

OBJECTIVE

- To evaluate whether longitudinal changes in cerebroplacental ratio (CPR) differ between pregnancies with normal and abnormal neonatal outcomes among late SGA fetuses

METHODS

Design

Retrospective cohort of late SGA fetuses with serial CPR measurements from a first and a last ultrasound.

Population — Late SGA

Abdominal circumference or estimated fetal weight in the 3rd–10th percentile after 32 weeks.

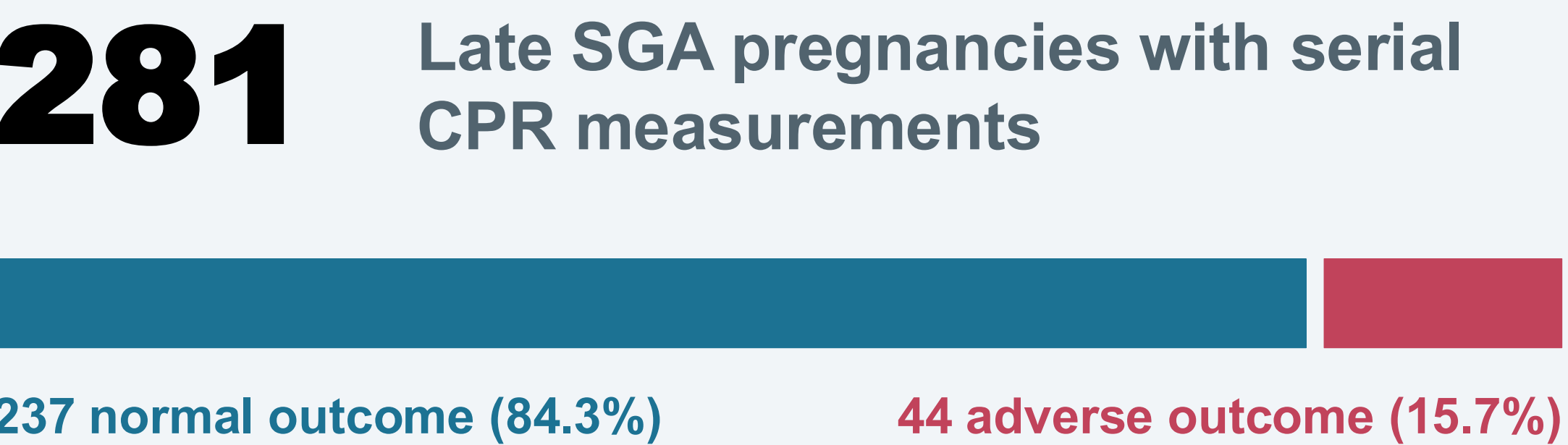
Grouping

Pregnancies were grouped by neonatal outcome: composite adverse outcome versus normal outcome.

Analysis

CPR at the first and last scan and the interval change were compared; longitudinal trends were assessed with repeated-measures analysis.

STUDY POPULATION



COMPOSITE ADVERSE OUTCOME

- Any one of the following:
- Arterial cord pH ≤ 7.05
 - 1-minute Apgar < 7
 - NICU admission > 24 hours
 - Respiratory distress syndrome
 - Intraventricular hemorrhage
 - Necrotizing enterocolitis
 - Neonatal death
- Timing of measurement
- Mean gestational age was 34.1 ± 1.6 weeks at the first scan and 36.8 ± 1.5 weeks at the last scan.

