

Pérdida de peso fisiológica en recién nacidos a término.

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Resumen y Comentario

Todos los recién nacidos experimentan pérdida de peso posnatal principalmente debido a la pérdida de agua extracelular; con el mínimo valor (nadir) ocurriendo alrededor los días 3 a 4 de vida.^{1 2} La Academia Estadounidense de Pediatría¹ recomienda que la pérdida de peso de los recién nacidos a término sanos debe no exceder del 7% de su peso corporal. En el Reino Unido, el Instituto Nacional de Las directrices de excelencia sanitaria y asistencial recomiendan un 10% como Pérdida de peso máxima aceptable en recién nacidos a término sanos.

Esta revisión de la literatura muestra que grandes estudios de cohortes han demostrado que los recién nacidos a término pierden con frecuencia > 10% de su peso corporal en ausencia de enfermedades orgánicas y que la incidencia de las complicaciones como la deshidratación hipernatremica son muy raras.

Flaherman et al informaron datos de todos los recién nacidos de ≥ 36 semanas de gestación en el norte de California de la línea hospitalaria Kaiser Permanente ocurrida entre 2009 y 2013. En su gran cohorte de 108 907 bebés (que fueron dados de alta en casa sanos) 30% de los bebés perdió > 10% de su peso corporal a las 72 horas. Esto fue predominantemente en lactantes nacidos por cesárea en comparación con parto vaginal bebés (25% vs 5%). Los autores lograron producir pérdida de peso nomogramas que se pueden utilizar para predecir y realizar un seguimiento fisiológico de pérdida de peso en recién nacidos a término según el modo de parto y el modo de alimentación (disponible en <http://www.newbornweight.org>).

Macdonald et al proporcionaron datos de 971 períodos consecutivos recién nacidos con peso corporal $\geq 2,5$ kg en un solo servicio de maternidad en Glasgow, Reino Unido. En su cohorte de lactantes sanos, el percentil 95 para la pérdida de peso fue del 11,8%, 11,5% y 8,4% para los lactantes que recibieron lactancia materna, alimentación mixta y alimentación con fórmula exclusiva, respectivamente. El percentil 97,5 para la pérdida de peso fue del 12,8% y 9,5% en lactantes exclusivamente amamantados y alimentados exclusivamente con fórmula infantiles.

Towards evidence-based medicine for paediatricians

Edited by Bob Phillips

Physiological weight loss in term newborn infants

SCENARIO

A 3-day-old full-term girl born by elective caesarean section (CS) and exclusively breast fed is noted to have lost 10% of her birth weight (BW). She is clinically well on examination and the midwife reports that the infant is breast feeding frequently with a good latch and suck. You wonder if this is an acceptable weight loss and what intervention, if any, is needed?

STRUCTURED CLINICAL QUESTION

What is an acceptable physiological weight loss in healthy full-term newborn infants in the immediate postnatal period?

SEARCH

A literature search was performed in Medline and EMBASE using key words 'weight loss' OR 'weight change' OR 'weight reduction' AND 'newborn' OR 'neonates' OR 'infants' between the years 2000 and 2020. Inclusion criteria used are term and 'near-term' infants (≥ 36 weeks, BW ≥ 2500 g), not needing admission to neonatal unit (healthy) in either hospital or community setting. Studies that included infants born at < 36 weeks or with a medical condition or needing admission to a neonatal unit were excluded.

OUTPUT

A total of 517 studies were initially identified in the literature search. These were independently screened by both the authors and based on the title and abstract 10 articles were identified for full review. Five most relevant studies meeting the criteria described above were selected to be included in the review (table 1). These were all large cohort studies (two each from the UK and the USA; one study from India) of healthy term infants in the immediate postnatal period.

SUMMARY

Commentary

All newborn infants experience weight loss postnatally mainly due to extracellular water loss; with the nadir occurring around days 3–4 of life.^{1,2} The American Academy of Paediatrics¹ recommends that weight loss for healthy term newborn infants should not exceed 7% of their BW. In the UK, the National Institute for Health and Care Excellence guidelines³ recommend 10% as the maximum acceptable weight loss in healthy term infants. This review of literature shows that large cohort studies have demonstrated that term newborn infants frequently lose $> 10\%$ of their BW in the absence of organic disease and the incidence of complications such as hypernatraemic dehydration is very rare.

Flaherman *et al*⁴ reported data from all newborn infants born at ≥ 36 weeks gestation in the Northern California Kaiser Permanente hospitals between 2009 and 2013. In their large cohort of 108 907 infants (who were discharged home healthy) 30% of infants had lost $> 10\%$ of their BW by 72 hours. This was predominantly in infants delivered by CS as compared with vaginally delivered babies (25% vs 5%). The authors were able to produce weight loss nomograms which can be used to predict and track physiological weight loss in term infants based on mode of delivery and mode of feeding (available at <http://www.newbornweight.org>).

