

EP09.45 – Preliminary evaluation of an artificial intelligence software for the screening of severe CHDs in clinical practice

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OBJECTIVES

- Despite widespread adoption of anatomy ultrasound screening, prenatal detection rates for congenital heart defects (CHD) remain low.
- Artificial intelligence (AI) has shown promising results in screening for CHD, and is starting to be integrated in clinical practice.
- We aimed at evaluating an AI software for fetal heart screening by MFM specialists in clinical practice.

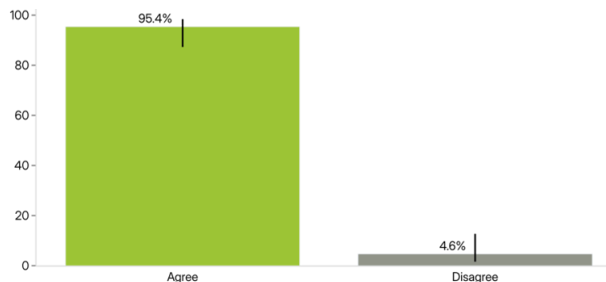
METHODS

- The AI software analyzes anatomy examinations (18-24 weeks GA) to detect eight findings suspicious for CHD in 2D grayscale ultrasound cine clips containing 4CH, LVOT and RVOT standard views.
- The AI software was clinically implemented in an MFM center. Over a 1 month period, MFM specialists using the software rated their experience for each case reviewed:
 - Agree with the AI software (yes/no).
 - Confidence before and after reviewing the AI output (0-5 scale).
 - Change of the initial diagnosis after review with the AI software (yes/no).

RESULTS

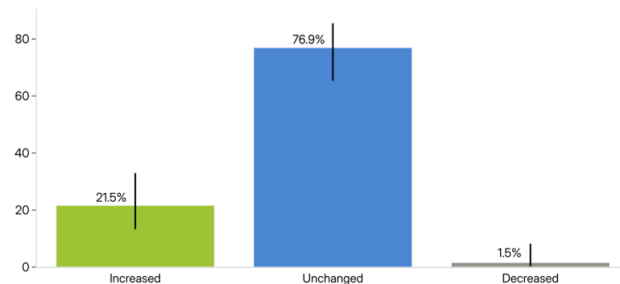
- We analyzed MFMs responses for 65 cases over the 1 month period, all confirmed to be without cardiac abnormalities.

Figure 1. MFMs agreement with AI



- MFMs agreed with the AI software in 62/65 cases (95.4%, 95% CI: 87.3-98.4%).
- The AI software flagged 3 cases with suboptimal presentation as suspicious for CHD, which were ultimately deemed as normal by the MFMs.
- The software did not result in change of the initial diagnosis or referral to pediatric cardiology.

Figure 2. Change in MFMs confidence before vs after reviewing AI-output



- AI-assistance resulted in an increased confidence in 21.5% (95% CI: 13.3-32.9%) of cases.
- MFMs confidence was on average 5% higher with the AI software than without.

CONCLUSION

The AI software demonstrated a high specificity for screening CHD, achieved strong agreement from MFM specialists and increased confidence in their diagnosis.