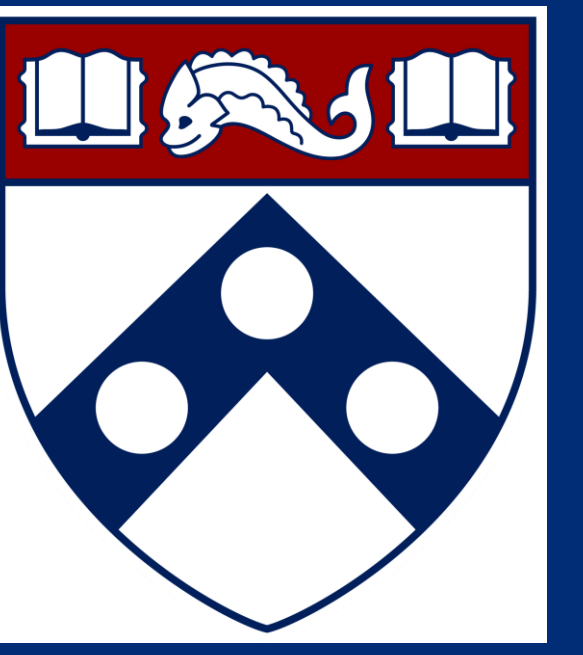


# Delayed Cord Clamping (DCC) in Infants of Diabetic Mothers

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## Background

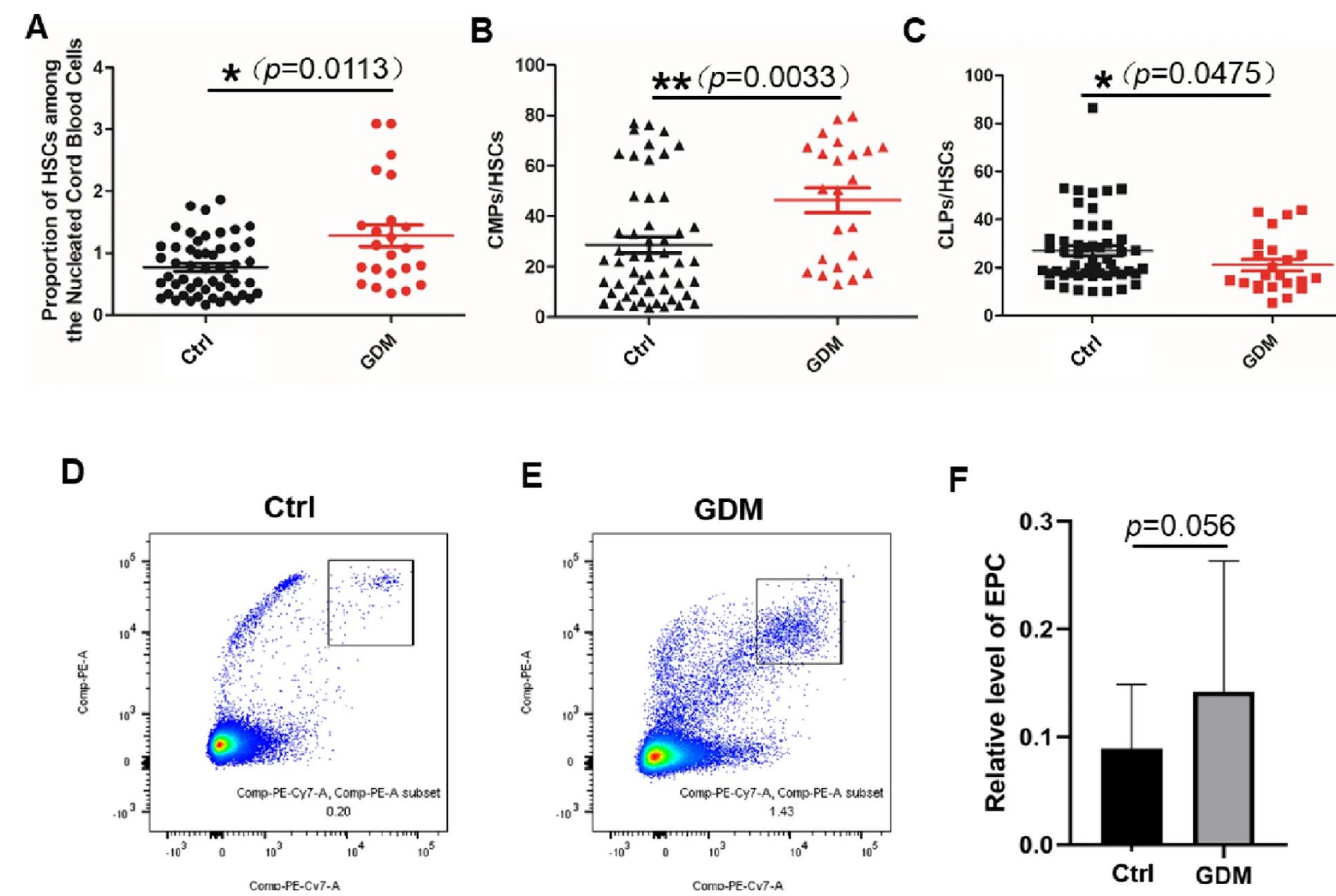
- DCC is recommended for more than 30 seconds in most term and preterm deliveries.
- Benefits of DCC:
  - Increased hemoglobin, reduced need for transfusion
  - Improved iron levels
  - Improved hematologic transition
  - Transfer of immunoglobulins and stem cells
- Risks include polycythemia and hyperbilirubinemia
- Infants of diabetic mothers may be at a higher risk of hyperbilirubinemia due to increased differentiation of hematopoietic stem cells to erythroid progenitor cells in cord blood.

