

MEETING ABSTRACT

Open Access

# Late preterm infants' growth and body composition after discharge

Paola Roggero\*, Maria Lorella Gianni, Nadia Liotto, Pasqua Piemontese, Fabio Mosca

From XX National Congress of the Italian Society of Neonatology  
Rome, Italy. 9-11 October 2014

## Background

The proportion of late preterm births has markedly increased during the past two decades, accounting for 70% of preterm births [1]. There is evidence that monitoring not only the quantity but also the quality of growth, in terms of body composition changes, may play an important role in gaining further insight into the relationship between birth weight and time in utero on early growth pattern and future health [2]. To our knowledge, data regarding the early dynamic features of growth and body composition changes of late preterm infants are scarce [3-5]. The aim of this study was to compare growth and body composition of late preterm infants to that of very preterm and full term infants.

## Materials and methods

Observational longitudinal study. Forty-nine late preterm infants and 63 adequate for gestational age very preterm infants were included in the study. Forty healthy, full-term, breast-fed infants were enrolled as a reference group. Anthropometric parameters and body composition by an air displacement plethysmography system were assessed at term, at 1 and 3 months of corrected age in all groups.

## Results

Basal characteristics of the study population are shown in table 1.

**Table 1 Basal characteristics and anthropometric and body composition parameters at term and at 3 months of corrected age of the study population**

	Full term infants	Late preterm infants	Very preterm infants
Gestational age (wks)	38.8 ± 1.4	35.3 ± 0.75	29.1 ± 2.1
Birth Weight (g)	3074 ± 409	2496 ± 330	1202 ± 238
Birth length (cm)	49.3 ± 2	44.8 ± 1.7	37.2 ± 3.5
Birth head circumference (cm)	34.2 ± 1.17	31.6 ± 1.2	29.07 ± 2.1
Weight 40 wks (g)	3074 ± 409	3396** ± 390	3015 ± 403
Fat free mass 40 wks (g)	2794 ± 358	2837° ± 255	2459 ± 320
Fat mass 40 wks (g)	280 ± 106	559# ± 196	565 ± 168
Weight 3 mo (g)	5978 ± 722	6197° ± 589	5557 ± 669
Fat free mass 3 mo (g)	4345 ± 484	4500^ ± 390	4157 ± 461
Fat mass 3 mo (g)	1632 ± 355	1672^ ± 348	1405 ± 362

\*late preterm vs full term  $p = 0.001$

° late preterm vs very preterm  $p < 0.001$

# late preterm vs full term  $p < 0.001$

^ late preterm vs very preterm  $p = 0.005$

NICU, Department of Clinical Sciences and Community Health, Fondazione IRCCS Cà Granda Ospedale Maggiore Policlinico, Università degli Studi di Milano, Milano, Italy



© 2014 Roggero et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated.

Late preterm infants showed higher weight at term than full term and very preterm infants (table 1). Length (49.5 vs 47.5 cm;  $p < 0.0001$ ) and head circumference (35.2 vs 34.4 cm;  $p = 0.004$ ) values were also bigger in late preterm infants at term than in very preterm infants. At 3 months of corrected age no significant difference in anthropometric parameters was found between late preterm and full term infants, whereas weight of late preterm infants was higher than that of very preterm infants.

With regard to body composition, fat mass at term of late preterm infants was similar to that of very preterm but significantly higher than that of full term. Fat free mass at term was not different between late preterm and full term infants while very preterm infants showed the lowest value.

At 3 months of corrected age, late preterm infants reached a similar body composition to full term infants, whereas very preterm infants still had the lowest values of weight, fat free mass and fat mass (table 1).

## Conclusions

The present findings demonstrate that late preterm infants have an altered body composition at term corrected age in terms of high adiposity. Potential metabolic implications of these results need to be investigated.

Published: 9 October 2014

## References

1. Dong Y, Yu JL: An overview of morbidity, mortality and long-term outcome of late preterm birth. *World J Pediatr* 2011, **7**:199-204.
2. Dulloo AG, Jacquet J, Seydoux J, Montani JP: The thrifty "catch-up fat" phenotype: its impact on insulin sensitivity during growth trajectories to obesity and metabolic syndrome. *Int J Obes (Lond)* 2006, **30**(Suppl 4): S23-35.
3. Santos IS, Matijasevich A, Domingues MR, Barros AJ, Victora CG, Barros FC: Late preterm birth is a risk factor for growth faltering in early childhood: a cohort study. *BMC Pediatr* 2009, **9**:71.
4. Olhager E, Törnqvist C: Body composition in late preterm infants in the first 10 days of life and at full term. *Acta Paediatr* 2014, **103**:737-743.
5. Gianni ML, Roggero P, Liotto N, Amato O, Piemontese P, Morniroli D, Bracco B, Mosca F: Postnatal catch-up after late preterm birth. *Pediatric Res* 2012, **72**:637-640.

doi:10.1186/1824-7288-40-S2-A27

Cite this article as: Roggero et al.: Late preterm infants' growth and body composition after discharge. *Italian Journal of Pediatrics* 2014 **40** (Suppl 2):A27.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at  
www.biomedcentral.com/submit

