

Twin vs singleton growth charts in the diagnosis of Small for Gestational Age (SGA) in twin pregnancy: systematic review and meta-analysis

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OBJECTIVES

To evaluate twin vs singleton growth charts in detecting small for gestational age (SGA) twins at risk of adverse perinatal outcomes.

METHODS

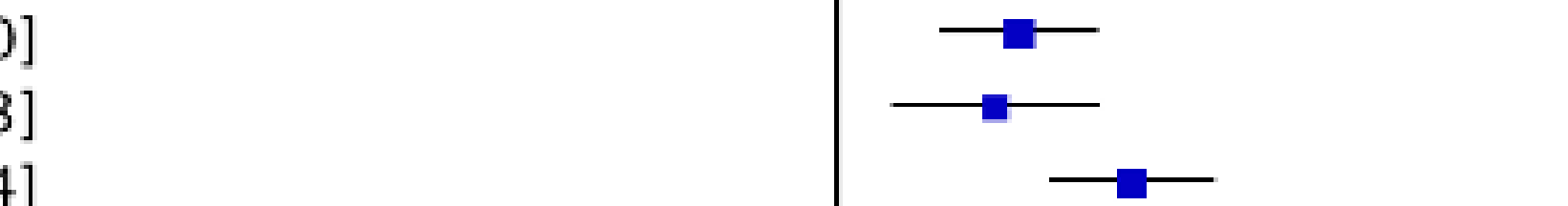
MEDLINE, EMBASE, CINAHL, Cochrane and Scopus databases were searched up to May 2024. Prospective and retrospective studies about neonatal outcomes in monochorionic or diamniotic twins diagnosed with SGA with both singleton and twin charts using estimated fetal weight (EFW) were considered suitable for inclusion. Random-effect head-to-head meta-analyses was performed (PROSPERO #CRD42024527397).

RESULTS

Five studies including 10554 twin pregnancies were included in the meta-analysis. The risk of composite adverse neonatal outcome and of most of the secondary outcomes were significantly higher in SGA diagnosed using twin compared with those diagnosed using singleton charts. Conversely, the rate of composite adverse outcome and secondary outcomes was similar when comparing SGA diagnosed with singleton charts vs non-SGA diagnosed using twin charts, except for NICU admission that was significantly higher in SGA diagnosed with singleton charts. Finally, when comparing SGA vs non-SGA diagnosed with singleton charts, there was no significant difference either for primary or secondary outcomes, except for the higher rate of NICU admission in the SGA group.

Outcomes	OR (95% CI)
SGA diagnosed with twin vs singleton charts	
Composite adverse neonatal outcome	3.11 (1.83-5.26)
NICU admission	3.77 (2.46-5.77)
Neonatal mortality	3.81 (2.43-5.99)
SGA diagnosed with singleton vs non-SGA diagnosed with twin charts	
Composite adverse neonatal outcome	1.22 (0.73-2.0)
NICU admission	1.55 (1.20-2.01)
SGA vs non-SGA diagnosed with singleton charts	
Composite adverse neonatal outcome	1.14 (0.61-2.12)
NICU admission	1.54 (1.11-2.12)

COMPOSITE ADVERSE NEONATAL OUTCOME

Study or Subgroup	Twin SGA		Singleton SGA		Weight	Odds Ratio M-H, Random, 95% CI	Odds Ratio M-H, Random, 95% CI
	Events	Total	Events	Total			
Briffa 2022	35	107	83	608	27.1%	3.07 [1.93, 4.90]	
Lin 2021	16	443	28	2002	23.2%	2.64 [1.42, 4.93]	
Mendez-Figueroa 2018	152	170	974	1678	26.3%	6.10 [3.71, 10.04]	
Nowacka 2021	31	63	47	131	23.5%	1.73 [0.94, 3.18]	
Total (95% CI)		783		4419	100.0%	3.11 [1.83, 5.26]	
Total events	234		1132				
Heterogeneity: Tau ² = 0.21; Chi ² = 11.26, df = 3 (P = 0.01); I ² = 73%							
Test for overall effect: Z = 4.22 (P < 0.0001)							

CONCLUSIONS

Twin growth charts identify SGA twins at risk of adverse outcome. The use of twin-specific charts in clinical practice needs to be further investigated by larger validation studies.