

The cross-sectional study assessed ECG and ECHO data from 161 patients (57 men, 104 women; 94% black) aged 21 to 80 years who underwent ECG and ECHO at 2 health centers in Jamaica from July to October 2013. On the basis of body mass index, 35% of the participants were underweight or normal weight (<19–24.9 kg/m²), 34% were overweight (25–29.9 kg/m²), and 31% were obese or morbidly obese (≥30 kg/m²). Except for hypertension, the prevalence of preexisting conditions was low. NYHA classes I, II, III, and IV comprised 80, 43, 16, and 22 participants, respectively.

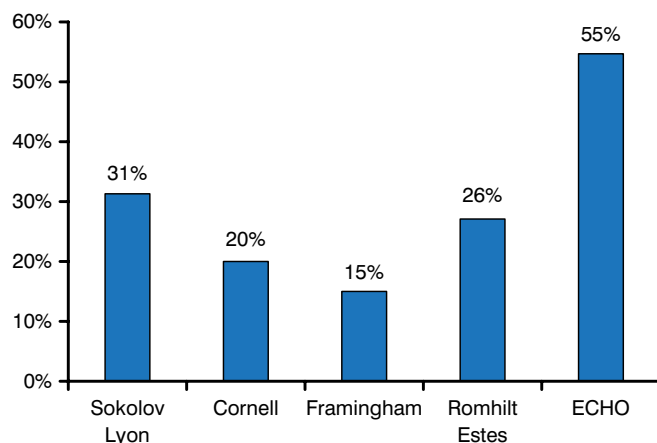
ECG had low sensitivity and higher specificity in the detection of LVH. The Sokolow-Lyon criteria were the most sensitive for detecting LVH (44%), followed by the Romhilt-Estes (37%), Cornell (30%), and Framingham (25%) criteria. The Framingham criteria were most specific (97%), followed by the Romhilt-Estes (92%), Cornell (93%), and Sokolow-Lyon (83%) criteria. The presence of LVH according to the ECG criteria and ECHO varied, with the latter being superior (Figure 1).

The Framingham criteria had the highest PPV, followed by the Romhilt-Estes, Cornell, and Sokolow-Lyon criteria (Figure 2).

ECHO detection of LVH did not differ appreciably by sex or age. Age was more influential for ECG-based detection of LVH with the Sokolow-Lyon and Romhilt-Estes criteria.

Study limitations included the limited patient pool, inability to reach a target sample size that would be representative given the estimated 18% prevalence of LVH

Figure 1. Presence of Left* Ventricular Hypertrophy on ECG and ECHO.

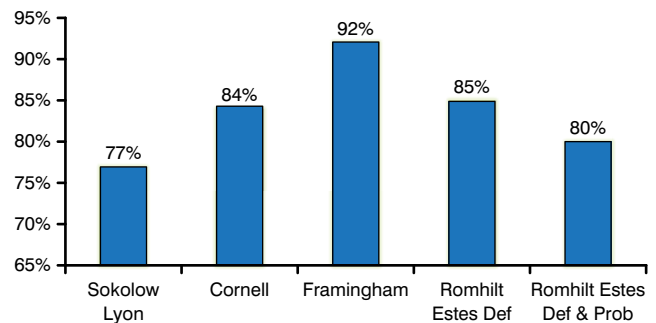


ECG=electrocardiography; ECHO=echocardiography.

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*On November 12, 2014, Left was inserted in this figure title.

Figure 2. Positive Predictive Value of ECG Criteria for Left Ventricular Hypertrophy.



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in Jamaican adults, and difficulty in standardizing the ECHO procedure among the participating institutions. Nevertheless, the results indicate that everyday clinical practice could benefit from the use of other criteria, such as the Framingham criteria, in LVH screening.

Normal ECG May Not Preclude Cardiovascular Risk in Jamaican Patients

Written by Brian Hoyle

Normal results on electrocardiography (ECG) may not rule out the risk for cardiovascular diseases (CVDs), with patient history still being important in the screening for CVD, according to a study conducted by Ayoki C. Levy, BA, Kalamazoo College, Kalamazoo, Michigan, USA, in collaboration with colleagues at the Heart Foundation of Jamaica in Kingston, Jamaica.

