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 2\textsuperscript{nd} and 3\textsuperscript{rd} trimester
• Max 2\textsuperscript{nd} and 3\textsuperscript{rd} 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)

2nd tri. APD-delta:
AUC = 0.86
Threshold = 12% increase
(SN = 0.80, SP = 0.70)

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)

3rd tri. APD-delta:
AUC = 0.62
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