

Background

The role of antenatal corticosteroids (ACS) in preterm infants <34 weeks in reducing morbidity and mortality is well established, particularly when given within 7 days of delivery. The benefit derived when given between 34+0-36+6 weeks gestational age (GA), is less clear, with evidence to suggest potential for long-term neurocognitive implications. Our objectives were to first, to compare neonatal outcomes in late preterm infants (LPIs) delivered within 34+0-36+6 weeks, between those who received ACS and those who did not. Second, to evaluate the association of ACS with adverse respiratory outcome after adjustment for maternal and pregnancy characteristics.

Methods

This was a retrospective cohort study of women who delivered between 34+0 and 36+6 weeks. The cohort was divided into two; **group-1 received ACS ≤ 7 days before delivery and group-2 did not**. Primary outcome included need for neonatal respiratory support. Differences between groups were tested with parametric or non-parametric tests. Categorical variables were compared using the chi-square test. Univariate and multivariate logistic regressions were performed to determine the association of ACS with the primary outcomes after adjustment for maternal and pregnancy characteristics. P-values of <0.05 were considered statistically significant.

Results

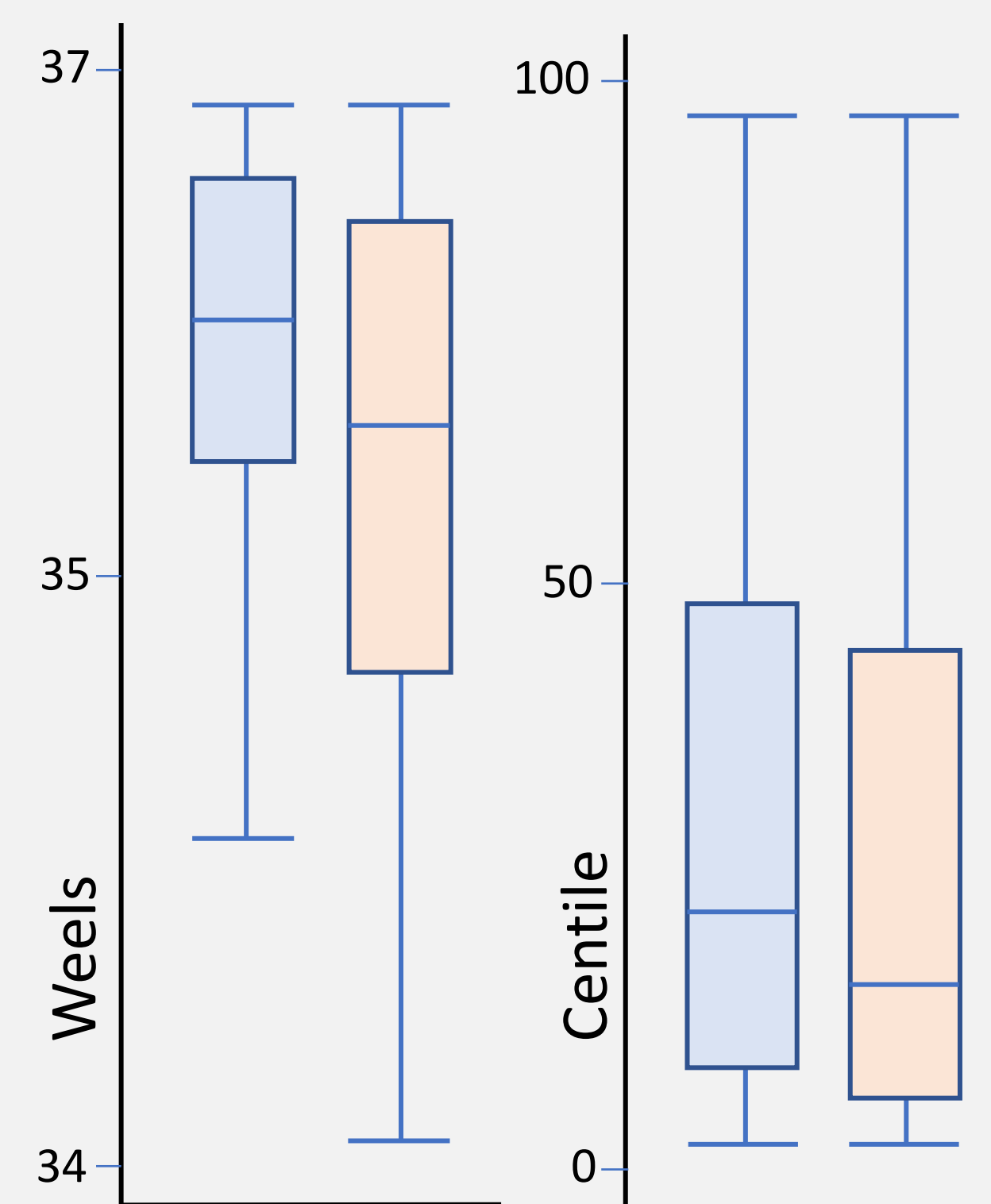


Figure 1: Gestation at delivery (A) and birthweight centile (B) for group 1 (orange) and group 2 (blue)

Characteristic	Group 1 (n=315)	Group 2 (n=293)
Multiple pregnancy, n (%)	118 (37.5)	54 (18.4)*
Caesarean delivery, n (%)	275 (87.3)	140 (47.8)*
Preeclampsia, n (%)	60 (19.0)	26 (8.9)*
GDM, n (%)	68 (21.6)	61 (20.9)

Table 1: Gestation at delivery (A) and birthweight centile (B) for group 1 (orange) and group 2 (blue). Statistically significant differences denoted by (*) p<0.05.

