

Comparative Effectiveness of Singleton Versus Multiple Growth Charts in Predicting Adverse Perinatal Outcomes in a Tertiary Care Center

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Objective

To evaluate the effectiveness of using singleton versus multiple fetal growth charts in detecting adverse perinatal outcomes in a tertiary care setting

Material and methods

Retrospective study including 330 twin pregnancies managed at BCNatal between 2021 and 2023. The Diagnostic odds ratio [DOR] (+LHR/-LHR) of singleton and multiple growth charts for the presence of adverse perinatal outcome was assessed. Composite adverse perinatal outcome (CAO) was defined as the occurrence of stillbirth, severe preeclampsia, iatrogenic preterm delivery before 34 weeks, neonatal severe morbidity and neonatal hospital length stay >7 days. Exclusion criteria included monoamniotic twins, higher-order multiple pregnancies, and specific monochorionic complications

Results

Study Population:

- ✓ 108 Monochorionic diamniotic (32,7%)
222 Dichorionic diamniotic (67,3%)
- ✓ EFW discordance > 20% was present in 4.11, 8.36, 13.36 and 19.85% of cases while discordance >25% affected 2.05, 3.22, 3.26 and 6% of cases at 24,28, 32 and 36 weeks respectively

- ✓ The incidence of estimated fetal weight below 10th and 3rd centile was higher when singleton charts were used compared to multiple charts during all pregnancy. Results are shown Figure 1

- ✓ The Diagnostic Odds Ratio for Composite Adverse Outcome (CAO) for singleton and twin charts at 28, 32 and 36 weeks gestation is shown in Table 1.

- ✓ CAO was also calculated for those cases classified as small only by singleton chrs (OSC) and shown in Table 1

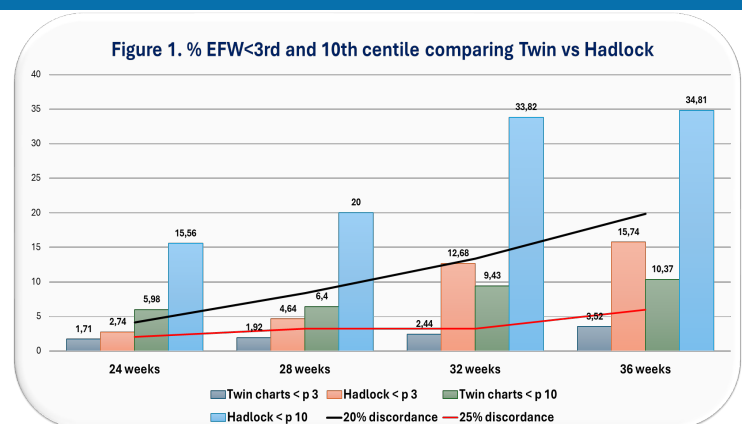


Table 1. Comparison of twin and singleton charts Diagnostic Odds Ratio for Composite Adverse Outcome

28 weeks			32 weeks			36 weeks			
EFW < 10 th centile									
CAO	TC	SC	OSC	TC	SC	OSC	TC	SC	OSC
	7.5	3.0	1.1	3.0	3.9	1.9	3.2	1.6	0.7
EFW < 3 rd centile									
CAO	TC	SC	OSC	TC	SC	OSC	TC	SC	OSC
	11.6	8.2	5.1	7.0	3.2	2.1	3.1	2.3	1.8

TC: twin chart; SC: singleton chart; OSC: small for gestational age only classified when using SC; CAO: Composite Adverse Outcome (Severe preeclampsia; Iatrogenic delivery < 34 weeks; Neonatal severe morbidity; Neonatal hospital stay > 7 days)

Conclusions

In our population, the use of multiple growth charts was associated to a superior diagnostic performance odds ratio for composite adverse perinatal outcomes compared to singleton charts. These findings support the use of twin charts to improve the prediction and management of adverse perinatal outcomes. However, our results should be evaluated in larger populations.