CHAPTER 4

RESULTS

4.1 Patients Accounting

96 patients were randomized into two groups. One group underwent a standard physical therapy program for patellofemoral pain and placebo acupuncture therapy. The other group underwent the same physical therapy program and acupuncture therapy for patellofemoral pain .

96 patients with patellofemoral pain were enrolled in this study according to eligibility criteria from the beginning of the trial (May, 1997) to March, 1998 in Sports Medicine Clinic, Harbin, China.

Among these 96 patients, there was no case of dropped out since they were all in-patients. 5 patients had been repeatedly enrolled for the second time for their patellofemoral pain.

The patients' coaches had greatly assisted the researchers to get good compliance from the patients during the whole study.

4.2   Analysis for the 96 Eligible Patients

4.2.1   Baseline Data

TABLE 4.1 Demographic and basic data of eligible patients

Variables	Treatment Gr. n=48	Control Gr. n=48	p value
Age (years)	21.02±3.62	21.47±3.8	0.5479[*]
Sex (M/F)	30:18	30:18	
Weight (kg)	69.93±5.8	69.22±5.2	0.5254[*]
Previous PF pain history (Y/N)	11/37	13/35	0.6438[#]
Previous treatment for PF pain (Y/N)	10/38	9/39	0.7923[#]
Duration of PF pain (months)	2.87±0.84	2.97±0.90	0.4657[*]

* Unpaired T-test   # Chi-squares test   Y/N = yes/no

PF pain = patellofemoral pain

The demographic data and basic clinical data of 2 groups patients are listed in Table 4.1. There is no significant difference (p>0.05) between the two groups in

age, sex, weight, previous medical history and the duration of patellofemoral pain.

4.2.2 Therapeutic Result

TABLE 4.2 Analysis for pre-treatment outcome variables between

two groups

Variable	Treatment Gr. n = 48	Control Gr. n = 48	P value
Descriptive			
Pain Score	6.98±0.75	7.06±0.72	0.5836[*]
Quadriceps Muscle			
Activity (kg)	48.35±5.92	46.91±4.77	0.1939[*]
Isokinetic Muscle			
Testing(deg/sec)	64.04±2.96	64.27±2.70	0.6934[*]

Gr.= Group. * Unpaired T-test.

According to the eligibility criteria, 96 patients were selected among the patients with patellofemoral pain who came to the clinic. Therefore, their pain score were all more than 5.

After the treatment among these 96 patients, 50 patients achieved the marked reduction of patellofemoral pain (their pain score were reduced less than 5). 46 patients did not achieve the marked reduction of pain (the pain score still more than5).

The outcome variables data of 2 groups patients before the treatment are listed in Table 4.2. There was no significant difference between the two groups in all outcome variables.

TABLE 4.3 Analysis for Post-treatment Outcome Variables between two groups

Variables	Treatment Gr. n = 48	Control Gr. n = 48	P value
Descriptive			
Pain Score	3.43±1.88	4.75±1.55	0.0003*
Quadriceps Muscle			
Activity (kg)	51.44±6.51	52.15±5.18	0.5569*
Isokinetic Muscle			
Testing(deg/sec)	69.37±2.66	68.64±2.83	0.2750*

Gr.= Group.

* Unpaired T-test

TABLE 4.4 Analysis for Outcome Variables of Experimental

Group before and after the Treatment

Variables	Pre-treatment	Post-treatment	p value
Descriptive			
Pain Score	6.98±0.75	3.43±1.88	<0.01*
Quadriceps Muscle			
Activity (kg)	48.35±5.92	51.43±6.51	<0.01*
Isokinetic Muscle			
Testing (deg/sec)	64.04±2.96	69.37±3.66	<0.01*

* Paired T-test

According to Table 4.4 and Table 4.5, both groups experienced a statistically significant decrease in the severity of pain ($p<0.01$). The reduction rate of pain in experimental group was 68.75%; The reduction rate of pain in control group was 35.41%. According to Table 4.3, a statistical significant difference ($p=0.0003$) of pain score were seen between 2 groups.

Quadriceps muscle power have also experienced a statistically significant increase ($p<0.01$)in both 2 groups. The difference of quardriceps muscle activity between pre-treatment and post-treatment were listed on Table 4.4 and Table 4.5. The

increase rate of quadriceps muscle power in experimental group was 6.25%, in control group was 11.15%. But according to Table 4.3, there was no statistical significant difference (p=0.5569) between 2 groups.

TABLE 4.5 Analysis for Outcome Variables of Control

Group before and after the treatment

Variables	Pre-treatment	Post-treatment	p value
Descriptive			
Pain Score	7.06±0.72	4.75±1.55	<0.01*
Quadriceps Muscle			
Activity (kg)	46.91±4.77	52.14±5.18	<0.01*
Isokinetic Muscle			
Testing (deg/sec)	64.27±2.70	68.64±2.8	<0.01*

* Paired T-test

Isokinetic Muscle Testing have experienced a statistically significant increase (p<0.05)in 2 groups. According to Table 4.3, after the treatment, no statistical

significant difference (p=0.2750) of Isokinetic Muscle Testing were seen between 2 groups.

TABLE 4.6 Chi-square Test for Post-Treatment Severity of Pain in two groups

Group	Reduction of Pain	Unreduction of Pain	Total
Experimental Group	33/48	15/48	48
Control Group	17 /48	31/48	48
Total	50	46	96

Reduction of pain means pain score < 5; Unreduction of pain means pain score > or = 5. $X^2=S(O-T)^2/T$, Chi-square $X^2=27.9$, by using "STATA" program, p=0.001.

The major outcome variable of this study -- the severity of patellofemoral pain was measured by using pain score and cutting point. Chi-square test was also used to assess the difference between 2 groups. According to Table 4.6, the result showed that a statistical significant difference (p=0.001) were seen between two

groups. The result was the same as by using pain score tested by unpaired t-test, a significant difference (p=0.0003) were also seen between two groups in severity of PF pain.

4.2.3 Adverse Cases

In experimental group, there were 2 cases with adverse effect after the treatment. The pain score were higher than the score before treatment. One case got the same pain score before and after the treatment. Fourteen cases didn't achieve the marked reduction of pain (pain score were not less than 5 after the treatment).

In control group, 2 cases' pain score were higher than before the treatment. 4 cases got the same pain score before and after the treatment. Thirty cases didn't achieve the marked reduction of pain (pain score were not less than 5 after the treatment).