

Gender-Specific Reference Charts of Fetal Head Circumference in a Singaporean Population

George SH Yeo, ¹MBBS, FRCOG, FAMS, Maili Qi, ²MD, MRCOG, FACOG, Ruochen Du, ¹BSc (Hons), Padma Lata Mahavadi, ¹BE, GDipSA, Chee Fu Yung, ³MBCChB, MSt (Camb), FFPH, Koh Cheng Thoon, ³MBBS, MMed (Paeds), MRCPCH, Edwin WH Thia, ¹MBBS, MRCOG, MMed (O&G), Kai Lit Tan, ¹MBBS, MRCOG, MMed (O&G), Fon Min Lai, ¹FRCOG, FRANZCOG, MMed (O&G), Nicole KL Lee, ¹PhD

Abstract

Introduction: With the global outbreak of Zika virus and its association with microcephaly, an up-to-date fetal head circumference (HC) nomogram is crucial to offer a reference standard in order to make an accurate diagnosis. This study was conducted to revise the local fetal HC nomogram. **Materials and Methods:** In this retrospective study, ultrasound data was used for construction of the fetal HC nomogram from a total of 6155 pregnancies in the ethnic Chinese population with low risk profile at KK Women's and Children's Hospital over a 10-year period. Regression model was fitted to calculate the mean and standard deviation of HC at each gestational age (GA). Comparison of HC between ethnic groups (no significant differences) and genders were made. The revised chart was compared with another commonly used reference chart (Hadlock). In an independent test population, different reference charts were used to estimate number of cases with microcephaly. **Results:** A statistically significant difference of HC between the genders was observed across all gestational ages. Gender-specific reference charts and equation were computed. Our revised fetal HC chart showed a different distribution from the Hadlock chart. Compared with the gender-specific charts, the Hadlock HC chart would significantly under-report microcephaly cases in male fetuses, and tend to over-report in female fetuses. **Conclusion:** This study provides a new set of gender-specific fetal HC charts in the Singaporean population for antenatal ultrasound surveillance of microcephaly.

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¹Department of Maternal Fetal Medicine, KK Women's and Children's Hospital, Singapore

²Department of Obstetrics and Gynaecology, KK Women's and Children's Hospital, Singapore

³Infectious Disease Service, Department of Paediatric Medicine, KK Women's and Children's Hospital, Singapore

Address for Correspondence: Prof George Yeo Seow Heong, Department of Maternal Fetal Medicine, KK Women's and Children's Hospital, 100 Bukit Timah Road, Singapore 229899.

Email: dr.george.sh.yeo@gmail.com