

EP06.79. Prenatal cephalic index poorly predicts postnatal dolichocephaly in a large retrospective cohort study

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Objectives

- To evaluate the predictive value of prenatal cephalic index (Cei) measured at second trimester ultrasound for postnatal dolichocephaly
- To assess whether a clinically meaningful Cei cut point can be identified.

Methods

- Retrospective cohort of singleton pregnancies with a documented cephalic index (Cei) from second-trimester ultrasound (14⁰–27⁶ weeks) and available postnatal outcomes.
- Predictive performance was evaluated using ROC analysis; the optimal Cei cutoff was estimated using the Youden Index with bootstrapped confidence intervals.

Results

- Among 9,632 pregnancies, 27 infants (0.28%) were diagnosed with postnatal dolichocephaly.
- Cei distributions overlapped substantially, with similar mean values in affected versus unaffected infants (75.4 vs 75.7; mean difference –0.38, 95% CI –1.68 to 0.92).
- Cei demonstrated poor discrimination (AUC 0.545), with 76.5% sensitivity and 44.4% specificity, indicating substantial false positive classification.

Conclusion

- Prenatal Cei poorly predicted postnatal dolichocephaly, with no clinically useful threshold identified.
- Cei alone is likely an inadequate screening metric and may lead to over labeling of normal fetal head shape variation.

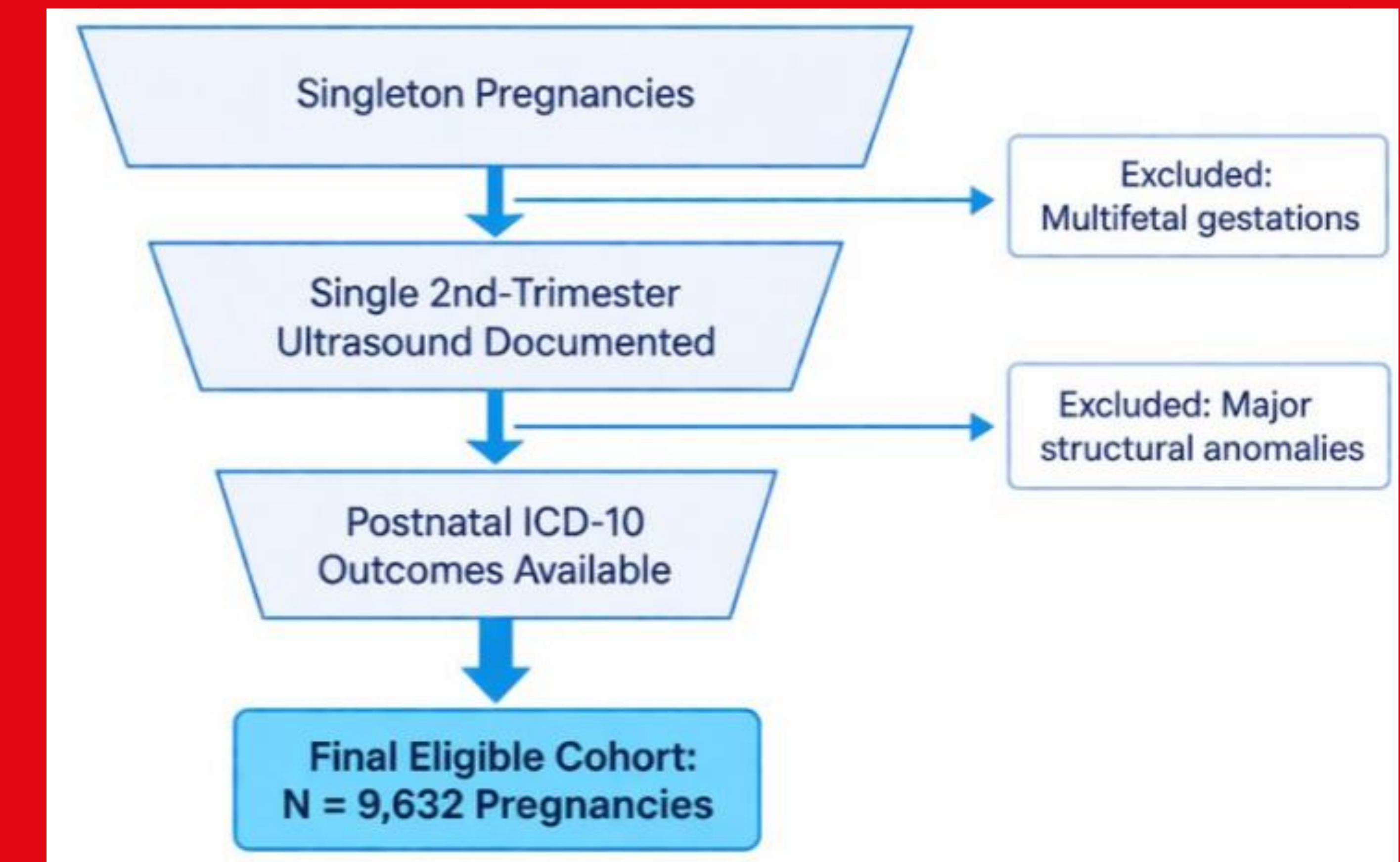


Figure 1. Cohort selection and eligibility criteria.