## Research Question

- Compared to infants born to non-diabetic mothers (preterm or term), in infants of diabetic mothers, does DCC greater than thirty seconds affect the incidence of hyperbilirubinemia?

## Methods

- Literature review of PubMed, CINAHL, and Scopus
- Inclusion criteria:
  - Studies from the past 10 years
  - Term or preterm infants
  - Infants born to a mother with type 1, 2, or gestational diabetes
  - Outcomes after DCC >30 seconds
- Six studies met criteria:
  - Three randomized control trials
  - Two retrospective studies
  - One mixed-methods study



(Zhang et al., 2024)

## Results

- **3/6 showed an increase in hyperbilirubinemia with DCC:**
  - These studies did not compare these cohorts to a cohort of mothers without diabetes that had DCC performed.
  - One measured increase with the need for phototherapy in infants of diabetic mothers with DCC completed.
- **In U.S. studies: none showed increase in hyperbilirubinemia**
- Secondary outcomes:
  - Hypoglycemia decreased with DCC
  - Decreased NICU admission with DCC
  - Decrease in respiratory distress after DCC

## Discussion

- **Overall, benefits of DCC, particularly with preterm infants, outweigh the risks of hyperbilirubinemia.**
- Hyperbilirubinemia manageable with phototherapy per the guidelines:
  - No increase in exchange transfusions noted.
  - Management possible in the well-baby nursery

## Limitations

- Number of recent studies
- Few prospective randomized trials
- Sample size of studies
- Inconsistent cohort design
- Studies from other countries (different standards):
  - Length of DCC and/or cord milking
  - Hyperbilirubinemia diagnosis and treatment
  - Diagnosis and management of diabetes
- Inconsistent control of important variables:
  - Time to DCC
  - Maternal and infant blood type

## Future Directions

- More U.S. research needed aligned with 2022 AAP guidelines.
- Future studies to include different cohorts:
  - One cohort of infants of diabetic mothers with DCC and one cohort of infants of non-diabetic mothers
  - This would control for increased risk of hyperbilirubinemia in all infants with DCC
- Control of other variables that increase hyperbilirubinemia
- Future measures could include NICU readmission for bilirubin levels and phototherapy after discharge from a well-baby nursery.
- More bilirubin checks in this population moving forward could be beneficial.

## Sources



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