Univariate regression did not demonstrate a significant association between use of ACS and the primary outcomes. Adjustment for other pregnancy characteristics including twin pregnancy, GDM and preeclampsia did not impact upon the effect of ACS. Irrespective of ACS, the primary outcomes were strongly correlated to GA at delivery (OR 0.27(95% CI 0.20-0.35); $p<0.001$), birthweight centile (OR 1.01(95% CI 1.00-1.02); $p=0.006$) and Caesarean delivery (OR 2.2(95% CI 1.3-3.7); $p=0.002$).

Of 608 infants, 315(52%) were given ACS ≤ 7 days before delivery (**group 1**) and 293 were not (**group 2**). Rates of twin gestation (69 vs 31%; $p<0.001$), preeclampsia (70 vs 30%; $p<0.001$) and Caesarean delivery were higher in group-1 when compared to group-2 with no difference in incidence of gestational diabetes (GDM). (Table 1)

The median GA at delivery (36.0(35.3-36.5) vs 36.2(35.9-36.7) weeks; $p<0.001$) and birthweight centile (16.8(3.4-49.7) vs 24.1(6.8-51.5); $p=0.04$) were both lower in group-1 (Figure 1). There was no difference in need for respiratory support between the two groups. (Table 2)

Outcome	Group 1 (n=315)	Group 2 (n=293)
NICU admission, n (%)	167 (53.0)*	107 (36.5)
Respiratory support, n (%)	76 (24.1)	58 (19.8)
Invasive, n (%)	60 (19.0)	42 (14.3)
Surfactant, n (%)	13 (4.1)	14 (4.8)
Antibiotics, n (%)	100 (31.7)	114 (38.9)
Hypoglycaemia, n (%)	66 (21.0)	60 (20.5)

Table 2: Neonatal outcomes in group 1 and group 2 presented as number and proportions. Statistically significant differences denoted by (*) p<0.05.

Conclusion

Use of ACS was not associated with a reduction in respiratory morbidity or need for NICU admission. It is likely that other factors such as earlier GA at delivery, need for Caesarean delivery and lower birthweight are the primary determinants of adverse outcomes irrespective of ACS administration in LPIs.