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Journal of Pediatrics & Neonatal Care

Short Communication

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Delayed cord clamping in dichorionic twin pregnancies: a retrospective cohort study

Abstract

Introduction: Delayed cord clamping (DCC) has demonstrated multiple neonatal benefits; however, its role in twin pregnancies remains controversial due to limited evidence and specific physiological considerations.

Objective To explore neonatal outcomes associated with DCC in dichorionic twin pregnancies ≥34 weeks, using a comparative cohort of singleton newborns as a reference group.

Methods: Retrospective comparative cohort study conducted in a tertiary care center. Dichorionic twins ≥34 weeks with immediate cord clamping (ICC) were compared with historical singleton controls managed with DCC. Descriptive and analytical statistics were performed, including relative risks (RR) with 95% confidence intervals (CI).

Results: Thirty-two twin newborns (16 pairs) and corresponding controls were analyzed. Neonatal anemia was less frequent in the DCC group (25% vs 56.25%; RR 0.65, 95% CI 0.45–0.94). No mortality was observed. Other outcomes showed no statistically significant differences.

Conclusions: DCC may be associated with a lower incidence of neonatal anemia. However, findings should be interpreted cautiously due to methodological limitations. Prospective studies are required.

Volume 16 Issue 1 - 2026

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Received: April 9, 2026 | **Published:** April 24, 2026

Introduction

The transition from fetal to neonatal life represents a critical physiological process characterized by rapid cardiopulmonary and hemodynamic change.[1–3] Adequate adaptation depends on the establishment of effective respiration and the shift from placental to pulmonary circulation.[4]

Umbilical cord management plays a key role in this transition by influencing neonatal blood volume, cardiac preload, and systemic perfusión.[5,6] Delayed cord clamping (DCC) facilitates placental transfusion, allowing approximately 80–100 mL of blood transfer within the first minutes of life.[7,8]

DCC has been associated with increased hemoglobin levels, improved iron stores, and better neurodevelopmental outcomes in both term and preterm infants.[7–10] In preterm neonates, it has also been linked to reduced rates of necrotizing enterocolitis and intraventricular hemorrhage.[9,11]

Current international guidelines, including those from the World Health Organization and the American College of Obstetricians and Gynecologists, recommend DCC in stable newborns.[12,13]

However, evidence regarding DCC in multiple pregnancies remains limited. Twin pregnancies account for approximately 3% of births and are associated with increased risk of prematurity and perinatal complications.[14] In dichorionic twins, there is no shared placental circulation, and therefore no true risk of pathological inter-twin transfusion as seen in monochorionic gestations.

Despite this, concerns remain regarding technical feasibility and safety. Available observational studies suggest that DCC may be feasible and beneficial in twin pregnancies.[15,16]

Methods

Study design

Retrospective comparative cohort study conducted at a tertiary care center.

Population

Newborns ≥34 weeks gestation were included.

i **Group 1 (ICC):** Dichorionic twin newborns managed with immediate cord clamping

ii **Group 2 (DCC):** Historical singleton newborns managed with delayed cord clamping

Outcomes

Primary outcome:

i Neonatal anemia

Secondary outcomes:

i Need for resuscitation

ii Neonatal morbidity

iii Mortality

Statistical analysis

Descriptive statistics were performed. Relative risks (RR) with 95% confidence intervals were calculated.

Given the observational design and differences between groups, no multivariable adjustment was performed; therefore, findings are considered exploratory.

Results

Population characteristics

A total of 32 twin newborns (16 pairs) and corresponding controls were included. Most neonates were term (43.75%). All twin pregnancies were delivered via cesarean section.

Neonatal interventions

Resuscitation interventions included oxygen supplementation, positive pressure ventilation, and CPAP, reflecting clinical complexity.

Maternal characteristics

Preeclampsia was the most frequent maternal condition.

Neonatal outcomes

Necrotizing enterocolitis and intrauterine growth restriction were the most frequent complications.

Neonatal anemia was less frequent in the DCC group compared to ICC (25% vs 56.25%; RR 0.65, 95% CI 0.45–0.94).

No deaths were recorded.

Tables 1–4 summarize maternal characteristics, neonatal features, interventions, and outcomes.

Table 1 Preeclampsia was the most common maternal condition. Hypothyroidism was more frequent in twin pregnancies

Variable	Twins (ICC)	Singletons (DCC)
Preeclampsia	5 (31.2%)	7 (43.7%)
Hypothyroidism	5 (31.2%)	1 (6.2%)
Obesity	3 (18.7%)	2 (12.5%)
Gestational diabetes	2 (12.5%)	1 (6.2%)

Table 2 All neonates were ≥34 weeks. Most were term. Cesarean delivery predominated in twins

Variable	Twins	Singletons
Gestational age	≥34 weeks	≥34 weeks
Term newborns	43.75%	43.75%

Table 3 Twins required more resuscitation interventions, including oxygen and ventilation support

Intervention	Twins	Singletons
Oxygen	11	5
PPV	11	2
CPAP	7	1
Oxygen hood	4	2

Table 4 Neonatal anemia was significantly lower in the DCC group (25% vs 56.25%)

Outcome	Twins (ICC)	Singletons (DCC)
NEC	10 (31.2%)	8 (25.0%)
IUGR	12 (37.5%)	5 (15.6%)
TTN	5 (15.6%)	1 (3.1%)
Pneumonia	2 (9.3%)	1 (3.1%)
Anemia	56.25%	25%

Discussion

This study explored the potential impact of delayed cord clamping in dichorionic twin pregnancies. The main finding was a lower incidence of neonatal anemia in the DCC group.

These findings are consistent with previous studies demonstrating improved hematologic outcomes associated with placental transfusion.[7,8]

In dichorionic twin pregnancies, the absence of shared circulation supports the physiological safety of DCC, distinguishing them from monochorionic twin.

However, these results must be interpreted cautiously due to important methodological limitations, particularly the comparison between inherently different populations (twins vs singletons), which introduces potential confounding.

Strengths

i Focus on an underrepresented population

ii Real-world clinical data

Limitations

i Retrospective design

ii Small sample size

iii Use of historical controls

iv Lack of adjustment for confounders

v Non-equivalent comparison groups

Future prospective studies comparing twins managed with DCC versus ICC are needed.

Conclusion

Delayed cord clamping may reduce neonatal anemia in dichorionic twin pregnancies. However, further prospective studies are required to confirm these findings.

Acknowledgements

None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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Citation: Hernandez LR, Cepeda MLG, Lorenzo IC. Delayed cord clamping in dichorionic twin pregnancies: a retrospective cohort study. *J Pediatr Neonatal Care*. 2026;16(1):55–57. DOI: 10.15406/jpnc.2026.16.00619

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Citation: Hernandez LR, Cepeda MLG, Lorenzo IC. Delayed cord clamping in dichorionic twin pregnancies: a retrospective cohort study. *J Pediatr Neonatal Care*. 2026;16(1):55–57. DOI: 10.15406/jpnc.2026.16.00619