

EXERCISE DURING HEMODIALYSIS. A PILOT STUDY IN A SINGLE CENTER. UNIDAD RENAL SANITAS. BOGOTA, COLOMBIA.

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Introduction and objectives

Chronic kidney disease leads to multiples systemic alterations especially in patients at final stage who require dialysis. Cardiovascular and musculoskeletal affections limit their capacity to do outdoor activities. Our objective was to know the physical condition of hemodialysis's patients in our kidney unit and evaluate the possibilities of implementing an exercise program during dialysis.

Methods

7 from 36 patients of the afternoon shift were chosen, age ranges between 18 to 52 years old with exclusion criteria such as cardiovascular disease, amputations, morbid obesity, and neurological conditions with limitation for walking. A "sit to stand to sit" test in 60 seconds (STS60) was performed with the assessment of vital signs (heart rate, breath, blood pressure), the Borg fatigue scale (table 1). A routine of strength, coordination, proprioception and stability exercises were prescribed with different tools like fit balls, bands and dyna -disc balance cushion in and outside therapy (table 2). The exercise plan was maintained for 10 weeks, at the end a satisfaction survey was applied to evaluate the perception of exercise on dialysis. All patients signed informed consent before evaluations. The exercise was directed and monitored by the hemodialysis physician.

Results

All patients performed the proposed plan on dialysis and 5 of 7 patients kept doing the activities at home. The other two patients didn't exercised at home due to fatigue and they perceived the exercise activities very hard. All patients rated the program as positive and saw it as an opportunity to improve their health because they used to associate the disease with an inability to. They perceived the dialysis sessions shorter, with less anxiety and the absence of cramps by the time they were exercising.

Table 1. Pretest and posttest exercise evaluation

Age	Gender	Hb (g/dL)	Inicial HR (bpm)	BP pretest (mmHg)	BP posttest (mmHg)	HR posttest (bpm)	HRMáx (bpm)	HR reserve (bpm)	Borg fatigue scale	Symptoms
52	M	10,9	67	162/113	184/99	96	171	104	10	None
35	F	9,6	66	169/100	159/96	73	171	117	16	None
18	F	12,1	75	100/80	142/89	137	194	119	18	Leg pain
43	M	8	63	186/110	169/95	95	180	117	18	Leg pain
38	M	10,1	80	138/73	146/72	103	182	102	14	None
38	M	9,6	60	131/88	153/99	76	182	122	12	None
35	M	8,8	72	129/77	138/84	74	184	112	10	None

Table 2. Exercise Routine

Exercise	Tools	Series
Alternate rise of legs	Yellow theraband with 25% elongation	1 x 10 each leg
Alternate abduction of legs	Yellow theraband with 25% elongation	1 x 10
Isometric ball exercise - adduction of legs	Fit ball x 1 Kg	2 x 10 seconds
Isometric ball exercise - in popliteal region	Fit ball x 1 Kg	1 x 10 seconds
Stability	Dyna-disc balance cushion	10 seconds each leg



Conclusions

Chronic kidney disease and dialysis itself produce significant long - term disability. Complex proinflammatory processes produces malnutrition and protein energy wasting syndrome lead significant loss of muscle mass. The implementation and adoption of an exercise plan in both dialysis and home are activities that can improve this process, also most of patients ignore the benefits of physical activities. Our study demonstrated that it is possible to perform a dialysis exercise plan with low costs, simple instruments and a high level of patient acceptance. For future research it is important to evaluate objective parameters on muscle mass gain, tolerance and adaptability to exercise and changes in functional and nutritional status.

References

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