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ORIGINAL ARTICLE

Observational Study

Medium-term efficacy of arthroscopic debridement *vs* conservative treatment for knee osteoarthritis of Kellgren-Lawrence grades I-III

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Abstract

BACKGROUND

Arthroscopic debridement is a mature treatment for knee osteoarthritis (KOA). Due to the differences in the research subjects, methods, and efficacy evaluation indexes, there are great differences in the surgical efficacy reported in the literature.

AIM

To compare the medium-term efficacy of arthroscopic debridement and conservative treatment for KOA of Kellgren-Lawrence grades I-III.

METHODS

Patients with KOA of Kellgren-Lawrence grades I-III who were admitted to the orthopedic clinic of our hospital from July 2018 to December 2018 and agreed to undergo arthroscopic surgery were included in an arthroscopic debridement group, and those who refused surgical treatment were included in a conservative treatment group. Gender, age, body mass index (BMI), side of KOA, American hospital for special surgery knee score (HSS score) before treatment, visual analogue scale (VAS) score during walking and rest before treatment, conservative treatment content, and surgical procedure were recorded. Outpatient visits were conducted at the 1st, 3rd, 6th, 12th, and 24th mo after treatment in the two groups. The changes of HSS score and VAS score in each group before and after treatment were statistically analyzed, and the differences of HSS score and VAS score in different treatment stages between the two groups were also compared.

RESULTS

In the conservative treatment group, there were 80 patients with complete follow-up data, including 20 males and 60 females, aged 58.75 ± 14.66 years old. And in the knee arthroscopic debridement group, there were 98 patients with complete follow-up data, including 24 males and 74 females, aged 59.27 ± 14.48 years old. There was no statistically significant difference in the general data (gender, age,

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BMI, side of KOA, Kellgren-Lawrence grade distribution, HSS score, and VAS score) between the two groups before treatment. The HSS scores of the conservative treatment group at the 1st, 3rd, 6th, 12th, and 24th mo after treatment were significantly higher than that before treatment ($P < 0.05$). There was no statistical difference in HSS score of the conservative treatment group among the 1st, 3rd, 6th, 12th, and 24th mo ($P > 0.05$). The HSS score of the knee arthroscopic debridement group at the 1st mo after surgery was significantly higher than that before surgery ($P < 0.05$). HSS scores of the knee arthroscopic debridement group at the 3rd, 6th, 12th, and 24th mo were significantly higher than those before surgery and at the 1st mo after surgery ($P < 0.05$). There were no statistically significant differences in HSS scores at the 3rd, 6th, 12th, and 24th mo after surgery ($P > 0.05$). HSS scores at the 3rd, 6th, 12th, and 24th mo were significantly higher in the arthroscopic debridement group than in the conservative treatment group ($P < 0.05$). There was no statistical difference in HSS scores between the two groups before treatment and at the 1st mo of follow-up ($P > 0.05$). VAS scores during walking and rest were significantly decreased in both groups, and the VAS score during rest was significantly lower in the arthroscopic debridement group than in the conservative treatment group, but there was no significant difference in the VAS score during walking between the two groups after treatment.

CONCLUSION

Compared with conservative treatment, arthroscopic debridement can significantly improve the knee resting pain and knee functional status of patients with KOA of Kellgren-Lawrence grades I-III within 2 years after treatment.

Key Words: Knee joint; Arthroscopy; Osteoarthritis; Arthroscopic debridement; Conservative treatment; Resting pain

Core Tip: Arthroscopic debridement is a mature treatment for knee osteoarthritis (KOA). Compared with conservative treatment, arthroscopic debridement can significantly improve the knee resting pain and knee functional status of patients with KOA of Kellgren-Lawrence grades I-III within 2 years after treatment. However, compared with conservative treatment, arthroscopic debridement cannot significantly improve knee pain during walking of patients with KOA of Kellgren-Lawrence grades I-III within 2 years after treatment.

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INTRODUCTION

Knee osteoarthritis (KOA) refers to a degenerative disease with joint pain as the main symptom caused by a variety of factors causing articular cartilage fibrosis, rhagades, ulcer, or denudation. Clinical observation has shown that the most common chief complaint of patients with KOA is pain during walking, and the pain is mostly related to the walking distance and can be relieved by itself after rest, while most patients with early and medium-term KOA have no obvious pain at rest. The etiology is related to heredity, age, gender, obesity, trauma, inflammation, and so on[1-4]. At present, the commonly used treatment methods for KOA include health education, exercise therapy, physical therapy, drug therapy, surgical treatment, and so on[5-8]. Due to the differences in research subjects, methods, and efficacy evaluation indexes, the reported results of arthroscopy for the treatment of KOA are quite different in the literature[9-11]. The purpose of this study was to compare the medium-term efficacy of arthro-

scopic debridement and conservative treatment for KOA of Kellgren-Lawrence grades I-III by strictly controlling the inclusion criteria.

