SUMMARY

Background and Methods

There is paucity of data on the risk factors for mortality in Nigerians hospitalized for congestive heart failure (CHF). In the United States of America (U.S.A), African Americans have higher mortality and hospitalization rates, compared with other racial/ethnic groups in the United States (U.S) and there is limited data among Nigerians regarding mortality. Important prognostic factors have been identified among clinical trial enrollees. However, factors that predict mortality in the community setting may differ.

One hundred consecutive CHF patients presenting to the Obafemi Awolowo University Teaching Hospitals Complex, age and sex matched controls were followed up for three months. The risk factors for mortality were assessed in the study participants. Initial comparison was between heart failure (HF) patients and apparently normal volunteers who served as controls.

The HF patients were subsequently divided into 2 groups: low risk group and intermediate/high risk group; having merged the intermediate and the high risk group.

Clinical and laboratory variables were subsequently compared between the two groups using the students t test and chi square where applicable.

Results

Overall demographics showed that HF patients were well matched for age and sex: mean age of 54.40 ± 15.41 years for HF patients and 54.34± 15.17 years for the control group, males 62% for the HF patients and 54% for the control group.
The risk factors for mortality were significantly commoner in HF patients compared to the controls.

There were a total of 6 (6%) deaths during the 3 months study period. All deaths occurred in the intermediate/high risk group and these patients all had systolic HF.

On univariate analysis, the proportion of patients in the intermediate/high risk group that had a third heart sound, elevated jugular venous pressure and New York Heart Association (NYHA) class 3 or 4 was significantly more compared to those in the low risk group.

A significantly longer QT interval and elevated uric acid level was found in the intermediate/high risk group compared with the low risk group.

The following echocardiographic variables were significantly associated with the intermediate/high risk group compared with the low risk group: moderate/severe mitral and tricuspid regurgitation, lower ejection fraction and fractional shortening, shortened deceleration time and a restrictive left ventricular filling pattern.

The following indices of arrhythmia were significantly associated with the intermediate/high risk group: left bundle branch block, ventricular extrasystoles and atrial fibrillation.

The exercise capacity in the intermediate/high risk group was significantly less than that of the low risk group.

The improvement in ejection fraction units and fractional shortening on repeat echocardiogram was significantly less in the intermediate/high risk group.

Only echocardiographic variables that had a univariate association with the risk groups at P<0.05 were considered for inclusion in the multivariate regression analysis. The significant predictors of membership of the intermediate/high risk group reduced to only three; a low ejection fraction, a low fractional shortening and moderate/severe mitral regurgitation.
Adjusted odds ratio and 95% confidence interval were calculated. Patients with an ejection fraction below 40% are about 10 times (9.961) more likely to be in the intermediate/high risk group compared to those with an ejection fraction above 40%.

Patients with a fractional shortening below 15% are also about 10 times (9.961) more likely to be in the high-risk group compared to those with a fractional shortening above 15%.

Patients with moderate to severe mitral regurgitation are more than three times (3.488) more likely to be in the intermediate/high risk group compared to those with absent to mild mitral regurgitation.

**Conclusion**

It has been shown that patients classified into the intermediate/high risk group using readily available parameters as compared with those in the low risk group will have worse echocardiographic findings and a worse outcome. This classification scheme thus identifies those that may benefit from a more aggressive line of treatment.