Trimester-Specific Anterior Posterior Diameter and Percent Change Over Time to Predict Postnatal Surgery in Neonates with Antenatal Hydronephrosis

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Introduction

- Treatment for antenatal hydronephrosis (ANH) ranges from watchful waiting to surgery
  - Correlates with severity as determined by anterior posterior diameter (APD) of the fetal renal pelvis on ultrasound

Aims

- Confirm ability of fetal APD to predict postnatal surgical intervention
- Identify the lowest threshold fetal APD to predict postnatal surgery
- Predictability of using percent change in renal APD at specific time point

Methods

- Retrospective review of 130 patients
- Max APD value was taken in the 2nd and 3rd trimester
- Max 2nd and 3rd trimester APD percent changes (APD-deltas) were calculated using the largest prenatal value and the first ipsilateral postnatal APD after 48 hours of life

Results

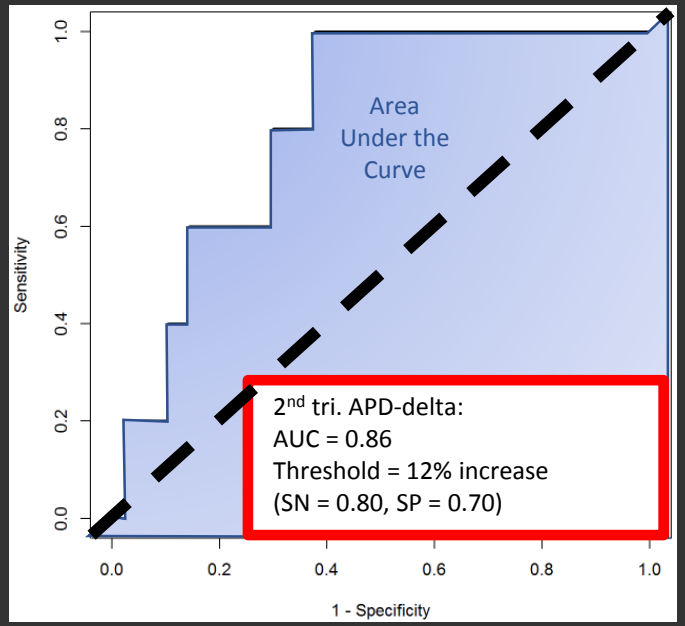

Figure 1. ROC curve: APD percent change from 2nd trimester to first postnatal value in predicting postnatal surgical intervention (AUC = area under the curve) (Tri. = trimester)

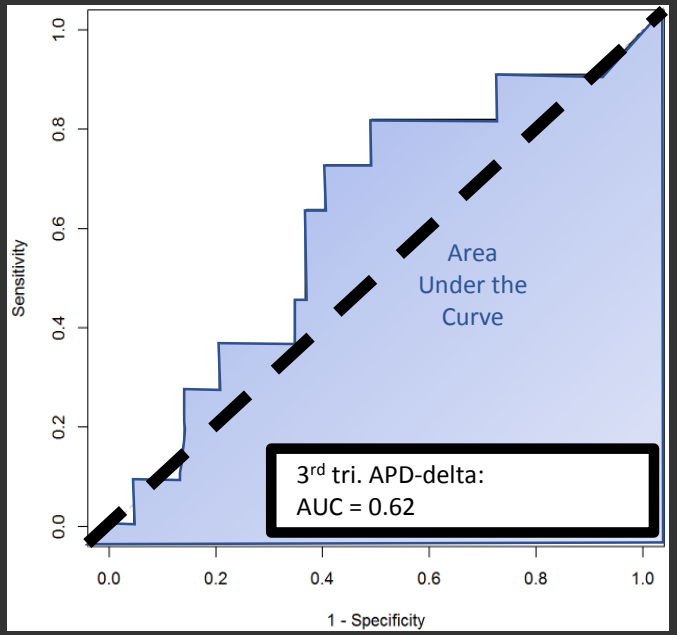

Figure 2. ROC curve: APD percent change from 3rd trimester to first postnatal value in predicting postnatal surgical intervention (AUC = area under the curve) (Tri. = trimester)

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Conclusions

- An increase from the 2nd trimester APD to the first postnatal APD of > 12% adds to current data and may help predict need for post-natal surgery

- Our finding is most pertinent in patients with large APD measurements in the 2nd trimester