

CHAPTER 4

Results

There were 28 hemodialysis patients who voluntarily participated in this study. Patients were divided into two groups, which were hemodialysis patient with RLS (n = 14) and hemodialysis patients without RLS (n = 14). Hemodialysis patients who were recruited into the RLS group were diagnosed as RLS by a nephrologist using the IRLSSG criteria. All patients completed the entire test without any adverse effect of testing. The demographics data of subjects are shown in Table 1. The descriptive statistics analysis was used for reporting demographic data. An independent t-test for parametric distribution was use to compare the differences of muscle strength and endurance, and 6MWD. Moreover, independent t-test was used to compare the different of cardiopulmonary parameters between two groups. The results showed that there was no statistically significant difference in age, weight, dry weight, height, BMI, period of HD, Kt/Vurea, hemoglobin, hematocrit, ferritin serum, and serum iron between groups.

Table1. The demographics data of subject

Variables	Mean \pm SD		<i>p</i> -value
	Hemodialysis with RLS [n = 14; F = 7, M = 7]	Hemodialysis without RLS [n = 14; F = 7, M = 7]	
Age (yrs)	55.07 \pm 10.75	55.14 \pm 10.84	0.98
Weight (kg)	52.38 \pm 4.73	56.40 \pm 8.55	0.13
Dry weight (kg)	50.43 \pm 3.69	54.71 \pm 8.75	0.10
Height (cm)	158.42 \pm 8.75	160.64 \pm 10.63	0.68
BMI (kg/m ²)	21.00 \pm 2.32	22.83 \pm 2.36	0.25
Period of HD (month)	67.57 \pm 49.12	66.64 \pm 44.32	0.13
Kt/Vurea	2.09 \pm 0.42	2.09 \pm 0.41	0.22
Hemoglobin (g/dL)	11.90 \pm 1.71	11.22 \pm 1.21	0.23
Hematocrit (%)	32.70 \pm 5.34	33.25 \pm 4.64	0.77

Ferritin serum (ug/dl)	309.76 ± 224.12 Male (N=7) Lower range ≤ 29 (n=1) Normal range 30-400 (n=3) High range ≥ 401 (n=3) Female (N=7) Lower range ≤ 14 (n=0) Normal range 15-500 (n=2) High range ≥ 151 (n=5)	263.62 ± 248.40 Male (N=7) Lower range ≤ 29 (n=0) Normal range 30-400 (n=5) High range ≥ 401 (n=2) Female (N=7) Lower range ≤ 14 (n=0) Normal range 15-500 (n=2) High range ≥ 151 (n=5)	0.39
Serum Iron (ng/ml)	70.21 ± 19.11 Male (N=7) Lower range ≤ 58 (n=1) Normal range 59-148 (n=6) High range ≥ 149 (n=0) Female (N=7) Lower range ≤ 36 (n=1) Normal range 37-145 (n=6) High range ≥ 146 (n=0)	79.34 ± 34.69 Male (N=7) Lower range ≤ 58 (n=1) Normal range 59-148 (n=6) High range ≥ 149 (n=0) Female (N=7) Lower range ≤ 36 (n=1) Normal range 37-145 (n=6) High range ≥ 146 (n=0)	0.61

Represent: RLS = restless legs syndrome, F = female, M = male, Kt/Vurea = index of dialysis adequacy.

The muscle performance of subjects is showed in Table 2. STS10 test was use to assess lower-extremity muscle strength and STS60 test was use to assess lower-extremity muscle endurance. The results showed that STS10 of hemodialysis patients with and without RLS were 28.39 ± 11.19 sec and 24.42 ± 4.68 sec, respectively. The STS60 of hemodialysis patients with and without RLS were 19.64 ± 7.65 times and 25.42 ± 4.55 times, respectively. There was no statistical significantly difference of lower-extremity muscle strength between hemodialysis patients with and without RLS ($p = 0.24$). However, hemodialysis patients with RLS had lower muscle endurance of lower extremity muscle than hemodialysis patients without RLS ($p = 0.02$).

Table 2. Muscle performance

Variables	Mean \pm SD		<i>p</i> -value
	Hemodialysis with RLS [n = 14; F = 7, M = 7]	Hemodialysis without RLS [n = 14; F = 7, M = 7]	
STS10 (sec)	28.39 ± 11.19	24.42 ± 4.68	0.24
STS60 (times)	19.64 ± 7.65	25.42 ± 4.55	0.02*

Represent: * = significant difference between groups at $p < 0.05$, RLS = restless legs syndrome, F = female, M = male.

The cardiopulmonary variables of subjects are showed in Table 3. An independent t-test for parametric distribution was used to compare the differences of the cardiopulmonary parameters between hemodialysis patients with and without RLS. There was no significant difference in HR, SpO₂, SBP, DBP and RR between before and immediately after performed the 6MWT in both hemodialysis patients with and without RLS group ($p > 0.05$).

However, the result showed that 6MWD of hemodialysis patients with and without RLS were 274.18 ± 91.38 meters and 375.18 ± 67.81 meters, respectively. There was significant different of 6MWD between hemodialysis patients with and without RLS ($p < 0.01$), which the hemodialysis patients with RLS had lower 6MWD than hemodialysis patients without RLS.

Table 3. Cardiopulmonary parameters before and immediate after performed the 6MWT

Variables	Mean \pm SD				p-value
	Hemodialysis with RLS [n = 14; F = 7, M = 7]		Hemodialysis without RLS [n = 14; F = 7, M = 7]		
	Before	Immediate	Before	Immediate	
HR (beats/min)	72.57 \pm 11.77	80.35 \pm 11.68	75.78 \pm 10.03	82.00 \pm 11.59	0.57
SpO ₂ (%)	98.64 \pm 0.92	98.85 \pm 0.94	99.07 \pm 0.99	99.35 \pm 0.92	0.80
SBP (mmHg)	152.71 \pm 18.60	157.28 \pm 19.92	150.35 \pm 27.16	161.50 \pm 28.66	0.13
DBP (mmHg)	82.28 \pm 11.73	81.85 \pm 11.68	78.85 \pm 12.08	78.85 \pm 14.46	0.87
RR (beats/min)	18.07 \pm 1.73	20.07 \pm 1.81	19.71 \pm 0.72	21.57 \pm 0.64	0.57
RPE	0.00 \pm 0.00	2.85 \pm 0.66	0.00 \pm 0.00	3.07 \pm 0.47	0.33
6MWD (meters)	274.18 \pm 91.38		375.18 \pm 67.81		<0.01*

Represent; * = significant difference between groups at $p < 0.05$, F = female, M = male,

HR = heart rate, SBP = systolic blood pressure, DBP = diastolic blood pressure, RR = respiratory rate