

Diabetic Cardiomyopathy Is Associated with Worsening Quality of Life Long Before the Development of Overt Heart Failure: Lessons from the Baseline Analysis of the ARISE-HF Trial

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INTRODUCTION

Diabetic Cardiomyopathy (DbCM) is a form of Heart Failure occurring in individuals with diabetes in the absence of other causes of cardiac dysfunction such as uncontrolled hypertension, CAD, or valvular disease. The ARISE-HF study is designed to investigate the efficacy of AT-001, a novel aldose reductase inhibitor, in preventing the worsening of cardiac functional capacity in patients with DbCM.

HYPOTHESIS

The impact of DbCM on quality of life is greater than previously recognized, as patients with DbCM often adopt lifestyle changes to mitigate the impact of early symptoms. The hypothesis of the present study is that avoidance of physical activities in patients with DbCM may mask the clinical presentation of structural and functional changes that have occurred.

METHODS

The objective of the study was to investigate the physical activity levels in individuals with DbCM.

Patients enrolled in the ARISE-HF study with confirmed diagnosis of DbCM were evaluated for functional capacity (measured by peak VO₂) and Physical Activity Scale (PASE) questionnaire, a validated test designed to measure the amount of physical activity carried out the prior week.

Inclusion criteria included diagnosis of DbCM and impaired functional capacity <75% of predicted normal. Exclusion criteria included diagnosis of overt HF, history of CVD leading to cardiac dysfunction, elevated BP, and uncontrolled DM (HbA1c>8.5%).

DbCM DIAGNOSIS

2TDM

Structural and/or functional heart disease defined by presence of echocardiographic abnormalities or elevated cardiac biomarkers (NTproBNP ≥ 50 ng/L or high sensitivity cardiac troponin ≥ 6 ng/L)

Impaired CPET

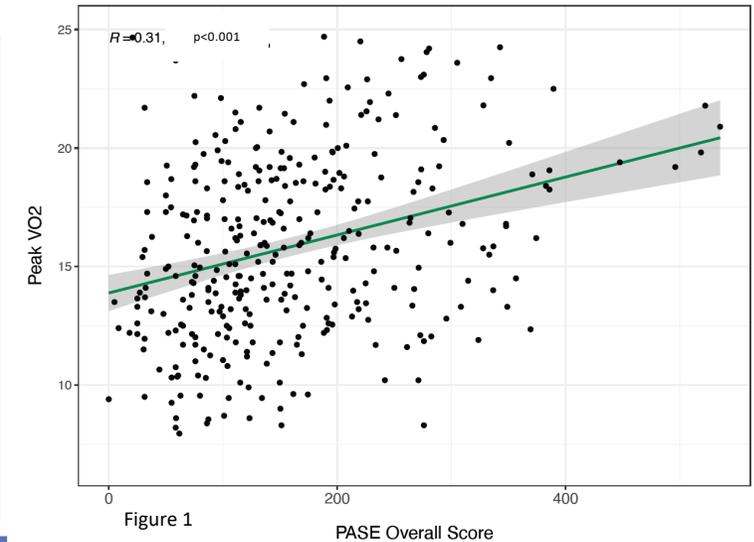
- Peak VO₂<75% of predicted
- RER₁ ≥ 1.05

RESULTS

At the time of analysis 363 patients had been evaluated (mean age 67.5 ± 7.1 years, 47% female, BMI 30.3 ± 4.6, NTproBNP 113.4 ± 252.7 ng/L, and HbA1c 7.0 ± 0.8%) with diagnosis of DbCM. PASE score (mean 157.9± 94.0) was indicative of reduced physical activity and associated (p<0.001) with peak VO₂ uptake (r=0.31) Figure 1, underscoring the relationship between functional capacity and physical activity level.

Patient characteristics

Age (years)	67.5± 7.1
Female	171 (47)
BMI (kg/m ²)	30.3 ± 4.6
NTproBNP (ng/L)	113.4 ± 252.7
PASE score	157.9 ± 94.0



CONCLUSIONS

- DbCM is a form of HF leading to decreased functional capacity.
- The ARISE-HF study is an ongoing Phase 3 clinical study to investigate the efficacy of AT-001 in patients with DbCM at risk of progression to overt HF.
- Many patients with DbCM have reduced their daily physical activities to mitigate the presentation of symptoms of fatigue; however, their quality of life is significantly affected by the disease even before the progression to overt HF.

REFERENCES

Segar MW, et al. Prevalence and Prognostic Implications of Diabetes With Cardiomyopathy in Community-Dwelling Adults. J Am Coll Cardiol. 2021;78(16):1587-98
Pham I, et al. Evidence for a Specific Diabetic Cardiomyopathy: An Observational Retrospective Echocardiographic Study in 656 Asymptomatic Type 2 Diabetic Patients. Int J Endocrinol. 2015;2015:743503.