

Communication

Letter to the Editor

To the Editor:

Your Invited Editorial by Evangelia Kouidi on exercise training in dialysis patients (1) emphasized the functional and psychological benefits of using regular exercise as an adjunctive therapy in the treatment of uremic patients, especially those undergoing hemodialysis.

In the above-mentioned review, an improvement of aerobic and working capacity, lipid and carbohydrate profiles, mineral metabolism, blood pressure control, hematocrit and hemoglobin levels, symptoms of peripheral autonomic neuropathy and uremic myopathy, and psychological status (depression and anxiety) were shown in patients undergoing regular exercise. It has also been observed that in hemodialysis patients, moderate physical activity, either during hemodialysis treatment or on off-dialysis days, determines similar physical and psychological benefits.

There is no mention of improvement of dialysis efficiency from muscular mobilization performed during a hemodialysis session. We have observed that both voluntary and electrostimulated muscle exercises during the hemodialysis session increase blood flow, venous return, and muscle perfusion, and in this way can favor the removal of urea nitrogen from the extracellular space and intracellular space, establishing an improvement in dialysis efficacy (2).

Our work was carried out on 20 motivated patients on maintenance hemodialysis treatment (11 males and 9 females; mean age 48.5 ± 11.1 years). The study planning concerned three observation phases of 2 weeks each. During the first phase, the patients had muscular rest sittings; during the second phase, the patients practiced muscular mobilization through voluntary physical isotonic exercises; and during the third phase, the patients underwent muscular mobilization through electrical muscle stimulation. The patients were trained to use a portable electronic muscle stimulator (Compex Technologies, Minneapolis, MN, U.S.A.) during the third hour of dialysis treatment. The electrode pads were placed on the quadriceps muscles. The progression of current intensity and duration was performed to maximum

tolerability (≥ 25 mA). The session lasted for 25 min and the program had three different phases: warming up (5 min), strength and resistance (15 min), active recovery (5 min).

We observed improvement of Kt/V from 1.29 ± 0.13 on the basal condition to 1.40 ± 0.15 after active exercise and 1.37 ± 0.16 after electrical stimulation; postdialytic rebound (%) decreased from 6.17 ± 2.5 on the basal condition to 4.61 ± 2.8 after active exercise and 4.57 ± 2.9 after electrical stimulation.

In conclusion, in accordance with other papers (3–6), we believe that exercise increases the efficiency of dialysis by reducing the rebound of solutes due to increased perfusion of the skeletal muscles.

Despite the benefits of exercise, patients on hemodialysis are often unlikely or unwilling to participate in regular (supervised or unsupervised) exercise training, either during their off-dialysis time or during dialysis (1,7,8). So in these patients, and in others with mobilization problems, passive electrical muscle stimulation could be very useful.

Emiliano Staffolani and Giorgio Splendiani
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