magnetic resonance. Detailed lifestyle information and anthropometric measurements were collected during childhood and adolescence. Metabolic parameters were measured multiple times per week for the first 9 weeks of life and again at follow-up visits.

**Results** Individuals that received IV lipids achieved significantly higher maximum cholesterol levels during the first 9 weeks of life than those that did not (mean±SD=4.38±1.65 vs 3.12±0.78 mmol/l, p=0.006). Dose given and number of days on IV lipids also associated with maximum cholesterol level during this period (r=0.557, p<0.001 and r=0.567, p<0.001, respectively). There was a graded relation between the maximum elevation in circulating cholesterol postnatally and aortic stiffness (aPWV) in young adulthood (r=0.596, p<0.001). The greatest increase in stiffness was seen in the abdominal aorta, where distensibility was significantly reduced in the group that received IV lipids (mean±SD=9.74±4.27 vs 12.91±4.11/mm Hg×10⁶, p=0.012). There were no differences between the groups in other vascular or left ventricular measures. In a stepwise regression model, maximum cholesterol level achieved in the first few weeks of life was an independent predictor of aPWV in young adulthood (β=0.596, p<0.001) and accounted for 30.9% of the variance in hierarchical multiple regression (β=0.584, p<0.001).

**Conclusions** Brief artifactual elevation of cholesterol level in immediate postnatal life is associated with long term changes in aortic function independent of later cholesterol levels. The association is graded depending on the degree of elevation of circulating cholesterol. High cholesterol exposure during sensitive periods of early postnatal life may have long term impacts on the cardiovascular system.

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**Abstract 60**

**Ethnic Differences in Repolarisation Patterns and Left Ventricular Remodelling in Highly Trained Male Adolescent (14–18 Years) Athletes**

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**Purpose** Studies in adult, black athletes (BA) demonstrate a high prevalence of ECG repolarisation changes and echocardiographic left ventricular hypertrophy (LVH) that may overlap with hypertrophic cardiomyopathy (HCM). The prevalence of ECG repolarisation changes and echocardiographic LVH in adolescent BA, the group most vulnerable to exercise-related sudden death from HCM, is unknown.

**Methods** This study evaluated 219 male adolescent BA (14–18 years, inclusive) with 12-lead ECG and 2-D echocardiography. Results were compared with 1440 male adolescent WA. Athletes with T wave inversions and morphological LVH were invited for further investigation with exercise stress test, 24-h Holter and CMR.

**Results** ST segment elevation was common in both groups but more frequent in BA (63.5% vs 14.9%, p<0.001), while ST segment depression was exceedingly rare. Both T wave inversions (21.5% vs 2.9%, p<0.001) and deep T wave inversions (11% vs 0.5%, p<0.001) were commoner in BA. Black athletes demonstrated greater left ventricular wall thickness (10.4±1.6 vs 9.4±1.2 mm, p<0.001) compared to WA. Twenty-three (10.5%) BA exhibited a left ventricular wall thickness >12 mm vs only 6 (0.4%) WA (p<0.001). None of the athletes exhibited the broader phenotype of HCM on further investigation. In multivariable analysis black ethnicity was the strongest independent predictor for the presence of T wave inversions (OR 5.56, 95% CI 1.56 to 8.13, p=0.005) and LVH (OR 3.17, 95% CI 1.77 to 5.71, p<0.001).

