

Effect of Myocardial Infarction With Nonobstructive Coronary Arteries on Physical Capacity and Quality-of-Life



Maria Daniel, MD^{a,*}, Stefan Agewall, PhD^b, Kenneth Caidahl, PhD^c, Olov Collste, PhD^a, Christina Ekenbäck, MD^d, Mats Frick, PhD^a, Shams Y-Hassan, MD^e, Logman Henareh, PhD^e, Tomas Jernberg, PhD^e, Karin Malmqvist, PhD^d, Karin Schenck-Gustafsson, PhD^{f,g}, Peder Sörensson, PhD^f, Örjan Sundin, PhD^h, Claes Hofman-Bang, PhD^d, and Per Tornvall, PhD^a

Patients with myocardial infarction with nonobstructive coronary arteries (MINOCA), including Takotsubo syndrome (TS), are considered to have a better survival compared with those with coronary heart disease (CHD). Studies of patients with MINOCA measuring physical and mental function including matched control groups are lacking. The aim of this study was to determine the physical capacity and quality of life in patients with MINOCA. One-hundred patients with MINOCA along with TS (25%) were investigated from 2007 to 2011. A bicycle exercise stress test was performed 6 weeks after hospitalization and QoL was investigated by the Short Form Survey 36 at 3 months' follow-up. Both a healthy and a CHD group that were age and gender matched were used as controls. The MINOCA group had a lower physical capacity (139 ± 42 W) compared with the healthy control group (167 ± 53 W, $p < 0.001$) but better than the CHD control group (124 ± 39 W, $p = 0.023$). Patients with MINOCA had lower physical and mental component summary scores compared with the healthy controls ($p < 0.001$) and lower mental component summary ($p = 0.012$), mental health ($p = 0.016$), and vitality ($p = 0.008$) scores compared with the CHD controls. In conclusion, the findings of this first study on exercise capacity and QoL in patients with MINOCA showed both physical and mental distress from 6 weeks to 3 months after the acute event similar to CHD controls and in some perspectives even lower scores especially in the mental component of QoL. © 2017 Elsevier Inc. All rights reserved. (Am J Cardiol 2017;120:341–346)

The long-term prognosis in patients with myocardial infarction with nonobstructive coronary arteries (MINOCA) has been reported with better prognosis compared with patients with coronary heart disease (CHD) but still of concern.¹ There is a large gap of knowledge regarding important outcomes, such as well-being in patients with MINOCA. There are no previous studies measuring quality of life (QoL), including work capacity, in MINOCA. Therefore, this study was performed to describe and possibly clarify the physical and mental health of patients with MINOCA during convalescence using a modified exercise stress test and by the Short Form 36 (SF-36) survey. Our hypothesis was that patients with MINOCA had decreased work capacity and QoL compared

with the healthy controls, thus resembling patients with CHD.

Methods

From June 2007 to May 2011, a total of 176 patients were screened for the study at 5 coronary care units in the Stockholm metropolitan area. Patients aged 35 to 70 years fulfilling the diagnostic criteria of acute myocardial infarction,² including Takotsubo syndrome (TS), and a coronary angiogram with no or minimal signs of atheromatosis (<30% reduction of the vessel lumen) were eligible for the study. All 100 patients with MINOCA were individually matched by gender and age (within ± 5 years) to 2 control groups: myocardial infarction patients with CHD (stenosis >50%) and healthy controls. Eighty-nine percent of the CHD controls were revascularized with percutaneous coronary intervention and none of them showed remaining ischemia on an exercise stress test. All 100 healthy controls were free from previous and symptomatic CHD and performed a normal exercise stress test. The screening process and results of the study regarding atherosclerosis markers have previously been published.^{3,4}

Patients with MINOCA and CHD controls performed a standardized exercise bicycle stress test 6 weeks after the acute event, whereas the healthy controls performed it at their one and only study visit. Subjects performed a symptom-limited exercise stress test using a modified protocol starting at 40 Watts (W) by addition of 10 W every

^aDepartment of Clinical Science and Education, Södersjukhuset; ^cDepartment of Molecular Medicine and Surgery; ^dDepartment of Clinical Sciences, Danderyd Hospital; ^eDepartment of Medicine, Huddinge; ^fCardiac Unit, Department of Medicine, and ^gCentre for Gender Medicine, Karolinska Institutet, Stockholm, Sweden; ^bDepartment of Cardiology, Institute of Clinical Sciences, University of Oslo, Oslo, Norway; and ^hDepartment of Psychology, Mid Sweden University, Östersund, Sweden. Manuscript received February 3, 2017; revised manuscript received and accepted May 3, 2017.

See page 345 for disclosure information.

*Corresponding author: Tel: (+46) 70-5854585; fax: (+46) 8-7201398.

