Comparison of QRS duration in African Blacks and European Caucasians

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Introduction Racial variation in QRS duration is not well defined. This study was aimed at comparing the QRS duration in a large population of healthy individuals living in Nigeria with comparative values from a Caucasian population living in Scotland.

Methods 12 lead ECGs were recorded from apparently healthy volunteers living in and around Ilorin, Nigeria, using a Burdick Atria 6100 ECG machine. The ECG data was initially stored on a PC locally and thereafter sent to Glasgow for further analysis. The West of Scotland population was recruited from students as well local government employees and included both manual and sedentary workers. All ECGs were analysed by the same version of the University of Glasgow ECG analysis program.

Results The Nigerian population consisted of 782 males and 479 females aged from 20-87 years. The Caucasian population consisted of 859 males and 637 females aged from 18-82 years.

For the Nigerian population, the overall QRS duration for males was 87.9 $\pm$ 9.4ms and for females, it was 83.4 $\pm$ 7.7ms ($p<0.001$). The upper limits of normal were 112ms in males and 100ms in females.

For the Caucasian population, the overall QRS duration in males was 93.7 $\pm$ 9.8ms and in females was 86.1 $\pm$ 7.7ms ($p<0.001$). The upper limits of normal were 114ms for males and 102ms for females.

In both populations, the mean QRS duration was higher in males than in females at each decile of age.

There was a significantly longer mean QRS duration ($p<0.001$) in white males and females compared to their Nigerian counterparts

Conclusion These are the first data from large indigenous populations in Africa and Western Europe that demonstrate a significant difference in mean QRS duration between the two racial groups. These results have important implications for routine ECG interpretation, particularly using automated methods.