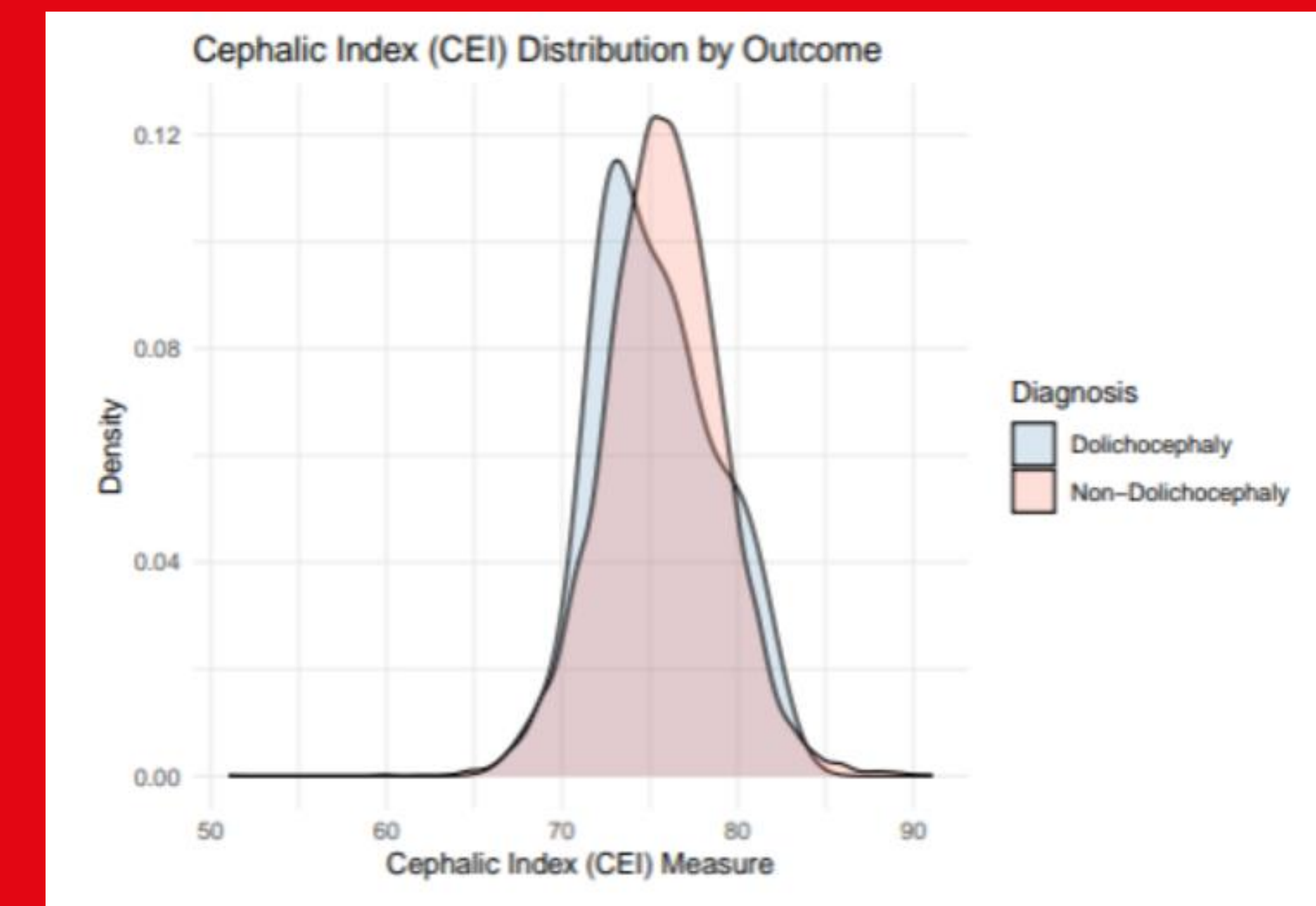


Figure 2. Overlapping density distributions of prenatal cephalic index in fetuses with and without postnatal dolichocephaly.