Clinical Observation on Treatment of Osteoarthritis of Knee by Needle-Warming Method and Functional Training

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Abstract  Purpose: To observe the long-term and recent clinical effect of needle-warming method plus functional training in the treatment of osteoarthritis of the knee joint. Methods: After 106 cases of the patients were divided into the needle-warming group and comprehensive group by the order of their first visit, the needle-warming group was treated by the needle-warming method and the comprehensive group was treated by the needle-warming method plus functional training. After ten treatments, the clinical data in the two groups were evaluated upon Lequesne scale before and after the treatments. Three months later, follow-up survey was given to process the statistic management of the reoccurrence rate of the symptoms. Results: In the two groups after the treatment, the symptoms of the knee joint and daily life ability were obviously improved than the respective conditions before the treatment, and the integral decreased ($P<0.05$), with no significant difference ($P>0.05$) between the two groups. In the follow-up survey, there was a difference ($P<0.05$) between the two groups in the positive rate of the recurrent symptoms. Conclusion: Certain therapeutic effect exists in the treatment of osteoarthritis of the knee joint by the needle-warming method. If functional training is combined, the therapeutic effect would be more stable, without easy reoccurrence. Key Words  Osteoarthritis of knee, needle-warming method, acupuncture therapy

Commonly seen in the clinic and often occurring in the middle-aged and old people, Osteoarthritis of the knee is a chronic disease characterized by degenerative change and secondary hyperostoeogeny of the cartilage of the knee joint. Because of its high morbidity rate and high deformity rate and long duration, this disease severely influences the life and work of the patients. From 2003 to 2005, we have successively treated 106 cases of the patients with osteoarthritis of the knee joint. After divided into the two groups by the visiting order, the treatment was given by the needle-warming method (needle-warming group) and by the functional training (comprehensive group) respectively, under informed consent, for comparison of the therapeutic effects. Now, the observed results were reported in the following.

Clinical Materials

1. Diagnostic criteria
a. Pain in the knee joint
b. Tenderness in the knee joint
c. Stiffness in the morning
d. Tumefaction
e. Motor impairment or cracking sound in the joint
f. Osteophyte formed at the border of the knee joint in X-ray photograph

The patients with a, f and over two items from b to e were selected as the subjects in this study.

2. Exclusive criteria
a. Those with obvious stenosis of joint space or bony ankylosis formed by bony bridge between the joints;
b. Those with tumor in the knee joint, rheumatoid arthritis, gout, tuberculosis, suppuration and acute bone fracture in the joint;
c. Those with obvious deformity in the knee joint and injury of the blood vessels and nerves in the sick limb;
d. Those at the age of ≥80, and with duration ≥10 years.

3. Case information
There were 53 cases and 90 knees in the needle-warming group, including 20 males and 33 females, with the average age at 59.6 ± 9.3 years old and with the duration at 31.7 ± 20.8 months. There were 53 cases and 85 knees in the comprehensive group, including 22 males and 31 females, with the average age at 61.8 ± 12.1 years old and with the duration at 29.7 ± 23.1 months. Osteoarthritis was from Grade I to III by Kellgren Lawrance (K-L) X-ray grading standard. There was no significant difference in the various factors of sex, age, duration and osteoarthritis degree between the two groups.

Therapeutic Methods

1. Needle-warming group
Acupoints: Neixiyan (Ex-LE 4), Dubi (ST 35), Heding (Ex-LE 2), Xuehai (SP 10), Liangqiu (ST 34), Zusanli (ST 36), Yanglingquan (GB 34), Yinlingquan (SP 9), and Ashi point.
Operation: The filiform needles in 0.38 mm gauge and 40 mm length were inserted into the acupoints and twisted with the lifting and thrusting technique. After arrival of the needling sensation, moxa cones in 2.5 cm length were put on the needle handles and ignited at their bottom, one moxa cone on each needle. The treatment was given once every day and ten sessions made one course of the treatment. During the treatment, the patients were told to have good rest.

2. Comprehensive group
The acupoints and operation were as same as those in the needle-warming group. At the same time, the patients were instructed to train the functional contraction of the musculus quadriceps femoris twice every day.

The patella was forcefully contracted and then relaxed, without any motion in the joint, for 2 seconds in contraction and 2 seconds in relaxation, for totally 40 times. In the lying position with the sick leg straightened, the straight leg was raised or raised forward in the sitting position for 40 times. In order to increase the training of the motion range in the knee joint, the sick keen joint was flexed (downward squatting movement) and extended at utmost for 20 times under load.

During the treatment, the patients were prohibited to use any oral or topical medications with anesthetic effect.

Assessment of Therapeutic Effects

1. Assessment criteria of therapeutic effects
Lequesne\(^2\) assessment method was referred to. Please see Table 1.

2. Assessment of follow-up therapeutic effects
Immediately after the treatment, the symptoms of the knee joint and daily life ability were assessed by integral in the two groups. In the follow-up survey conducted three months after the treatment, those with no anesthetic agents or further treatment needed due to recurrent symptoms and mild condition were regarded positive (+), and those with anesthetic agents or further treatment needed due to severe recurrent symptoms were regarded positive (++), and those without recurrence were regarded negative (-), and all indexes were analyzed statistically.

3. Assessed results of the therapeutic effects
As shown in Table 2, the symptoms of the knee joint and daily life ability were obviously improved than before the treatment, with integral decreased (\(P < 0.05\)), and there was no significant difference (\(P > 0.05\)) in the integral between the two groups after the treatment. In comparison of the positive rate between the two groups in terms of the recurrent symptoms in the...