

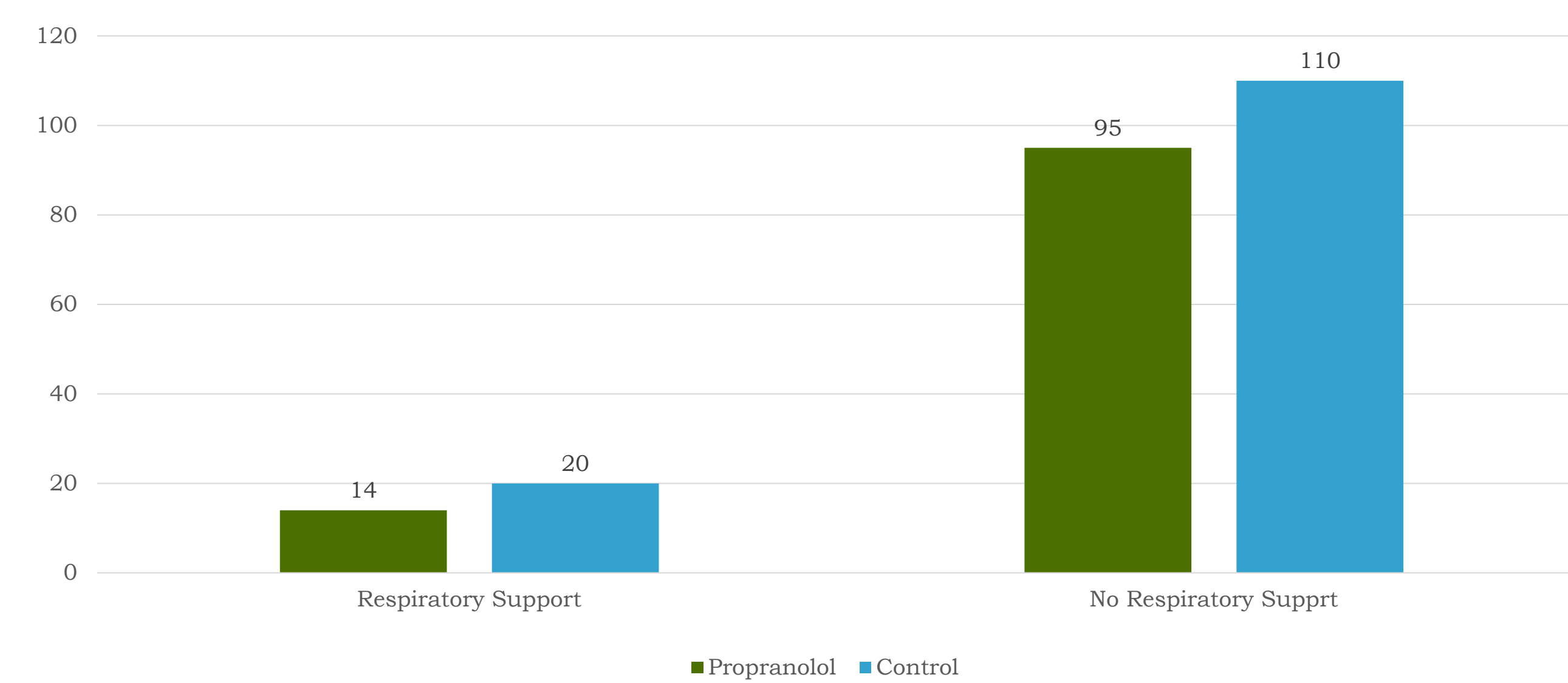
Neonatal outcomes when utilizing propranolol during induction of labor, a retrospective cohort study

