APPENDIX

Myocardial Ischaemia Score and echocardiographic formulas used.

1. Criteria for derivation of myocardial ischaemia (MI) scores from standard 12-lead electrocardiograms.

| **Parameter** | **Score** |
| --- | --- |
| Any non-sinus rhythm | 1 |
| Conduction disturbances\* | 1 |
| QTc>0.440 seconds | 1 |
| QRS-T angle >90 degrees | 1 |
| ST elevation or depression >1 mm in 1 or 2 leads | 1 |
| ST elevation or depression >1 mm in 3 or 4 leads | 2 |
| ST elevation or depression >1 mm in ≥5 leads | 3 |
| Flat, diphasic or inverted T-waves in 1 or 2 leads | 1 |
| Flat, diphasic or inverted T-waves in 3 or 4 leads | 2 |
| Flat, diphasic or inverted T-waves in ≥5 leads | 3 |
|  |  |

\*PR interval >0.16 s, QRS duration ≥0.1 s, sinus pauses with or without escape beats or rhythms.

The maximum score obtainable by any patient was 10 and the minimum zero. Significant myocardial ischaemia, corresponds to a score of >3. MI was considered to be present if the Q-wave was abnormal in any lead (duration >0.04 seconds with or without notching), if the ST-segment was elevated beyond 2 mm or if the corrected QT interval (QTc) exceeded 0.440 seconds with accompanying Q-wave abnormalities.

*Reference: Bode-Thomas F, Hyacinth HI, Ogunkunle O, Omotoso A. Myocardial ischaemia in sickle cell anaemia: evaluation using a new scoring system. Ann Trop Paediatr2011;* ***31****: 67-74*.

1. ***Left ventricular wall stress, circumferential***

***= 1.35Pr[1-(2r2/L2)]***

 ***LVPWS***

*Where P = systolic cuff pressure, r = LVs/2, L = left ventricular maximum major axis in apical four chamber or two chamber view.*

1. ***Left ventricular wall stress, meridional***

**= 0.334(P x LVs)**

**LVPWS[1+(LVPWs/LVs)]**

*Where P = systolic cuff pressure, LVs = left ventricular internal diameter in end-systole, LVPWs = left ventricular posterior wall thickness in end-systole.*

1. ***Pulmonary Vascular Resistance***

**= [V(TR) max ∕ VTI(RVOT) × 10] + 0.16**

*Where V(TR)max = maximum tricuspid regurgitation velocity, VTI(RVOT) = velocity time integral of right ventricular outflow tract.*

*Reference: Mortens LL, Friedberg MK. Echocardiographic assessment of cardiac dimensions, cardiac function and valve function. In: Allen HD, Driscoll DJ, Shaddy RE, Feltes TF. Moss and Adams’ Heart Disease in Infants, Children, and Adolescents. 8th ed. Lippincott Williams & Wilkins, 2013, pp 172-206.*