CHAPTER 5

DISCUSSION

5.1 The Therapeutic Outcomes

Patellofemoral pain is a common but sometimes poorly understood syndrome that affects a large percentage of the athletic population.

The complication of patellofemoral pain is because of its various causes. Causes of patellofemoral pain include trauma (acute and repetitive), osteochondritis dissecans, synovial plicae, patellofemoral malalignment, chondromalacia and so on. The diagnosis and the treatment of patellofemoral pain are all depend on its causes. Therefore, the cause of patellofemoral pain should be considered as a very important factor when we study about patellofemoral pain.

In this study, patellar chondromalacia was defined as the cause of patellofemoral pain so as to minimize the selection bias. On the other hand, patellar chondromalacia is a high risk factor to influence soft tissue around patellar so as to cause patellofemoral pain, and it is the most frequent cause of patellofemoral pain in the athletic population.

According to arthroscopic examination, chondromalacia could be classified into 5 grades (listed on table 5.1). Generally, patellar chondromalacia is because of the patellar grind from the repetitive knee trauma or competitive sports training. Any types of competitive sports training courses may cause patellar chondromalacia. So the grade of chondromalacia is much associated with the duration of symptom and the duration of sports training courses.

TABLE 5.1 Classification of Patellar Chondromalacia[31]

Grade 1 chondromalacia was a normal appearance.
Grade 2 chondromalacia was cartilage softening.
Grade 3 chondromalacia was fibrillation.
Grade 4 chondromalacia cartilage was fissuring or partial thickness loss.
Grade 5 chondromalacia was characterized by erosion of articular cartilage down to subchondral bone.

In this study, all patients are athletes. Because of the convenience of receiving medication from an internal clinic, most athletes came to our clinic after suffering gradualy increasing patellofemoral pain for 2-3 months. Among 96 eligible cases in this study, their mean duration of PF pain was 2.9 months. The duration of symptom was not so long, and most patients with patellar chondromalacia were from 1-3 grade

which were also not very serious, For this reason, we achieved a satisfying general outcome (52% of patients achieved marked reduction of patellofemoral pain among 96 patients) in this study, particularly in the experimental group (the reduction rate of PF pain was 68.75%). In control group, the reduction rate of PF pain was 35.41%, which was also a little higher than the reduction rate of PF pain treated by standard physical therapy in previous studies.

There were 4 adverse cases, and 5 cases had no effect in this study. Among these 9 cases, 8 cases duration of patellofemoral pain were more than 4 months, and their duration of sports training were also much longer than other patients.

According to the records of arthroscopic examination of these 9 cases, 8 cases patellar chondromalacia were in grade 4 and 1 case was in grade 3.

We followed up to give treatment to these 9 cases patients after they received first 30 days treatment. All these 9 cases were improved after receiving another one month's treatment, 3 cases in experimental group got marked reduction of PF pain.

According to this result, acupuncture therapy is more effective to relieve patellofemoral pain with shorter duration and less serious patellar chondromalacia grade. Acupuncture therapy could not improve patellar chondromalacia, but could relieve the patellofemoral pain which was caused by patellar chondromalacia. On the other hand, the results of this study also reproved the efficacy of standard physical

therapy for patellofemoral pain, particularly on increasing quadriceps muscle power, both 2 groups have achieved a statistical significant increase ($p<0.05$).

Since patellofemoral pain caused by patellar chondromalacia very frequently occurred in sports population, there was enough target population selected in this study. Luckily, on the other hand, the duration of the treatment in this study was fixed to only 30 days, so this study could be finished in a short term.

5.2 Repeated Enrolled Cases

There were 5 cases repeatedly enrolled in this study for the second time, including 3 cases in control group, and 2 cases in experimental group. All these 5 cases' repeated symptoms were from the new trauma after more than 3 months when they went back to practise. So these 5 cases were treated as new cases, and were randomized into 2 groups for the second time.

5.3 Effectiveness of Acupuncture Therapy

Acupuncture therapy has long standing and established in China. Acupuncture has been treated as an efficient and popular therapy since thousands of years ago.

The results of this study showed that acupuncture therapy was effective to relieve patellofemoral pain which is caused by patellar chondromalacia. Statistical

significant difference (p=0.001) were seen between 2 groups.

For the secondary research question, the result showed that acupuncture therapy is not effective to increase quadriceps muscle power. No statistical significant difference (p=0.5569) was seen between 2 groups.

The effectiveness of acupuncture is acceptable in China. Currently, acupuncture technique is treated as a substitute therapy and is being developed in many other countries, such as U.S.A, Japan, France and so on. But the rationale of acupuncture therapy still can not be explained very clearly and scientifically. That is what researchers of the world are trying to approach.

Luckily, more and more scientific advance in acupuncture have been proved or are being proved by clinical studies. Scientific advance in acupuncture based on electrical, neurophysiological, biochemical and therapeutic studies have been made in China, Japan, U.S.A, France and Germany.[63]

In some clinical studies in U.S.A, the electro-acupuncture according to Voll (EAV) system is introduced as a means to standardize the therapeutic effectiveness of acupuncture; The uses of acupuncture in treating functional disorders were proven; The effectiveness of beta-endorphin in support of acupuncture for pain relief was also proven.[64]

Anyway, as more studies show the clinical effectiveness of traditional Chinese medicine, an integrated approach to disease using a combination of Western medicine and traditional approaches should become a possibility for the future.

5.4 Clinical Implication

In this study, we fixed all patients' duration of treatment to 30 days to compare the result between 2 groups. But in experimental group, there were 5 cases totally recovered less than 30 days. Therefore, their treatment had to be stopped before finishing the whole treatment. But no same cases happened in control group, so some bias might have occurred between 2 groups.

Since the major objective of this study is to evaluate the efficacy of acupuncture therapy for relieving the severity of patellofemoral pain, so 30 days was defined as the duration of treatment, but 30 days might not be enough for increasing quadriceps muscle power; On the other hand, the sample size of this study was determined according to the primary research question, it also might not be suitable to the secondary research question, so the result of this study showed that acupuncture therapy was not effective to increase quadriceps muscle power. This point should be proven in the further study.

Seven cases went out for training or competition for 1 week during the study, 4 cases in experimental group and 3 cases in control group. We sent team physician

to follow them for treatment, and asked their coaches to conduct physical training program for PF pain when they were out of the research setting. But the treatment was still influenced by patients training program or competition. There were some excellent athletes enrolled this study, but in case of some important competitions, they had to go to compete on behalf of their provinces, even though they have not totally recovered from the injuries. That is always a major contradiction between doctors and coaches.