THE EFFECTS OF INTRADIALYTIC EXERCISE PLUS MUSIC ON ANXIETY

Spyridon Vrakas[1], Dimitra Mameletzi[1], Theodoros Samaras[2], Vassilios Liakopoulos[3], Evangelia Kouidi[1], Asterios Deligiannis[1]

[1] Laboratory of Sports Medicine, Department of Physical Education and Sports Sciences, Aristotle University of Thessaloniki, Greece

[2] Radiocommunications Laboratory, Department of Physics, Aristotle University of Thessaloniki, Greece

[3] A' Internal Medicine Clinic- Renal Unit, Aristotle University of Thessaloniki, Thessaloniki, Greece

INTRODUCTION

Hemodialysis (HD) patients experience high levels of anxiety, especially during dialysis treatment, affecting their quality of life negatively. Studies have shown that both exercise training and listening of music can reduce stress in diseased individuals. In our previous study, a 6-month combination of intradialytic exercise and music was found to improve the cardiac autonomic disturbances significantly.

AIM

The aim of this study was to investigate the effectiveness of a short-term intradialytic exercise program, accompanied with music of preference on the levels of anxiety in HD patients. The originality of the study consists in that we examined the effect of the combination of exercise and listening to music during HD in stress measured both subjectively and objectively.

METHODS

PATIENTS

Inclusion criteria	Exclusion criteria
Age ≥ 20 years old	Cognitive or hearing disorders
Treatment ≥ 6 months on HD therapy	Orthopedic problems
HD 3d / wk, 4 hours / per session	Myocardial infarction at last 6 months
Systolic BP ≤ 180 mmHg	Unstable angina pectoris
Diastolic BP ≥ 95 mmHg	Antidepressants or psychotropic medications

31 volunteer HD patients
21 men & 10 women

Group A	Group B
Intradialytic exercise program and preference music	Usual HD treatment
Drop out=1	No extra intervention
n=15	(control group)
	n=15

Clinical characteristics

Age : 47.1 ± 15.2 yrs	Age : 63.8 ± 9.5 * yrs
Years on HD : 7.3 ± 5 yrs	Years on HD : 7.5 ± 6 yrs
Hb : 11.1 ± 1.5 g/dl	Hb : 11.3 ± 1.3 g/dl

*p<0.05, thus statistics measures were calculated with adjustments for age

Intervention program (12 weeks)

Exercise with :
- Stationary bicycles
- Strengthening exercises

3d/wk, 30' - 60'

Music during intradialytic exercise program:
- Patients' preference music

Intradialytic exercise program with stationary bicycles and strengthening exercises

The dialysis prescription, medications and the level of anemia remained constant during the study.

MEASUREMENTS

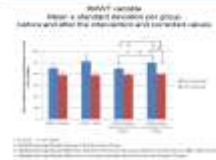
At baseline and the end of the study all patients underwent:

- **Six Minute Walking Test (6MWT):** Functional capacity

Assessment of Anxiety:

- **State-Trait Anxiety Inventory (STAI):** Subjective measurement of the level of anxiety
- **Cooking Hacks' company sensors platform:** Objective measurement of the level of anxiety by Skin Conductance Response

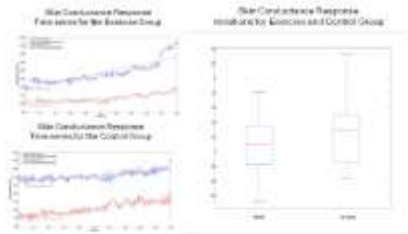
RESULTS



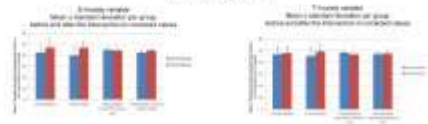
Functional capacity
(6MWT (m)

Anxiety state

Objective measurement
Cooking Hacks' company sensors platform



Subjective measurement
STAI Questionnaire



Pearson's correlation coefficient
between changes of the variables for the Exercise Group

		6MWT (after - before)	X-anxiety (after - before)	T-anxiety (after - before)	Hb (after - before)	Music (after - before)
6MWT (after - before)	Pearson's Correlation	1	0.466	0.466	0.1	0.317
	Sig. (2-tailed)		0.083	0.083	0.719	0.305
	N	15	15	15	15	15

Although the level of both State and Trait Anxiety was decreased after the 3-month intervention program, there was no statistically significant difference.

There seems to be a correlation between the improvement of functional capacity and the level of anxiety in the trained HD patients.

CONCLUSIONS

A short-term intradialytic exercise training program accompanied with music of the patients' preference improves their functional capacity, without clearly affecting the level of anxiety in HD patients. Thus, a longer intervention may be required.

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