Grinstead, A

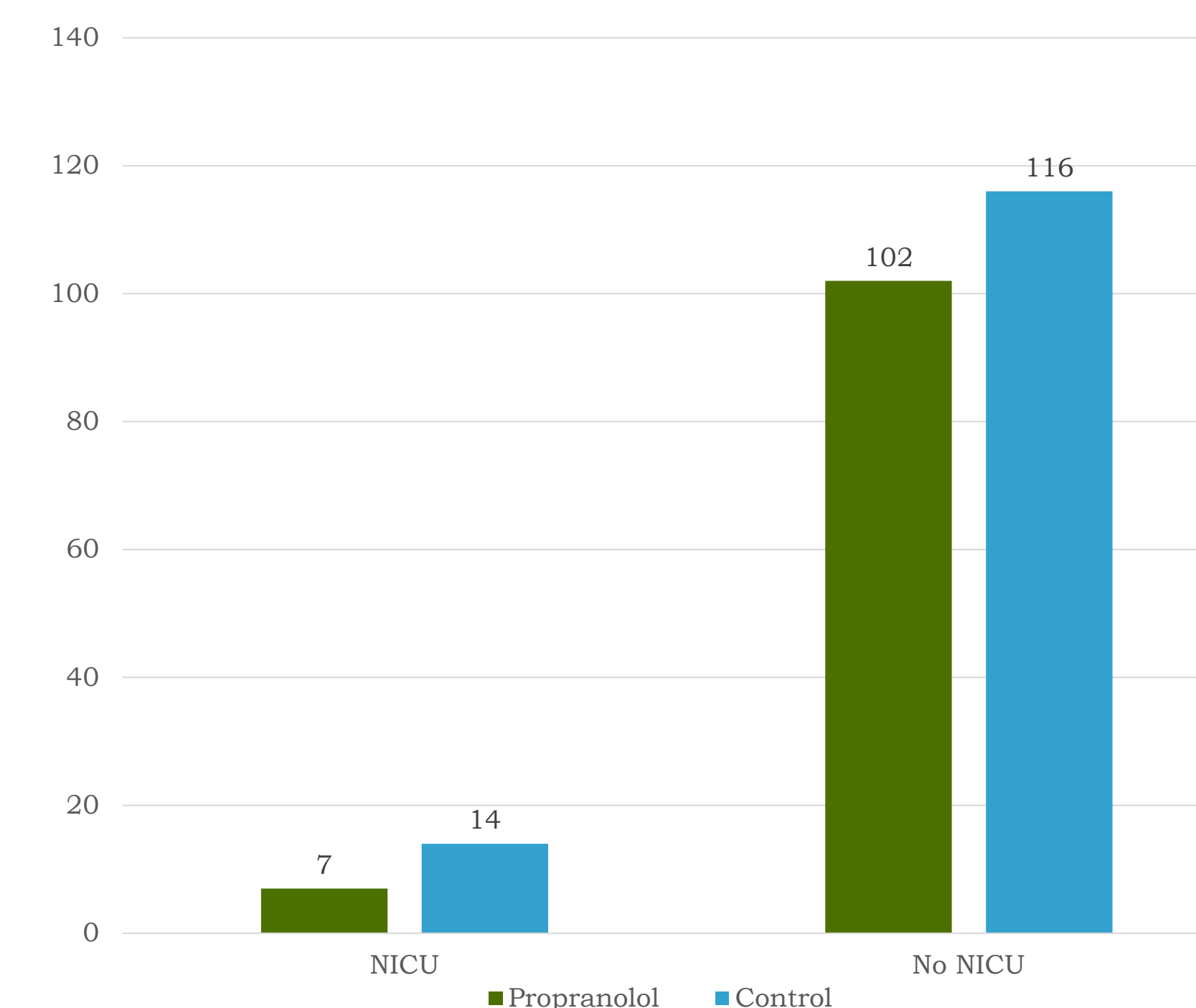
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Need for Respiratory Support

The graph below shows the need for respiratory support following delivery for the two different groups with a P value of 0.585. This showed no statistically significant difference between the two groups.

