

Impact of variability in umbilical artery Doppler reporting protocols on the frequency of abnormal findings

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Introduction

Umbilical artery Doppler (UAD) assessment is performed as a predictor of adverse perinatal outcomes in fetal growth restriction (FGR), however there is variability in the waveform selected for reporting. Our objective was to compare the frequency of abnormal UAD findings in FGR when using varying reporting protocols including the highest, average, and lowest protocols.

Methods

Retrospective repeated measures analysis of a cohort with FGR who underwent UAD measurement from 2016-2020 at a single institution. Subject characteristics and outcomes were collected through record review. Gestational age-specific percentiles were calculated for each UAD index including systolic/diastolic (S/D) ratio, pulsatility index (PI) and resistance index (RI). Any index > 95th percentile was considered an abnormal UAD.

Results

379 subjects were included at 34.4 +/- 0.2 weeks gestation and fetal weight percentile of 3.1 +/- 0.1. A repeated measures analysis using Cochran's Q test showed a significant difference in the proportion of subjects with abnormal UAD across the three reporting protocols of highest, average, and lowest UAD (p=0.019). A repeated measures ANOVA also showed a significant difference in each Doppler index across the three reporting protocols (Fig 1 and 2). The difference in frequency of abnormal UAD was seen in both early- and late-onset FGR (Fig 3).



There is no consistent approach to selecting a UAD waveform for reporting. The proportion of those with abnormal UAD is significantly different across the three reporting protocols of highest, average, and lowest UAD.

Reporting Protocol	Abnormal UAD
Highest UAD	32.2%
Average UAD	21.1%
Lowest UAD	11.9%



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Fig 1



Fig 2

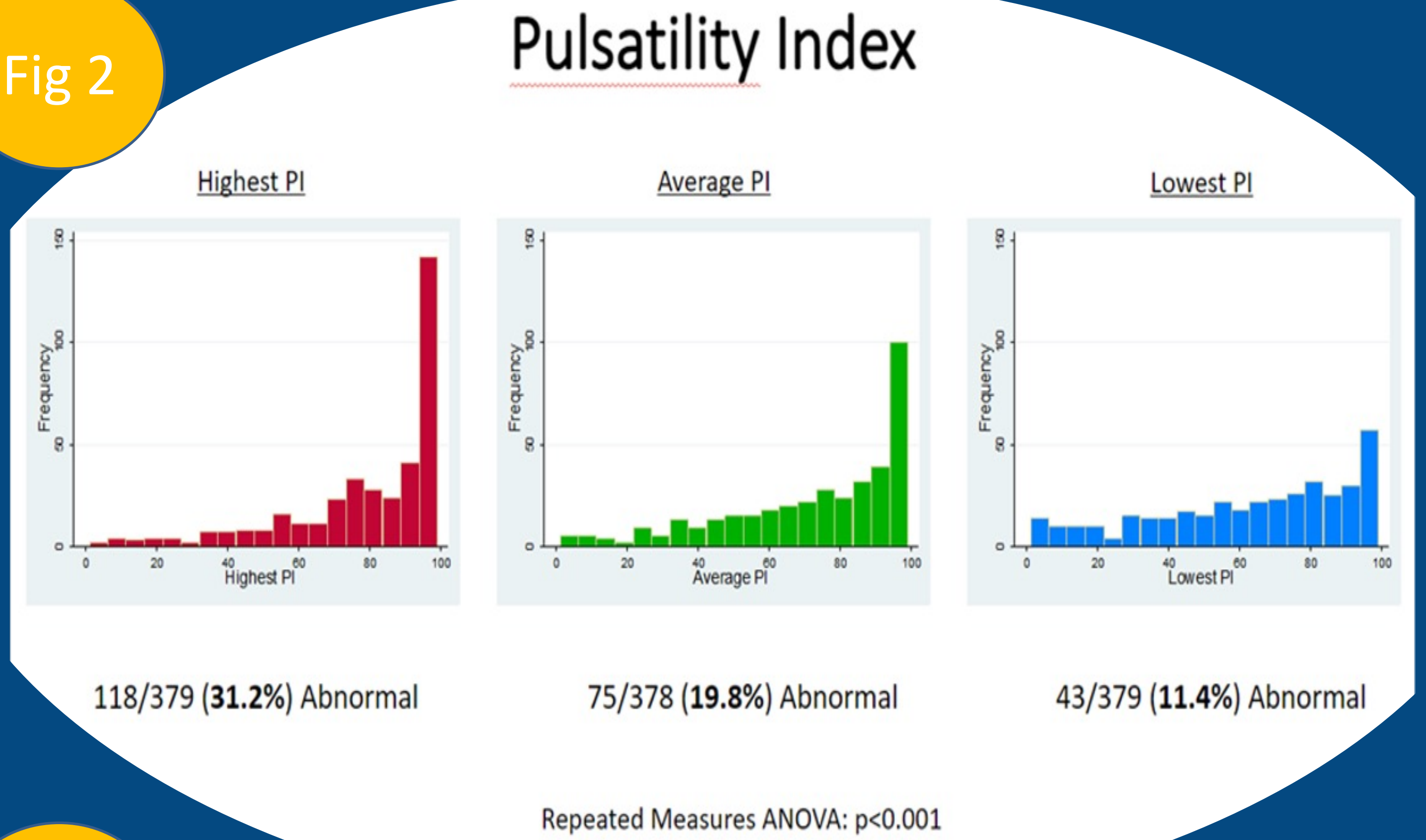


Fig 3

