P-88

Body Surface Area Estimation In Girls With Turner Syndrome:
Implications For Interpretation Of Aortic Sized Index & Aortic Root Z scores

Fletcher, A. (1), McVey L.,(1) Guaragna-Filo G., (2) Hunter L., (3) Santoro R.I., (4) Mason A., (1) Wong S.C. (1)
Developmental Endocrinology Research Group, Royal Hospital for Children, Glasgow, UK (1);
Paediatric Endocrinology Unit, Faculty of Medical Sciences, State University of Campinas, Brazil (2);
Department of Paediatric Cardiology, Royal Hospital for Children, Glasgow, UK (3);
Paediatric Cardiology Unit, Clinical Hospital of State University of Campinas, Brazil (4)

Objective: To assess the impact body surface area (BSA) formula selection has on aortic size index (ASI) and aortic root Z-score risk stratification in patients with Turner's syndrome (TS) monitored for aortic root dilatation.

Methods: We retrospectively accessed the aortic sinuses measurements, age, weight and height of a cohort of females with TS in Brazil presenting for routine monitoring of aortic root size. We utilised 6 commonly employed BSA formula (Dubios, Mosteller, Haycock, Boyd, Gehan and George and Furqan) to calculate ASI and aortic root Z-scores. We compared the results of all formulae to Dubios using Bland-Altman plots. We further examined the percentage whose risk category changed employing cut off values of ASI >2cm/m2 or Z-score >2 as "high risk", and ASI >2.5cm/m2 as "very high risk".

Results: Bland-Altman plots demonstrate a good general agreement between Dubios and 5 other BSA formulae (largest ASI mean error -0.091cm/m2, largest aortic root Z-score mean error -0.25) however, at higher BSA values we note increasingly disparate ASI and Z-scores with a correlating impact on risk stratification. As an example the Boyd formula stratified 17% fewer as "high risk ASI" and 33% fewer as "very high risk ASI" and 50% fewer as "high risk Z-score", with potentially important implications on future management.

Conclusions: We recognise for the first time that BSA formula selection has an important impact on ASI- and Z-score-based risk stratification when monitoring TS patients for aortic dilatation, with potential implications on future follow up and management. Further work is required form a consensus on an appropriate BSA formula for stratifying aortic root dilatation in TS.