MATERIALS AND METHODS

Patient selection

Patients with KOA of Kellgren-Lawrence grades I-III who were admitted to the orthopedic clinic of our hospital from July 2018 to December 2018 and agreed to undergo arthroscopic surgery were included in an arthroscopic debridement group (Group A), and those who refused arthroscopic surgery were included in a conservative treatment group (Group B). Gender, age, body mass index (BMI), side of KOA, American hospital for special surgery knee score (HSS score), and visual analogue scale (VAS) score in different treatment stages were analyzed. Patients were included if they met the following criteria: (1) Age ≥ 18 years with KOA of Kellgren-Lawrence grades I-III; (2) No serious organic disease affecting the lower limb walking and treatment; and (3) Complete initial and follow-up data. Patients were excluded if they met the following criteria: (1) Severe medical or psychiatric disease; (2) Acute knee injury; (3) Intra-knee infection; (4) Tuberculosis or tumor of the knee joint; (5) Kellgren-Lawrence grade IV KOA; (6) Rheumatoid arthritis, gouty arthritis, and other types of knee arthritis; (7) Woman who was breast-feeding or preparing to become pregnant; and/or (8) Coagulopathy. All operations were performed by the same experienced surgeon.

Conservative treatment methods and surgical procedure

Conservative treatment was to reduce the activity of the affected limb, reduce the weight that the affected limb needs to bear, take nonsteroidal anti-inflammatory drugs (NSAIDs) orally, and make the affected limb warm or hot compress locally. The outpatient follow-ups at the 1st, 3rd, 6th, 12th, and 24th mo after the treatment were performed, and the HSS and VAS scores were recorded.

For knee arthroscopic debridement, after routine preoperative examinations were completed, and absolute contraindications of anesthesia and surgery were excluded, arthroscopic debridement was performed under subarachnoid anesthesia. After applying the tourniquet on the thigh of the affected limb, the standard incision on both sides of the knee joint was taken, the arthroscope was used to explore the joint cavity comprehensively, and the degeneration in the joint was recorded. The proliferative synovium was cleaned up. If the soft tissue of the medial compartment of the knee is tight, the medial synovial fold should be removed. If the soft tissue of the lateral compartment of the knee is tight, the lateral retinaculum should be removed. The surface of the worn cartilage was polished and flattened. Injured and ruptured menisci were treated with plastic, and the free body in the joint was removed. Osteophytes affecting knee movement were removed. The stripped articular cartilage was decompressed by drilling. A large amount of normal saline was used for rinsing until the articular cavity was clean. An aspirator was used to suck the residual rinse solution, and finally 4 mL sodium hyaluronate was injected into the articular cavity. The incision was sutured and bandaged under pressure. The average operation time was about 20 min. The pressure dressing was removed and quadriceps muscle function training was started 24 h after the operation. The outpatient follow-ups at the 1st, 3rd, 6th, 12th, and 24th mo after the operation were performed, and the HSS and VAS scores were recorded.

Post-treatment follow-up

Clinical follow-up were conducted at the 1st, 3rd, 6th, 12th, and 24th mo after treatment in the two groups, and the HSS and VAS scores were recorded.

Statistical analysis

The SPSS 23.0 statistical software (SPSS Inc. Chicago, IL, United States) was used for data analysis. Kolmogorov-Smirnov test was used to test the normality of the data. Since the sample size of the data in the paper was large and the data approximately follows a normal distribution, Levene test was used to test homogeneity of variance. Normally distributed data are expressed as the mean ± SD and were compared using t-test, t'-test, or analysis of variance. Further pairwise comparisons of multiple data were conducted by the S-N-K method (q test) when variance was homogeneous, or Games-Howell method when variance was not homogeneous. Frequency data are

expressed as percentages and were compared using Chi-square test, continuity correction Chi-square test, or Fisher's exact test. Differences with a P value < 0.05 were considered statistically significant.

RESULTS

Overall characteristics of patients

In the conservative treatment group, there were 80 patients with complete follow-up data, including 20 males and 60 females, aged 58.75 ± 14.66 years old. And in the knee arthroscopic debridement group, there were 98 patients with complete follow-up data, including 24 males and 74 females, aged 59.27 ± 14.48 years old. There was no statistically significant difference in the general data (gender, age, BMI, side of KOA, Kellgren-Lawrence grade distribution, HSS score, and VAS score) between the two groups before treatment (Table 1).

