A Multi-Center, Two-Arm, Single-Blind Randomized Trial of Two Different Intravenous Fluids During Labor (Poster).

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A Multi-Center, Two-Arm, Single-Blind Randomized Trial of Two Different Intravenous Fluids During Labor

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Abstract:

Objective: To determine if the intravenous use of a 5% glucose-containing intravenous solution decreases the rate of cesarean delivery in women presenting in active labor.

Methods: This was a multi-center, prospective, single-blinded, randomized controlled clinical trial designed to exclude the intrapartum use of intravenous fluids in the hospital labor room. Subjects were randomized into two study groups and received lactated Ringer’s fluid or 5% glucose with 0.45% saline (LR) as their maintenance intravenous fluid. The primary outcome was the cesarean birth rate. Secondary outcomes included labor characteristics, such as the duration of labor, number of hours of active labor, as well as maternal or neonatal complications. Logistic regression was used to adjust for recruitment site, maternal age, and randomization status. P-values were used for comparing groups for the primary and secondary outcomes.

Results: There were 352 women enrolled from 4 hospital sites. Demographic variables and admitting characteristics were similar among study groups. There was no significant difference in the cesarean delivery rate for the LR (n=153) and the glucose solution (n=152) groups. There were no differences in the primary or secondary outcomes for the study groups.

Conclusions: Does not change complication rates except marginally more cases of neonatal hypoglycemia and 5 minute Apgar scores <7, and marginally fewer postpartum hemorrhages.

Hypotheses:

- IV hydration during labor with a glucose-containing fluid will lead to more efficient uterine contractility and will lead to a reduction in cesarean delivery and improved labor characteristics in women presenting in active labor.

- There is no increase in maternal or neonatal complications if glucose is used in IV fluids in labor.

Materials and Methods:

- Multi-center (4 regional OB/GYN residency programs).
- Prospective randomized single-blind.
- Singleton in spontaneous labor with cervix <6 cm dilated.
- No glycolytic dysfunction condition, steroids, prior cesarean, induction.
- Randomized to maintenance IV fluid of either: Lactated Ringers (LR) or 5% glucose (D5LR) solution.
- Any need for units of IVF was LR
- Randomization stratified by site.
- Analyses - Risk Ratios (RR) and 95% CI Log-binomial regression models - Parametric and non-parametric tests - Data Safety Monitoring Committee

Background:

- Adequate caloric and fluid intake is important for muscle performance.
- The uterus is a muscle undergoing work during labor.
- Data suggest adding glucose to maintenance IV fluids in labor.
- May shorten labor duration in nulliparas.
- May reduce unexplained arterial acidaemia and hypercatabolism.

Results:

Primary Outcomes:

- No difference in cesarean delivery rate
  - DLSR-15%, and LR- 11.5%
  - RR (95% CI) of 1.32 (0.75, 2.28); P=0.243

- No difference in cesarean delivery rate after adjusting for ketonuria
  - RR (95% CI) of 1.37 (0.78, 2.34);

- No difference in labor onset to delivery time
  - Cox proportional hazards (95% CI of 1.00 (0.80, 1.26); P=0.99

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Conclusions:

- The addition of glucose to maintenance intrapartum IV fluids for women in spontaneous active labor <6h:
  - Does not reduce the cesarean delivery rate
  - Does not shorten labor
  - Does not lower oxytocin augmentation rate
  - Does not change complication rates except marginally more cases of neonatal hypoglycemia and 5 minute Apgar scores <7, and marginally fewer postpartum hemorrhages.

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