Complementary use of maternal ultrasonography to early prediction of adipose-related risk conditions (ARRC) during delivery: preliminary results

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Introduction

Adipose-related risk conditions (ARRC) are a group of disorders as preeclampsia, hypertension, diabetes mellitus, cesarean section, surgical site infection and others.

Maternal measurement of pre-gestational BMI (body mass index) has been currently used for risk stratification. However, it is common to find poor outcomes among pregnant eutrophic and adequate outcomes among obese women.

Aim

To evaluate if the inclusion of ultrasound maternal adipose measurement improves risk stratification beyond the maternal prepregnant BMI.

Methods

Cohort study conducted at a primary care setting among pregnant women during three trimesters.

Maternal total adipose tissue (mTAT) was measured with convex probe vertically placed at central epigastric region and perform the sum of the space between superficial left liver lobe and linea alba plus the space from linea alba to dermal edge of skin (Figure 1).

Prepregnant BMI was calculated with maternal weight during the first trimester and current height.

Patients were considered ARRC (n=9) in isolated or associated cases of chronic hypertension (n=1), preeclampsia (n=4) and gestational diabetes (n=4).

Conclusions

1) Addition of epigastric mTAT to the traditional ARRC screening (pre-gestational BMI) can improve the sensitivity from 50% to 80%.

2) This preliminary sample show that only 50% of ARRC outcomes were in obese patients, highlighting the importance of new ways to disease detection mainly among non-obese pregnancy.

Results

- 78 pregnant women were included with a mean age was 25.4±6.1 yo, 39% had prepregnant BMI < 25kg/m², 35% between 25 and 30 kg/m² and 26% had BMI > 30kg/m². Gestational mean age was 20.9 ± 7.0 weeks.

- Measurement of epigastric mTAT was performed during pregnant 1st trimester in 7.7% (n=6), 2nd trimester in 60.2% (n=47) and 3rd trimester in 32.1% (n=25) of cases.

- Mean epigastric mTAT was 26.5 ± 9.6 mm and the last quartile was 32.0 mm.

- Using isolated prepregnant BMI > 30 kg/m2 only 50% of patients, who developed ARRC outcomes, were detected (figure 2).

- Use of mTAT last quartile (32mm) and BMI increased the sensitivity to ARRC detection from 50% to 80%. Predictive negative and positive values are similar, and specificity decreases from 75% to 59%.

Figure 1. Ultrasound mTAT measurement

Figure 2. Test performance

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