

Different long-term neurodevelopmental outcomes in very preterm versus very-low-birth-weight infants

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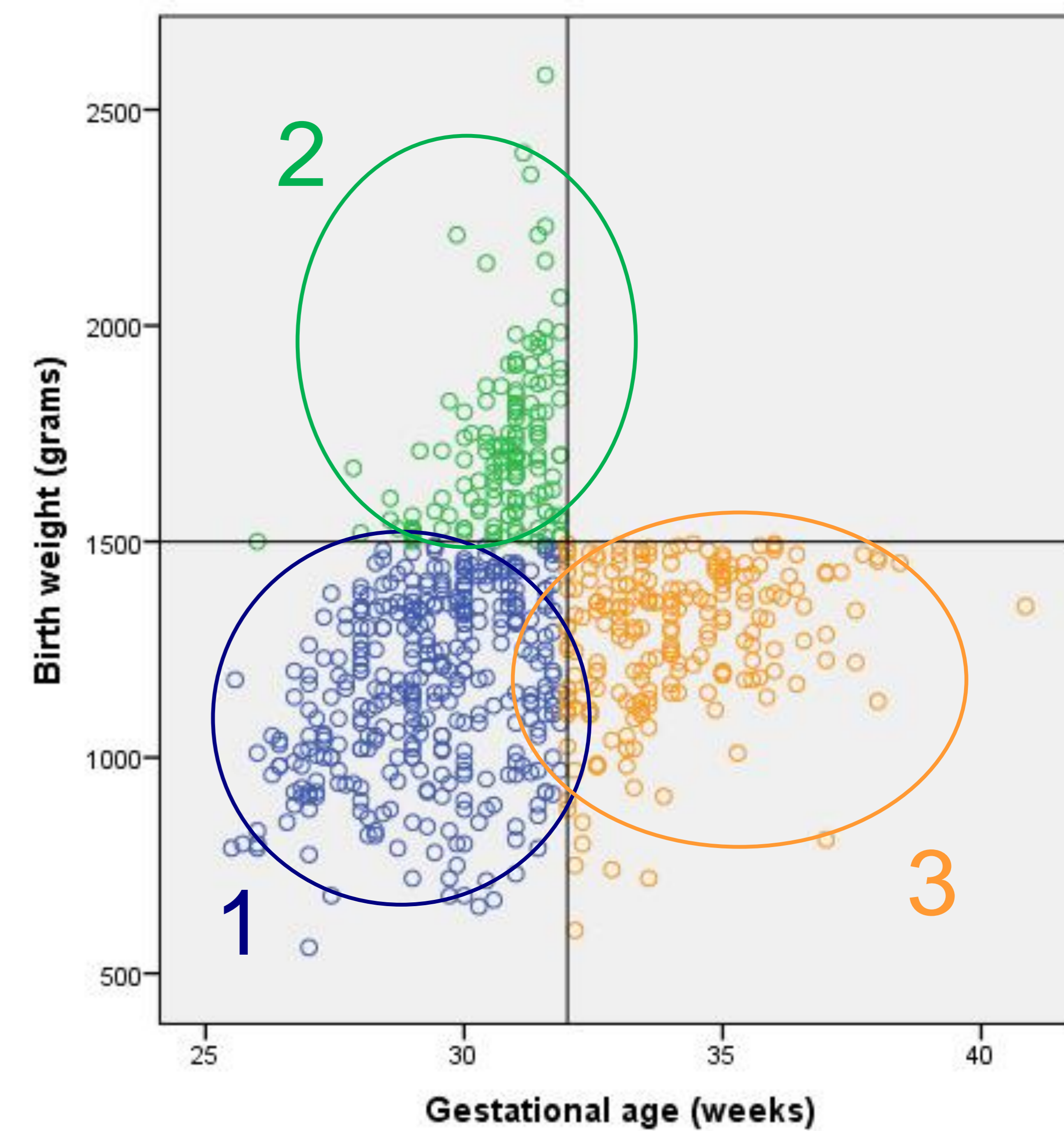
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Introduction and objectives

- The entities very preterm (VP; gestational age <32 weeks) and very low birth weight (VLBW; birth weight <1,500 grams) are often used as inclusion criteria for studies on preterm infants.
- However, these terms are not equivalent with regard to perinatal outcomes and postnatal growth up until final height.^{1,2}
- We examined whether these differences can be extended to neurodevelopmental outcomes at age 19

Methods

- 19-year-old subjects from the Project On Preterm and Small-for-gestational-age infants cohort were classified as (1) VP+/VLBW+ (n=354), (2) VP+/VLBW- (n=144) or (3) VP-/VLBW+ (n=207)
- Compared with regard to: IQ, neurological functioning, hearing, self- and parent-reported behavior, achieved education and occupation, and self-assessed health.



Results

	2 vs. 1	3 vs. 1
IQ score	↑ +3.5 (0.2 to 6.8)	= -1.2 (-4.1 to +1.6)
Neuromotor test score	= +1.2 (-0.4 to +2.9)	= -0.1 (-1.6 to +1.3)
Hearing loss (dB)	↓ Best ear: -2.2 (-3.7 to -0.8) Worst ear: -3.2 (-5.3 to -1.1)	= Best ear: -1.1 (-2.3 to +0.2) Worst ear: -0.7 (-2.6 to +1.1)
Self-reported problem behavior score	↓ Internalizing behavior: -1.7 (-3.3 to -0.03) Externalizing behavior: -0.6 (-1.7 to +0.5) Total problem behavior: -4.7 (-9.4 to -0.03)	= Internalizing behavior: +0.8 (-0.6 to +2.3) Externalizing behavior: +0.6 (-0.4 to +1.5) Total problem behavior: +2.5 (-1.7 to +6.6)
Parent-reported problem behavior score	↓ Internalizing behavior: -1.7 (-3.1 to -0.4) Externalizing behavior: -0.2 (-1.8 to +1.4) Total problem behavior: -4.0 (-8.7 to +0.7)	= Internalizing behavior: +0.3 (-0.9 to +1.5) Externalizing behavior: +1.2 (-0.2 to +2.6) Total problem behavior: +2.0 (-2.1 to +6.1)
Odds of higher education	↑ 1.5 (1.01 to 2.1)	= 1.0 (0.8 to 1.4)
Odds of less occupation (job and/or education)	= 1.1 (0.6 to 1.9)	= 0.8 (0.5 to 1.2)
Odds of lower self-assessed health	Health Utility Index	= 1.0 (0.6 to 1.5)
	London Handicap Scale	= 0.9 (0.5 to 1.7)

Arrows indicate significantly higher (↑) or lower (↓) scores, as analyzed with linear, logistic or ordinal regression, after adjustment for gender. Results of IQ, neurological functioning, hearing loss, and self- and parent-reported behavior are displayed as β (95%CI). Results of odds of higher achieved education, risk of less occupation and risk of lower self-assessed health are displayed as OR (95%CI)

Conclusion

- At age 19 years, infants born VP+/VLBW+, VP+/VLBW- or VP-/VLBW+ have different neurodevelopmental outcomes
- The terms VP and VLBW cannot be used interchangeably
- Future research on preterm infants should base inclusion on gestational age instead of birth weight, at least in industrialized countries.

