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Longitudinal changes of cerebro-placental ratio in monochorionic-diamniotic twin pregnancies with and without gestational diabetes

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Introduction

The cerebro-placental ratio (CPR) is mainly used in the assessment of fetal growth restriction, especially in singletons. It is rarely used in pregnancies affected by diabetes and less frequently in twin pregnancies. Therefore, this study aimed to assess the relationship between the CPR in monochorionic-diamniotic (MCDA) twin pregnancies with and without gestational diabetes mellitus (GDM) over the course of the pregnancy.

Material and Methods

A total of 262 MCDA twin pregnancies with (n= 142) and without (n= 120) GDM were included. CPR measurements were recorded at three different time points during pregnancy: 24+0 to 26+6 weeks, 28+0 to 32+6 weeks, and 34+0 to 36+6 weeks of gestation.

Results

Overall, CPR values remained within normal ranges throughout all screening points across all three groups, and no significant differences in CPR were detected at any time point in pregnancy. While EFW at 28+0 – 32+6 weeks of gestation was significantly higher in the insulin-treated GDM (IGDM) group, it did not have an impact into altered CPR or Doppler parameters.

Conclusion

Gestational age at delivery, Apgar, Doppler parameters, and most growth markers remain comparable in MCDA twins with and without (I)GDM. All three groups showed a similar distribution of CPR values at each screening stage, suggesting no major trends between the groups

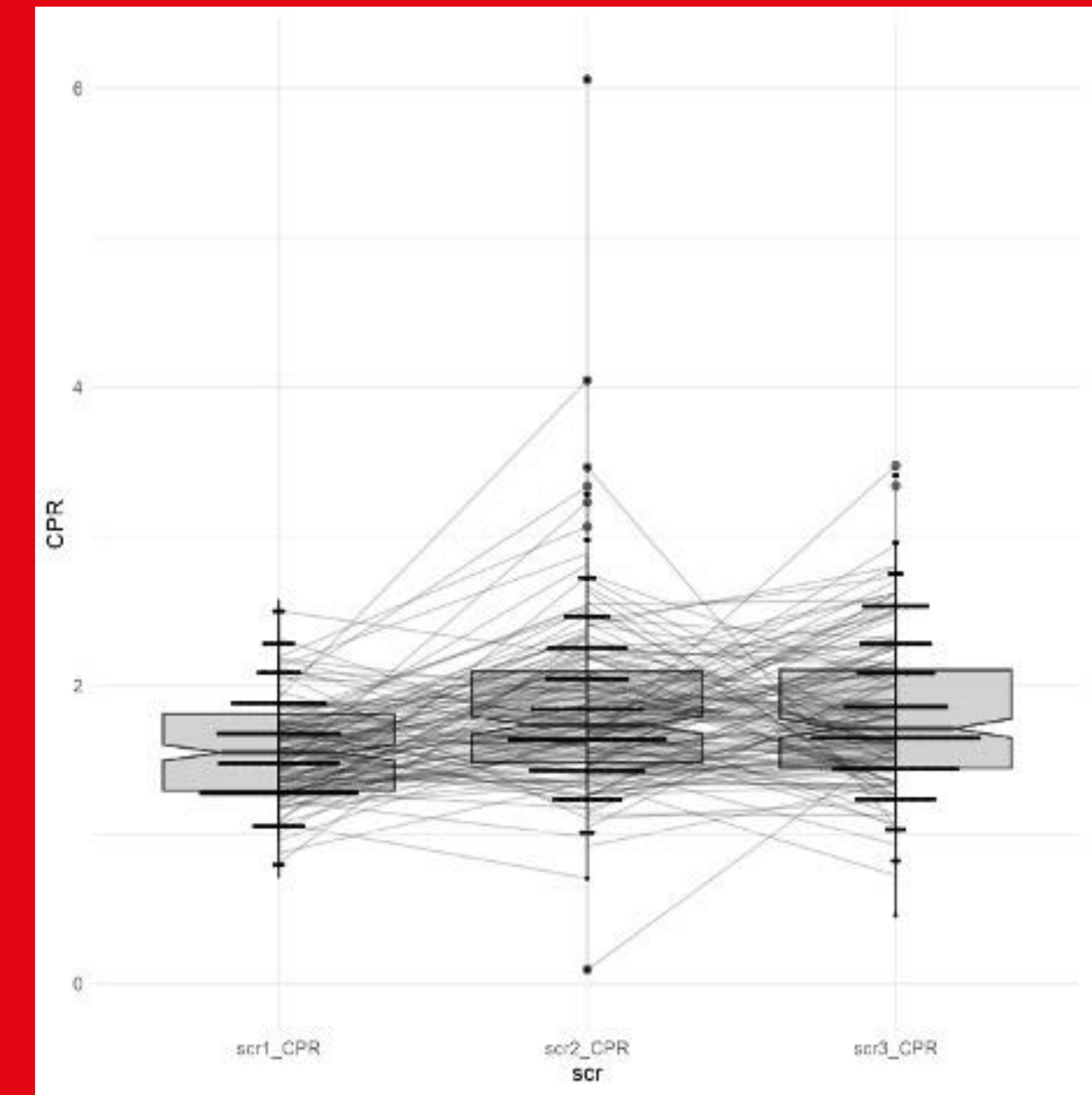


Figure 1: Longitudinal CPR measurements across three antenatal time points in the total study population

Boxplots with overlaid individual patient trajectories illustrate CPR values at 24–26 weeks (scr1_CPR), 28–32 weeks (scr2_CPR), and 34–36 weeks (scr3_CPR). Median CPR values remained stable over time with modest variability; no systematic trend or significant change in CPR was observed across gestation in the overall cohort