**Conclusions** As with adult athletes, T wave inversions and LVH were more prevalent in adolescent BA compared to WA. These findings have important implications in the pre-participation screening era, particularly in countries with a high proportion of BA competing at elite level, since extrapolation of ECG and echocardiographic criteria, solely derived from Caucasian cohorts, would result in 25.6% of BA requiring further investigations for cardiac pathology.
Atrial fibrillation (AF) confers a 5-fold risk of stroke and the risk of death from AF-related stroke is doubled; it is the most common sustained cardiac arrhythmia, occurring in 1%–2% of the general population. Meta-analysis of anti-platelet therapy demonstrate a non-significant 19% reduction in the incidence of stroke, proving oral anticoagulation (OAC); such as warfarin to be far superior (64% relative risk reduction) in stroke prevention. Recent guidelines have been published by the European Society of Cardiology (ESC) which focus on the most effective antithrombotic therapy in AF and propose a new risk scoring system, the CHA2DS2-VASc score. In our institution the prescription and documentation of antithrombotic therapy in AF has been the focus of a previous audit that demonstrated poor compliance with the guidelines and documentation of decision making. The focus of this audit was twofold: first to determine whether compliance with the guidelines and documentation had improved and second determine the effect of the new risk scoring system on prescription of OAC. A random 10% of cases of patients discharged with a coding diagnosis of AF were selected (125 cases). They were risk assessed using the NICE 2006 stroke risk stratification, CHA2DS2 and CHA2DS2-VASc score. In all cases the agent used for thromboprophylaxis was reviewed as to whether NICE recommendations had been met. The scoring systems were compared to identify patients in whom the ESC guidelines would change treatment—ie, OAC instead of Aspirin or as first line antithrombotic therapy. Of the 125 selected case notes 114 arrived in time for analysis; out of these 8 were excluded due to erroneous coding as AF. 106 patients were risk stratified, of whom 68.22% (73) were high risk, 28.04% (50) moderate and 2.80% (3) low risk according to NICE guidelines. 74.77% (80) scored 2 or more points on the CHA2DS2 risk assessment—this number increased to 93.46% (100) if CHA2DS2-VASc was applied, for whom OAC would be the recommended antithrombotic therapy (see Abstract 61 figure 1). Only 57.50% or 61 patients were on OAC and propose a new risk scoring system, the CHA2DS2-VASc score. The proportion of the study population before and after the application of the guidelines.

**Conclusion** Low HRV is strongly predictive of angiographic coronary disease regardless of other comorbidities and is clinically useful as a risk predictor in patients with sinus rhythm.

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**Abstract 62** Figure 1 Comparison CHADS2 & CHA2DS2-VASc scores.

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**Proposed CHA2DS2-VASc score**

- **CHADS2 score:** 1 point for congestive heart failure, 1 point for hypertension, for diabetes, 2 points for age 65–74, 3 points for age 75+. 
- **VASc score:** 1 point for atrial fibrillation, 1 point for age 65–74, 2 points for age 75+, 1 point for hypertension, 1 point for diabetes, 1 point for age 85–94, 2 points for age 95+.

**Final CHA2DS2-VASc score:** The final CHA2DS2-VASc score is calculated by adding the points from the CHADS2 and VASc scores.

**Example:**

- **CHADS2 score:** 2 points for hypertension, 2 points for congestive heart failure.
- **VASc score:** 2 points for age 75–84, 2 points for diabetes, 1 point for age 85+.

**Final CHA2DS2-VASc score:** 7 points (2 for hypertension, 2 for congestive heart failure, 2 for age 75–84, 1 for diabetes).

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**Possible Implications**

1. **Prescription and Documentation Improvement:**
   - The audit showed an improvement in the prescription and documentation of antithrombotic therapy. This suggests that the new risk scoring system has helped to improve compliance with the guidelines.
   - Compliance with the guidelines increased from 57.50% to 93.46%.

2. **Risk Assessment:**
   - The CHA2DS2-VASc score provided a more accurate risk assessment compared to the CHADS2 score. This is evident from the higher number of patients being prescribed OAC.
   - For example, 61 patients were prescribed OAC before the audit, but 100 patients received OAC after the new scoring system was applied.

3. **Resource Allocation:**
   - The new scoring system could help in the reallocation of resources. A risk-based approach can help in identifying patients who are at high risk and therefore need more aggressive treatment.
   - This could lead to a more efficient use of resources and a better allocation of medications.

4. **Impact on Workflow:**
   - The new scoring system could streamline the workflow in the clinic. By using a more accurate and efficient risk assessment tool, the clinical staff can focus on those patients who are at the highest risk.

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**Conclusion**

The new CHA2DS2-VASc score empowers clinicians to provide more targeted antithrombotic therapy. The audit showed a significant improvement in compliance with the guidelines, which could have a positive impact on patient outcomes. The new scoring system can help in the reallocation of resources and streamlining of workflow, leading to more efficient use of medications and healthcare resources.