CVDs are the leading global cause of death, with 17 million attributable deaths each year.

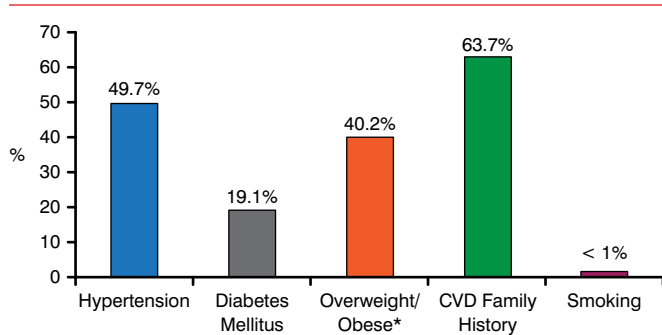
The World Health Organization estimates that CVD will kill >23 million people annually by 2030. Early detection and treatment can reduce associated morbidity and death. A host of ethnic, physiologic, and behavioral risk factors have been linked with CVD, including a sedentary lifestyle, hypertension, diabetes mellitus, obesity, age, tobacco exposure, excessive consumption of alcohol, and a family history of CVD.

The present study examined the prevalence of risk factors among 157 adult Jamaicans who underwent ECG to screen for CVD at the Heart Foundation of Jamaica during June 2013. The majority of patients resided in Kingston (n=87) and the bordering St. Catherine parish (n=52), with the remainder distributed evenly



CLINICAL TRIAL HIGHLIGHTS

Figure 1. Prevalence of CVD Risk Factors



CVD=cardiovascular disease.

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*On November 12, 2014, this was changed from Obses to Obese.

throughout the country. Patient demographics, medical history, family history, and results of ECG were collected and analyzed.

Sixty-one percent of the participants were women, with a mean age of 59±14 years, mean blood pressure (BP) of 131±20/83±13 mm Hg, mean body mass index of 27.2±5.4 kg/m², and mean total cholesterol of 5.1±.9 mmol/L. Various CVD risk factors were evident,

predominantly a family history of CVD and subject hypertension (Figure 1).

Results of ECG were normal in 62% of the subjects and abnormal in 38%. The CVD risk factors of hypertension, diabetes, mellitus, body mass index, and family history of CVD were not significantly different between subjects with normal and abnormal results on ECG. Subjects with normal results on ECG were more likely to have lower systolic BP (SBP) and diastolic BP (DBP; Table 1).

Logistic regression analysis revealed DBP to be the strongest predictor of abnormal cardiographic results ($\beta=2.438$, $p=.03$), with SBP also being significant ($\beta=1.197$, $p=.03$). There was a trend toward a higher prevalence of abnormal results on ECG in subjects with diabetes ($\beta=.093$, $p=.82$) and those who were overweight ($\beta=.167$, $p=.66$). Although CVD risk factors were prevalent in the study subjects, 62% of the subjects displayed normal results on ECG.

The results indicate that even though ECG is a convenient and easy screening tool for CVD, normal findings do not necessarily indicate the absence of a significant risk for CVD. The familial connection with CVD risk means that history taking should remain a part of CVD screening.

Table 1. Association of Cardiovascular Disease Risk Factors With Normal and Abnormal Results on ECG

Risk Factor	Normal Results on ECG	Abnormal Results on ECG	p Value	Odds Ratio (95% CI)
Systolic BP (mm Hg)				
			.029	
90–120	41	23		1.00
121–150	49	24		.431 to 1.770
151–200	7	13		1.157 to 9.472
Diastolic BP (mm Hg)				
			.010	
60–80	54	33		1.00
81–100	42	20		.392 to 1.548
101–130	1	7		1.348 to 97.316
Cardiovascular family history				
			.789	
Yes	61	39		.466 to 1.786
No	36	21		1.00
Hypertension				
			.073	
Yes	54	42		.939 to 3.675
No	43	18		1.00
Diabetes mellitus				
			.823	
Yes	18	12		.486 to 2.476
No	79	48		1.00
Body mass index				
			.862	
Normal weight	36	22		1.00
Overweight	36	26		.568 to 2.457

BP=blood pressure; ECG=electrocardiography.

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