E-mail address: maria.daniel@ki.se (M. Daniel).

Table 1
Patient characteristics including results of exercise stress test

	MINOCA n=92	CHD control n=97	Healthy control n=99	MINOCA vs CHD (p-value)	MINOCA vs Healthy control (p-value)
Age (years)	58±8	59±8	59±8	-	-
Women	65%	69%	70%	-	-
Hypertension	32%	45%	17%	0.093	0.006
Hyperlipidemia	8%	19%	4%	0.031	0.193
Diabetes Mellitus	3%	8%	0%	0.139	0.072
Psychiatric disorder	19%	11%	3%	0.087	<0.001
Reported physical and/or mental distress before admission (within 1 week)	59%	13%	-		
Maximal work capacity in Watt (mean)	139±42	124±39	167±53	0.023	<0.001
Percentage of estimated maximal heart rate	90±11	86±12	100±9	0.010	<0.001
Individuals treated with beta blocker	63%	89%	12%		

Values are mean ± SD or percentage.

Significant p-values are indicated in bold font.

CHD = coronary heart disease; MINOCA = myocardial infarction with non-obstructive coronary arteries.

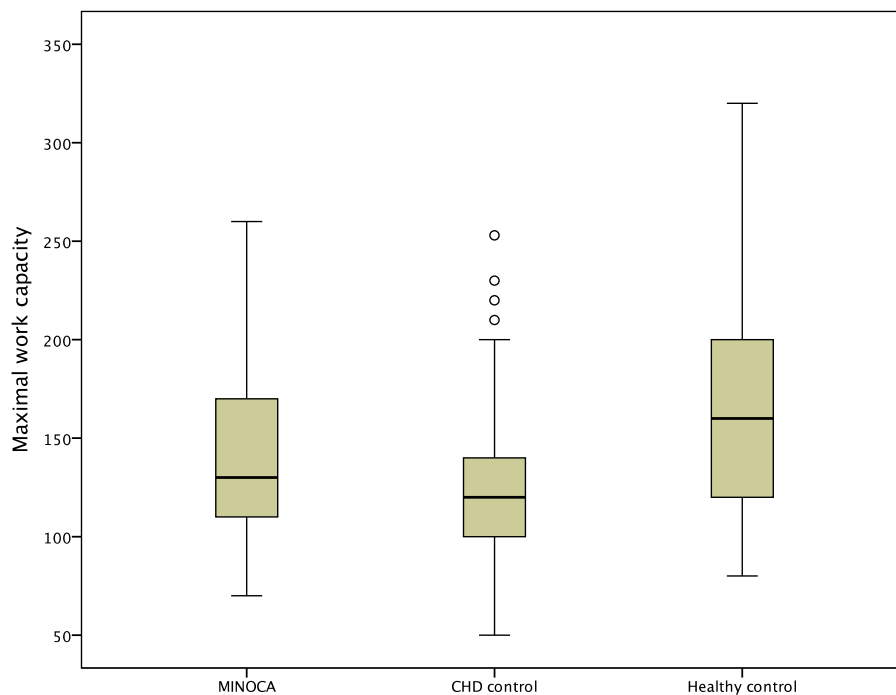


Figure 1. Work capacity in MINOCA and control groups.

minute. The test included an observation time of 10-minute rest after the test to identify any possible post-stress symptoms and ECG changes including arrhythmias. During exercise, blood pressure, degree of subjective limitations like chest pain, effort, and breathless using the Borg score were monitored every minute. The predicted heart rate maximum was calculated using the traditional 220 minus age equation. Work capacity was measured in Watts, and results were presented as maximal work capacity and percentage of maximal heart rate. In total, 288 treadmill stress tests in 300 patients and controls (96%) were performed, 92 in the study group, 97 in the CHD control group, and 99 in the healthy control group. Reasons for not performing an exercise stress test were diseases such as gastroenteritis or anemia or that

the patient was unable due to knee problems or never learned how to ride a bicycle.

The SF-36 standard Swedish, version 1.0, was administered 3 months after the acute event in patients with MINOCA and CHD controls and at the one and only study visit for the healthy controls.⁵ SF-36 is a self-assessment health status questionnaire containing 36 items (questions) about sociodemographic, health, and personal behavior, grouped into 8 multi-item domains, measuring the following: (1) physical functioning (10 items), (2) social functioning (2 items), (3) role limitations because of physical problems (4 items), (4) role limitations because of emotional problems (3 items), (5) mental health (5 items), (6) energy and vitality (4 items), (7) bodily pain (2 items),

Download English Version:

<https://daneshyari.com/en/article/5594807>

Download Persian Version:

<https://daneshyari.com/article/5594807>

[Daneshyari.com](https://daneshyari.com)