EXERCISE TRAINING AND DOPAMINE AGONISTS IN HEMODIALYSIS PATIENTS WITH RESTLESS LEGS SYNDROME/WILLIS-EKBOM DISEASE. A RANDOMIZED DOUBLE-BLIND PLACEBO CONTROLLED STUDY

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INTRODUCTION - AIMS

Restless Legs Syndrome or Willis-Ekbom Disease (RLS/WED) is very common in the hemodialysis (HD) population known also as uremic RLS (1). Recent data indicate that both long-term aerobic exercise and dopamine agonists (DA) could ameliorate the uremic RLS symptoms (2) however, it is still unknown whether the combination of a low dose of DA and intradialytic exercise training could ameliorate the uremic RLS symptoms in a synergistic fashion. **The aim of the current study was to investigate the effects of a six month combinational therapy of a low dose of DA and exercise training in RLS symptoms' severity in patients with uremic RLS.**

METHODS

Fourteen stable HD patients with RLS were randomly assigned into the exercise training plus dopamine agonists group (ropinirole 0.25mg/d, N= 7, 55.5±8.8 years), and the exercise training plus placebo group (N= 7, 54.6±16.3 years). Intradialytic exercise training included 45 min cycling at the 60% of the maximum work load assessed and readjusted every month. The severity of RLS was assessed using the IRLS severity scale, physical performance by a battery of tests, muscle quality by CT, depression levels, sleep quality, daily sleepiness and quality of life (QoL) assessed through validated questionnaires.

RESULTS

Both the combinations were found to significantly improve uremic RLS symptoms, with no significant adverse effects. Exercise training in combination with dopamine agonists was able to induce significant and impressive changes in skeletal muscle quality, while improved the patient's quality of life. Functional capacity was improved by both approaches.

Table 1: Daytime sleepiness, sleep quality, physical performance and RLS symptom's severity data divided into exercise plus dopamine agonists and exercise plus placebo groups

Variables	Exercise plus DA group	Exercise plus placebo group
Sleep diary		
Baseline	6.3±5.3	7.1±3.7
6-month post	5.3±3.5	3.3±1.6†
Δ change	-1.0±3.4	-3.8±2.1
Epworth Sleepiness scale		
Baseline	4.6±1.7	6.5±4.5
6-month post	2.8±2.3†	3.8±2.1
Δ change	-1.8±1.6	-2.6±3.0
NSRI test (sec)		
Baseline	66.6±12.2	73.9±34.1
6-month post	55.4±8.9†	64.4±29.9†
Δ change	-11.2±11.6	-9.4±5.0
IRLS score		
Baseline	15.3±10.1	12.0±10.6
6-month post	6.6±8.8†	4.6±5.7†
Δ change	-9.1±6.3	-7.3±6.4

All data are mean ± SD. Abbreviations: North Staffordshire royal infirmary test; IRLS, International Restless Legs Syndrome severity scale; †significantly different from the respective baseline value

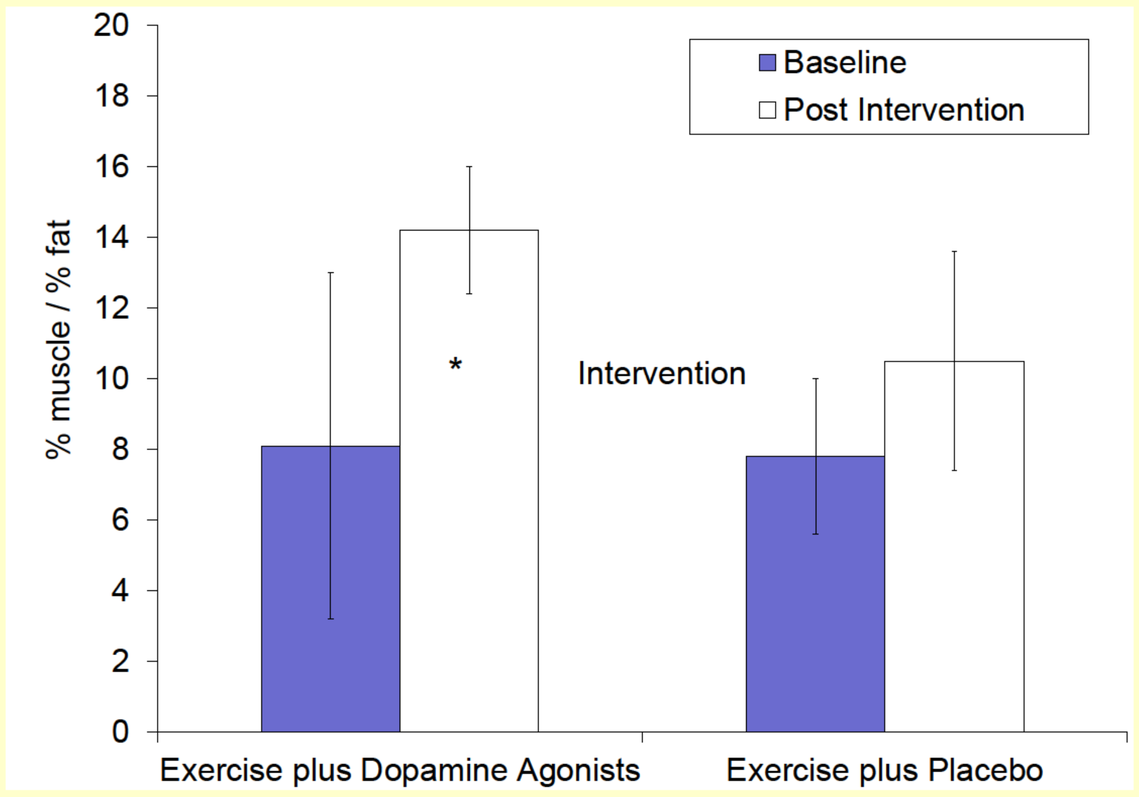

Figure 1: Percentage of Computed Tomography-derived percentage of muscle Cross Sectional Area to extramyocellular fat within the thigh muscle in baseline and after the 6-month intervention period, presented according to the type of the intervention

CONCLUSIONS

Exercise alone or in combinations with low dosage dopamine agonist are effective approaches in reducing RLS symptoms and improving physical performance in patients with uremic RLS. However, only the combination of dopamine agonists and exercise training is effective in terms of inducing favorable changes in the patients' skeletal muscle and quality of life.

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