Macdonald *et al*⁵ provided data from 971 consecutive term newborn infants with BW ≥ 2.5 kg in a single maternity service in Glasgow, UK. In their cohort of healthy infants the 95th centile for weight loss was 11.8%, 11.5% and 8.4% for infants receiving exclusive breast feeding, mixed feeding and exclusive formula feeding, respectively. The 97.5th centile for weight loss was 12.8% and 9.5% in exclusively breastfed and exclusively formula-fed infants.

Table 1 Summary of evidence

Citation	Study group	Study type	Outcome	Key results	Comments
Flaherman <i>et al</i> ⁴	108907 healthy exclusively breastfed infants, ≥ 36 weeks gestation, born in Northern California Kaiser Permanente hospitals in 2009–2013	Retrospective cohort study	Weight loss at 48 hours (vaginal birth) Weight loss at 72 hours (CS) compared with birth weight	5% of vaginally delivered infants lost >10% 25% of infants born by CS lost >10%	Weight loss nomograms were produced from this cohort (available at http://www.newbornweight.org). All infants remained well on exclusive breast feeding.
Macdonald <i>et al</i> ⁵	937 healthy newborns, ≥ 37 weeks with BW ≥ 2500 g in Glasgow, UK. 45% breast feeding, 13% mixed feeding and 42% formula feeding	Prospective cohort study		97.5th centile for maximal weight loss: breast fed 12.8%, formula fed 9.5%	Hypernatraemia (>150 mmol/L) in 80% of infants who lost >97.5th percentile. 97.5th percentile for regaining BW: breast fed: 21 days, formula fed: 16.7 days.
Wright <i>et al</i> ⁶	961 healthy term infants in Gateshead, UK. 51% breast feeding (remaining—not specified)	Prospective cohort study		3% of infants lost >10% of BW at 5 days of age. Only weighed on day 5 of life.	BW positively correlated with % of weight loss; lower the BW smaller the weight loss.
Joshi <i>et al</i> ⁷	250 healthy exclusively breastfed term infants Hospital in South India from December 2013 to March 2015	Prospective cohort study		8% infants lost <5% of BW; 79% lost 5%–10%; 13% lost >10%	Infants born to primipara and with inadequate breast feeding at more risk of losing >10% of BW.
DiTomasso <i>et al</i> ⁸	151 healthy, exclusively breastfed, term infants from a community hospital in the USA	Prospective, cohort study		Some infants lost >11% of BW (mean (SD) weight loss 9.2%(1.9%)) by day 4 and took up to 17 days of life to regain BW	7% weight loss appeared to be the driving force behind formula use with 13% of infants receiving mixed feeding by 14 days of life

BW, birth weight; CS, caesarean section.

All infants who lost >10% of their BW underwent a medical assessment including serum electrolyte measurement. Hypernatraemia (>145 mmol/L) occurred in 73% of breastfed infants who lost >11.2% of BW and in 100% of infants who lost >12.1% of BW. Significant hypernatremia (>150 mmol/L) only occurred when infants lost >12.1% of BW.

Similarly Wright *et al*⁶ also showed in their cohort of 961 full-term infants that 3% lost >10% of their BW and had no evidence of either organic disease or complications related to weight loss. In a single-centre cohort study from India⁷ 13% of full-term newborn infants lost >10% of their BW and infants born to primiparous mothers were at increased risk of losing more weight. In the study by DiTomasso *et al*⁸ infants born by CS and to mothers with less previous experience of breast feeding were at higher risk of losing >10% of BW.

This review highlights that babies born ≥ 36 weeks gestation can lose $\geq 10\%$ of their BW in the first week of life and yet remain healthy without any associated complications. Complications due to excessive weight loss may occur only when infants lose >12% of their BW (serum sodium >150 mmol/L in 80% of such babies).⁵ The time taken by term infants to regain their BW following the initial weight loss also varies with exclusively breastfed infants taking up to 3 weeks. Healthcare professionals should be aware of the risk factors associated with excessive weight loss (delivery by CS, exclusive breast feeding and primiparous mothers) to ensure appropriate support is provided to these at-risk infants.

Clinical bottom lines

- Healthy term infants can lose up to 12% of their birth weight in the immediate postnatal period without associated complications. (Grade B)
- Early weight loss nomograms can be helpful to track physiological postnatal weight loss in term infants. (Grade B)

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