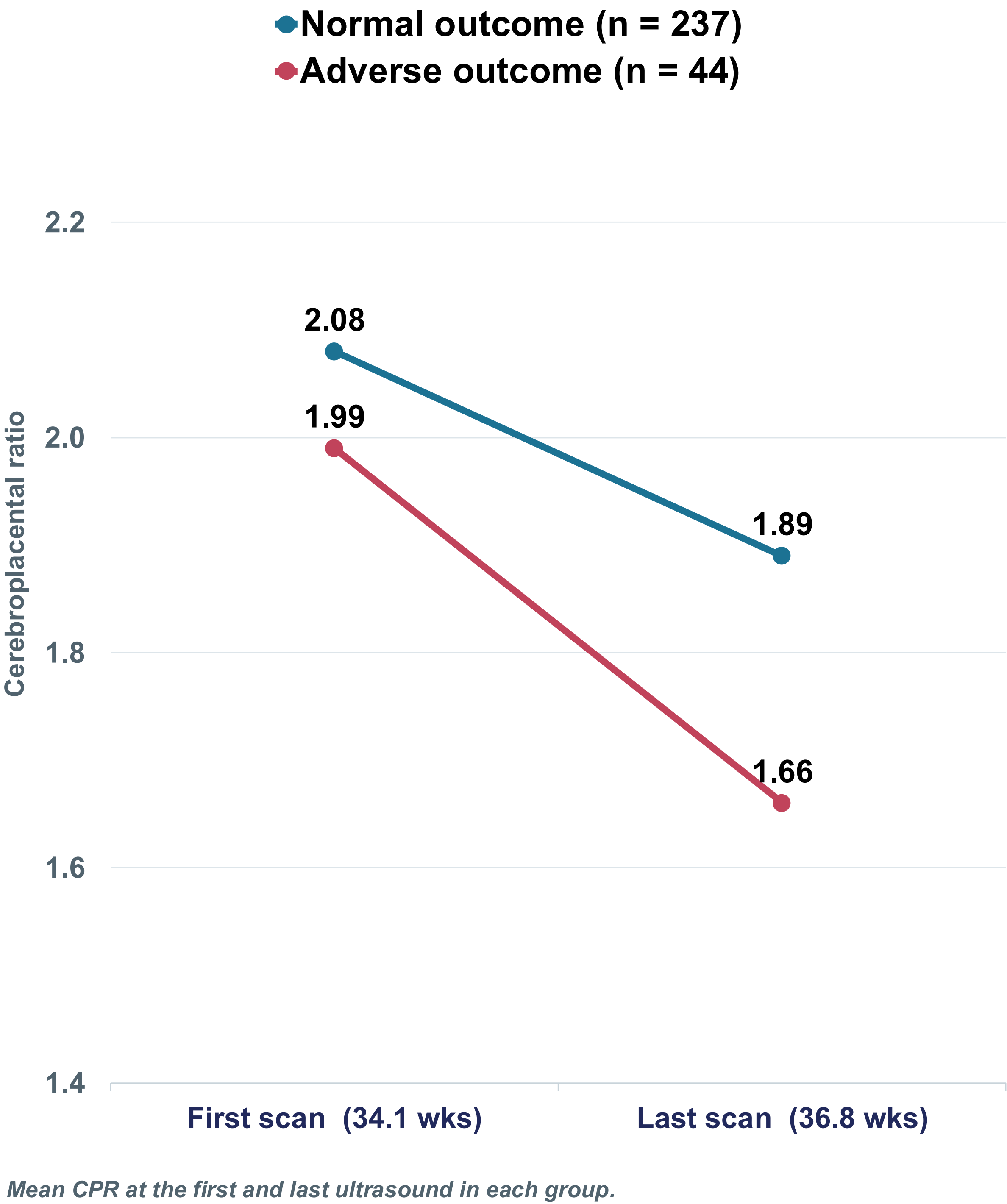
KEY COMPARISONS

CPR Measure	Normal (n = 237)	Adverse (n = 44)	p
First scan	2.08	1.99	0.37
Last scan	1.89	1.66	0.005
Mean change	-0.19	-0.33	0.096
Decline within group	p < 0.001	p < 0.001	—

Trajectories did not diverge

Repeated-measures analysis showed no significant group-by-time interaction (p = 0.13): the overall CPR trajectory did not differ significantly between groups.

CPR TRAJECTORY



CPR declined in both groups

The fall from first to last scan was significant in both groups (p < 0.001). The mean decline was larger with adverse outcome, but the difference between groups was not significant.

-0.33 adverse -0.19 normal

Mean change in CPR, p = 0.096

CONCLUSIONS

- CPR falls as pregnancy advances
- In late SGA pregnancies, CPR declined significantly from the first to the last scan in both outcome groups.
- Baseline CPR did not separate the groups
- CPR at the first scan was similar regardless of eventual neonatal outcome.
- The last measurement carries the signal
- CPR closer to delivery was lower with adverse outcome, so late assessment may be more informative for identifying fetuses at risk.

INTERPRETATION AND LIMITATIONS

- In pregnancies with late SGA, CPR declined over time in both groups
- Although baseline CPR was similar, the last measured CPR was lower in pregnancies with adverse neonatal outcome, suggesting that CPR assessment closer to delivery may be more informative for identifying fetuses at risk of adverse neonatal outcomes.