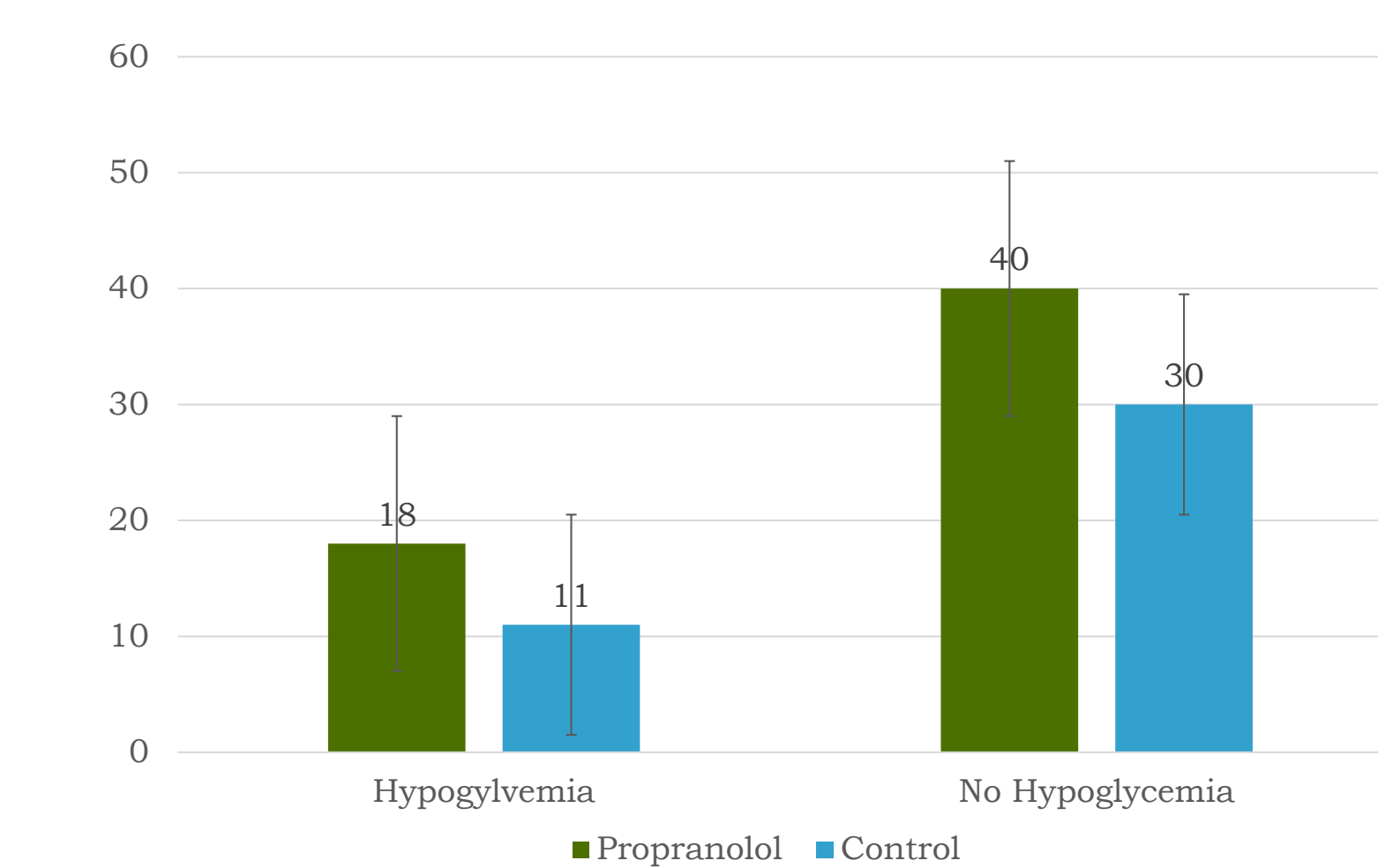


Admission to NICU



This shows the rates of neonatal intensive care unit admissions for the two groups with a P value of 0.261. There was no statistically significant difference between the two groups and rates of NICU admission.

Rates of Hypoglycemia



The graph shows rates of newborn hypoglycemia in the two groups with a P value of 0.663 with Chi Square Test of Independence analysis. While statistically insignificant, these results are in keeping with other studies that showed no increased risk to newborns.

Introduction

- Any induction of labor is known to carry an increased risk of adverse outcomes, thusly we seek to lessen those risks where able.
- Beta receptors in the uterus inhibit contractility when stimulated
- Oxytocin is the most potent endogenous uterotonic. The amount needed to elicit uterine contractions in:
 - Nonpregnant women: 100 mU/min
 - 20 weeks gestation: 16 mU/min
 - 32 weeks gestation: 2-3 mU/min
 - Term: 1 mU/min
- There can be large release of catecholamines during active phase of labor – may interfere with role of Oxytocin to stimulate contractions and labor
- Prostaglandins rise prior to contraction; hence using Indomethacin to stop preterm labor
- Estrogens up-regulate uterine myometrial gap junctions and increase other uterotonic receptors
- Rupture of membranes releases mainly prostaglandins that help advance parturition
- Many studies have examined the use of Propranolol during inductions of labor and showed decreased rates of adverse outcomes, shortened labor time, and no harm to mother or child
- The process of parturition is a complex one that requires many hormones and processes working toward the ultimate goal of the birth of the child.

Methods and materials

- We retrospectively evaluated term inductions that had received oxytocin infusion alone (control group) vs women who were given oxytocin + propranolol (Experimental group).
- Examine outcomes:
 - Neonatal outcomes: APGARs, NICU admissions, Respiratory support, Hypoglycemia
- Exclusion criteria:
 - Infants were excluded from the hypoglycemia measurement group according to the following criteria: if blood glucose was never checked, if the mother had diabetes, or if the sugar was checked after 24h of life.

Results

- Statistical analysis was performed utilizing Chi Square Analysis or ANOVA
- Infant need of respiratory support: Control: N = 130; 110 (84.6%) did not require respiratory support and 20 (15.4%) did require respiratory support. Experimental: N = 109; 95 (87.2%) did not require respiratory support and 14 (12.8%) did require respiratory support. P = 0.585
- Infant admission to neonatal intensive care unit (NICU): Control: N = 130; 116 (89.2%) did not require admission to the NICU and 14 (10.8%) did require NICU admission. Experimental: N = 109; 102 (93.6%) did not require admission to the NICU and 7 (6.4%) did require NICU admission. P = 0.261
- Presence of hypoglycemia (< 45 mg/dL) in infants: Control: N = 41; 30 (73.2%) did not have documented hypoglycemia and 11 (26.8%) did have documented hypoglycemia. Experimental: N = 58; 40 (69%) did not have documented hypoglycemia and 18 (31%) did have documented hypoglycemia. P = 0.663

Conclusion and Future Directions

- Findings coincided with prior studies overall but we were unable to demonstrate statistical significance due to various limitations.
 - Deficient power due to population size
 - Small amount of outcomes of relevance
 - Retrospective nature of the study
 - Provider variability
- Propranolol is of low risk and has high potential for benefit when combined with oxytocin for induction of labor.
- Our study was in keeping with others that showed no increased risk to the baby.
- Further prospective studies are needed to continue research into this area.

References

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