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Comparison of different ultrasound growth curves and birth weight as assessed by the INeS chart

S Guerriero¹, A Borzacchelli¹, B Piras¹, C Desogus¹, C Dimora¹, M Pagliuca¹, S Ajossa¹,

¹University of Cagliari, Cagliari, Italy.

Objectives: To identify the best fetal growth curve in classifying fetuses as AGA, SGA and LGA.

Methods: We included women with singleton pregnancies with an ultrasound date in the first trimester, at least one third trimester weight estimate at our centre and available birth weight data. Ultrasound estimates of fetal weight were converted to gestational age-specific percentiles using the Intergrowth and Hadlock fetal growth charts. Birth weight was converted to gestational age-specific percentiles using the INeS charts.

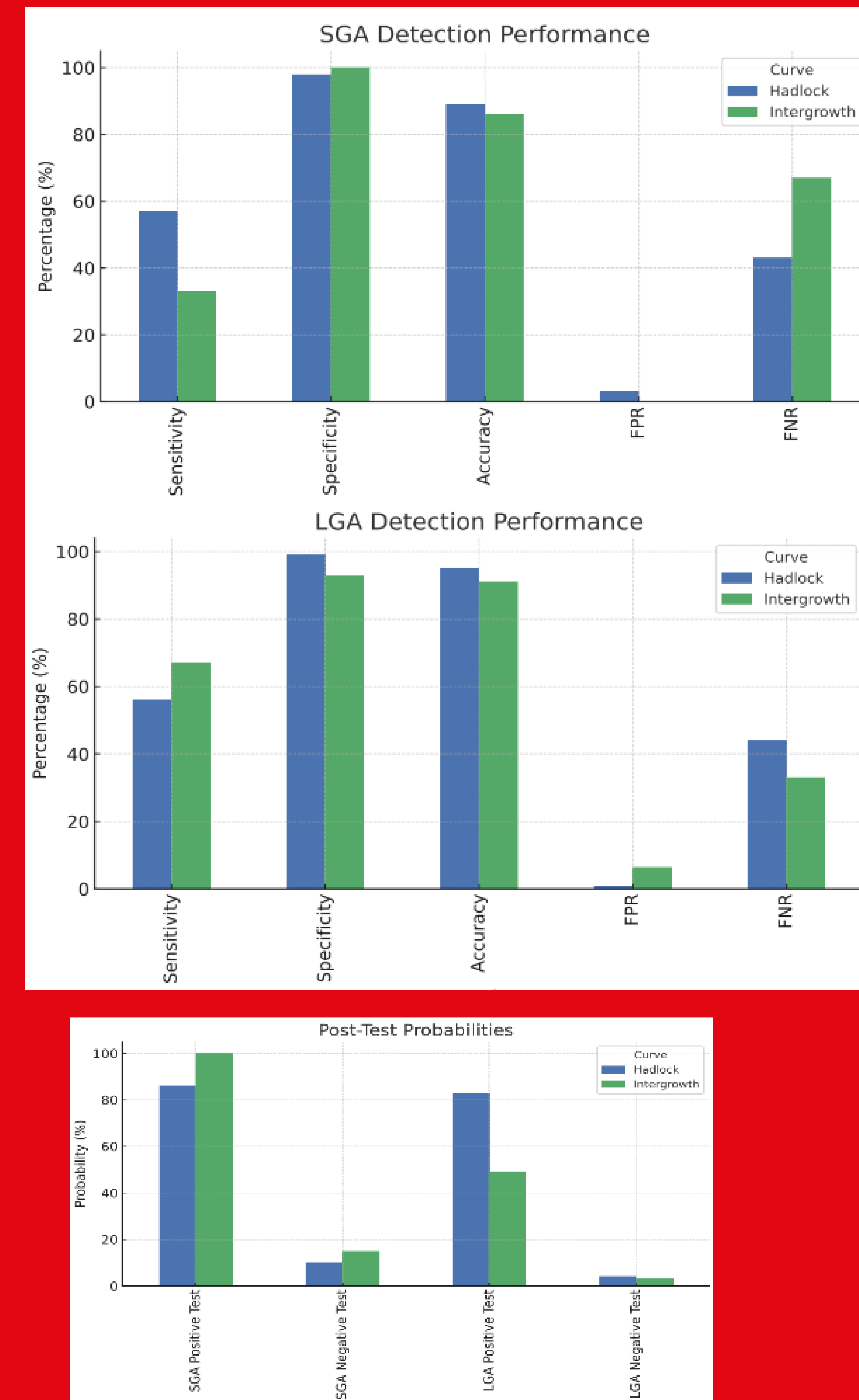
Results: We recruited 101 patients. Hadlock curves identified 81 AGA, 14 SGA and 6 LGA fetuses, Intergrowth curves 82 AGA, 7 SGA and 12 LGA fetuses and INeS cards 71 AGA, 21 SGA and 9 LGA newborns.

Assessment of SGA fetuses using Hadlock curves showed: sensitivity 57%, specificity 98%, accuracy 89% with a false positive rate of 3% and false negative rate of 43%. Intergrowth curves showed: sensitivity 33%, specificity 100%, accuracy 86% with a false positive rate of 0% and false negative rate of 67%.

Assessment of LGA fetuses using Hadlock curves showed: sensitivity 56%, specificity 99%, accuracy 95% with a false positive rate of 1% and a false negative rate of 44%; Intergrowth curves had: sensitivity 67%, specificity 93% accuracy 91% with a false positive rate of 6.5% and a false negative rate of 33%. In our population the a priori probability of having an SGA fetus was 21% and of for LGA fetus was 9%.

The post-test probability of having an SGA fetus was 86% with Haldlock curves and 100% for Intergrowth curves in the case of a positive test and 10% and 15% respectively in the case of a negative test. The post-test probability for LGA fetus was 83% with Haldlock curves and 49% with the Intergrowth curves in the case of a positive test and 4% and 3% respectively for a negative test.

Hadlock vs Intergrowth Growth Curves



Conclusion: The Hadlock growth curve provides greater accuracy with a better balance between sensitivity and specificity in classifying fetuses as AGA, SGA and LGA.