enable informed birth choices.
- Further research should investigate reasons for increased scan error in suspected LGA babies and how to minimise it.
- Having a suspected LGA baby appears to affect mode of birth, though there may be confounding factors.

References:

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3. Green Top Guideline No. 42 Shoulder Dystocia. RCOG 2012

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With thanks to Suzanna Morton, and Viki and Andrew in medical records