

The Butterball™ Turkey Effect- Maternal IV Fluids and Infant Weight

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Purpose:

Health care providers typically use an infant's weight loss in the first days of life as a measurement of effective feeding. Additional feeding volumes are often recommended when the infant reaches weight loss of 7-10% of their birth weight. This study examined the relationship of the amount of maternal IV fluids given during labor and infant weight loss.

Methods:

The method was a retrospective review of medical records for 200 mothers and their infants who delivered at Mercy Hospital Fairfield, a Baby Friendly™ certified hospital in southwest Ohio, U.S.A. Inclusion criteria were singleton infants with gestational ages 37 to 42 weeks, and birth weights 2500 to 4000 grams. Exclusion conditions included maternal fever or diabetes; infant admission to Special Care Nursery or phototherapy; incomplete or inconsistent chart information; and others.

Chart 2: Mean of average mL per minute (in red) and mL per hour (in blue) by Maximum weight loss category < or ≥ 7%



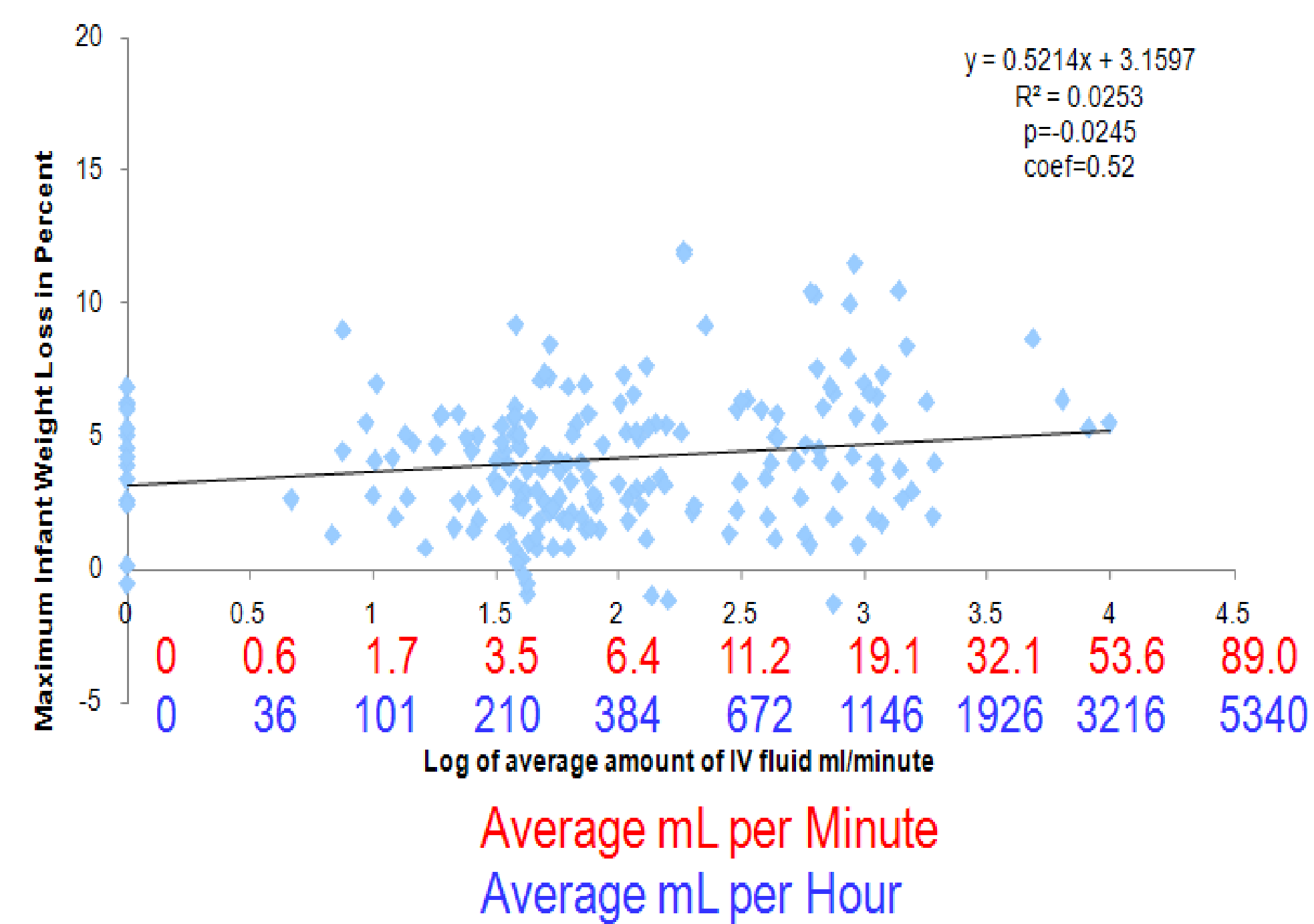
Conclusions:

Infant weight loss ≥ 7% and maximum weight loss during hospital admission positively correlated with average mL per minute. If a mother receives larger volumes of IV fluid during labor, health care providers may need to include this factor in their assessment of an infant's weight loss in the first days of life.

Chart 1: Infant Maximum Weight Loss

by Log Transformation Average mL per Minute (in black),
by Average mL per Minute (in red) and
by Average mL per Hour (in blue)

Maximum Infant Weight Loss by Average mL per Minute and Hour



Results:

The demographic characteristics indicated a multi-racial population, primarily Caucasian (75%), married (69.5%), with private insurance (63%). The births were vaginal (71.5%) or cesarean section (21.5% scheduled, 7% emergency). Pain management included epidurals (61.5%), spinal (23.5%), and none/local (15%). The percentage of infants with weight loss ≥ 7% was 11%. Infant maximum weight loss percent during the hospital stay (2-4 days) had a mean of 4.2%, std. dev. of 2.7% and a range of -1.4 to 18.5%.

Statistical Analyses:

Statistical analyses included Pearson correlations, univariate and multivariate ordinary linear regression analyses, and multivariate logistic regression analyses. Log transformations were calculated for average mL per minute which was not normally distributed.

Infant weight loss ≥ 7% positively correlated with average mL per minute ($r = 0.80$, $p = 0.0086$). In multivariate analysis after adjusting for infant gender and maternal Body Mass Index, infant weight loss ≥ 7% positively correlated with average mL per minute ($r = 0.76$, $p = 0.0116$). Infant maximum weight loss positively correlated with average mL per minute ($r = 0.52$, $p = 0.0245$, see Chart 1). In multivariate analysis after adjusting for infant gender and maternal Body Mass Index, infant maximum weight loss positively correlated with average mL per minute ($r = 0.62$, $p = 0.0029$).



Example for Infant Maximum Weight Loss ($r = 0.52$, $p = 0.0245$):

For every 1% increase in average mL per minute, the infant weight loss percent will increase by 0.0052. Assume a 5% infant weight loss and a change in average IV ml per minute from 10 to 15 (a 50% increase). Weight loss percent would increase 0.0052×50 (0.26) and predict a total infant weight loss of 5.26%.



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For Further Information:

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