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Maternal Obesity and Placental Oxidative Stress in the First Trimester

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oxidative stress assessment. A similar, but non-signi cant increase in serum oxidative stress was found (Figure 3b). ere was no signi cant correlation between placental and serum oxidative stress either within groups (obese r=-0.11, p=0.67; lean r=-0.06, p=0.83) or overall (r=0.25, p=0.17, Figure 4a). ere was also no correlation between gestational age and placental (r=-0.16, p=0.28) or serum (r=0.26, p=0.14) oxidative stress (Figure 4b). Overall, the level of oxidative stress measured in the placenta was far more pronounced than in the serum (Figure 3a, Figure 3b).

Discussion

Maternal obesity is an emerging public health concern of enormous clinical impact and research interest. Our data shows for the rst time that maternal obesity is associated with placental oxidative stress in the rst trimester. is nding supports a rst trimester origin for the observed increased rate of placental dysfunction noted in obese women later in pregnancy, although a direct relationship cannot be established from this investigation [10-15]. Oxidative stress is increasingly viewed as an upstream process resulting in in ammation and cellular injury. Indeed, maternal obesity is associated with robust placental in ammation at term Challier et al. [20] demonstrated that mRNA expression of TNF- and other pro-in ammatory cytokines are elevated in placentas of obese women compared to lean women at term