SUMMARY

Background: The death of a mother or her newborn has a significant negative impact on family dynamics. Unfortunately, the maternal and peri-natal mortality rates remain unacceptably high in our environment. Most of these deaths are closely linked to foetal birth weight with maternal obesity contributing greatly to these negative pregnancy outcomes. Consequently, the estimation of foetal birth weight in obese pregnant women is an important consideration in improving delivery outcomes. This is especially important in our environment where there is unavailability of ultrasound machines in most health facilities where women are delivered.

Objectives: The general objective of this study was to determine the accuracy of clinical estimation of foetal birth weight in obese women with normal term pregnancies in Our Lady of Apostles Hospital, Jos to assist in predicting the optimal route of delivery. The specific objectives included: determining the prevalence of maternal obesity using the body mass index among women attending antenatal clinic at Our Lady of Apostles Hospital, Jos, estimating the foetal birth weight through clinical assessment, measuring the actual birth weight at delivery, comparing the clinically estimated foetal birth weight with the actual birth weight, determining the relationship between maternal obesity and clinically estimated foetal birth weight and the relationship between maternal obesity and actual birth weight.

Design: A hospital based prospective observational study of pregnant women who booked for antenatal care and were delivered at Our Lady of Apostles Hospital, Jos is presented. A total of 79 participants were recruited and all of them completed the study. The body mass index was used to assess obesity in participants who presented for delivery between 37 and 42 weeks of gestation.
The foetal birth weight was estimated clinically by multiplying the symphysio-fundal height by the abdominal circumference at the level of the umbilicus and the actual birth weight was measured by weighing the babies within 30 minutes of birth. The mean of the clinically estimated foetal birth weight was compared with the mean of the actual foetal birth weight. The absolute error, the absolute percent error and the proportion of estimated foetal birth weight within ±10% of the actual birth weight were also used to assess accuracy of the clinically estimated foetal birth weight.

Results: The prevalence of maternal obesity in the study was 22.2%. The mean of the clinically estimated foetal birth weight (4396.14g) was significantly (p <0.0005) higher than the mean of the actual foetal birth weight (3664.68g). The absolute error and the absolute percent error increased significantly with increasing BMI group, p=0.038 and 0.044 respectively. The proportion of the clinically estimated foetal birth weight within ±10% of actual birth weight significantly (p = 0.042) decreased with increasing BMI group.

Conclusion: In this study among obese pregnant women, the clinical method of foetal birth weight estimation was observed to significantly overestimate foetal birth weight. The mean of the clinically estimated foetal birth weights was significantly higher than the mean of the actual birth weights and the proportion of the clinically estimated foetal birth weight within ± 10% of actual birth weight decreased across the BMI groups. A reliance on this method to estimate foetal birth weight in obese pregnant women will result in unnecessary and costly obstetric interventions. This study concludes that the clinical method of foetal birth weight estimation is not reliable in obese pregnant women because obesity significantly reduces the accuracy of this method.