Therapeutic effects of the two groups

The HSS scores of the conservative treatment group at the 1st, 3rd, 6th, 12th, and 24th mo after treatment were significantly higher than that before treatment (P < 0.05; Table 2). There was no statistical difference in HSS score of the conservative treatment group among the 1st, 3rd, 6th, 12th, and 24th mo (P > 0.05; Table 2). The HSS score of the knee arthroscopic debridement group at the 1st mo after surgery was significantly higher than that before surgery (P < 0.05; Table 2). HSS scores of the knee arthroscopic debridement group at the 3rd, 6th, 12th, and 24th mo were significantly higher than those before surgery and at the 1st mo after surgery (P < 0.05; Table 2). There were no statistically significant differences in HSS scores at the 3rd, 6th, 12th, and 24th mo after surgery (P > 0.05; Table 2). HSS scores at the 3rd, 6th, 12th, and 24th mo were significantly higher in the arthroscopic debridement group than in the conservative treatment group (P < 0.05; Table 2). There was no statistical difference in HSS scores between the two groups before treatment and at the 1st mo of follow-up (P > 0.05; Table 2). VAS scores during walking and rest were significantly decreased in both groups after treatment (Tables 3 and 4). The walking VAS score in the arthroscopic group was significantly lower than that in the conservative group at the 1st mo after treatment (P < 0.05; Table 3). There were no statistically significant difference in walking VAS scores between the two groups before treatment and during follow-up at the 3rd, 6th, 12th, and 24th mo (P > 0.05; Table 3). The VAS scores at rest in the arthroscopy group were significantly lower than those in the conservative treatment group at the 3rd, 6th, 12th, and 24th mo (P < 0.05; Table 4). There was no significant difference in the VAS scores at rest between the two groups before treatment and at the 1st mo of follow-up (P > 0.05; Table 4).

Post-treatment complications

In the conservative treatment group, five patients showed symptoms of upper gastrointestinal tract adverse reactions such as stomach pain and acid reflux due to long-term oral administration of NSAIDs. The incidence of adverse reactions was 6.25%. After drug withdrawal and oral acid suppressive agent treatment, adverse reactions were relieved, and no significant cardiovascular adverse reactions occurred. In the knee arthroscopic debridement group, two patients developed wound infection after surgery, with an incidence of adverse reactions of 2.04%, which was cured by incision dressing change and intraarticular injection of vancomycin combined with intravenous cephalosporin antibiotics. The total number of cases was n = 178 > 40, and the minimum theoretical frequency was 1 < 3.15 < 5, so the incidence of adverse reactions between the two groups was compared by continuity correction Chi-square test (χ^2 = 1.102, P = 0.294). There was no significant difference in the incidence of adverse reactions between the two groups.

DISCUSSION

Osteoarthritis, as a common joint degenerative disease, often involves the knee joint, hip joint, ankle joint, hand joint, and cervical and lumbar joints. The incidence of osteoarthritis in people over 65 years old is more than 50%[12]. The chronic pain and long-term treatment bring great pain and economic burden to patients. Analysis of data from the China Health and Retirement Longitudinal Study Database shows that the prevalence of Kellgren-Lawrence grade 2 and above in Chinese population is as

Table 1 Baseline data in the two groups

Variable	Group A	Group B	*t*-value	χ^2 value	*P* value
Number of patients	98	80			
Age (yr), mean ± SD	59.27 ± 14.48	58.75 ± 14.66	-0.235	-	0.815
Female/male	74/24	60/20	-	0.006	0.937
BMI, mean ± SD	24.60 ± 2.74	24.92 ± 2.68	0.776	-	0.439
Side of KOA (left/right)	44/54	36/44	-	0.000	0.989
Kellgren-Lawrence grade					
1	26	23	-	0.109	0.742
2	22	19	-	0.042	0.838
3	50	38	-	0.218	0.640
HSS score before treatment, mean ± SD	78.65 ± 11.20	79.10 ± 11.41	0.263	-	0.793

Statistical difference between the two groups was tested by *t* test or χ^2 analysis. Statistical significance was set at $P < 0.05$. SD: Standard deviation; BMI: Body mass index; KOA: Knee osteoarthritis; HSS: American hospital for special surgery knee score; Group A: Arthroscopic debridement group; Group B: Conservative treatment group.

Table 2 American hospital for special surgery knee scores of the two groups before and after treatment

		HSS score, mean ± SD					
	n	Before treatment	1st mo after treatment	3rd mo after treatment	6th mo after treatment	12th mo after treatment	24th mo after treatment
Group A	98	78.65 ± 11.20	87.76 ± 9.10	91.08 ± 5.67	91.88 ± 6.48	92.18 ± 5.90	92.08 ± 5.85
Group B	80	79.10 ± 11.41	85.05 ± 10.21	87.19 ± 9.32	87.46 ± 9.91	87.79 ± 9.59	87.31 ± 10.15
t value		0.263	-1.867	-	-	-	-
t' value		-	-	-3.277	-3.433	-3.584	-3.729
P value		0.793	0.064	0.001	0.001	0.000	0.000

Statistical difference between the two groups was tested by *t* test or *t'* test. The comparisons between American hospital for special surgery knee (HSS) scores before treatment and HSS scores at 1, 3, 6, 12, and 24 mo after treatment were performed by analysis of variance. Further pairwise comparisons of multiple data were conducted by the S-N-K method (*q* test) when variance was homogeneous, or Games-Howell method when variances was not homogeneous. Statistical significance was set at $P < 0.05$. n: Number of patients of the two groups; SD: Standard deviation; HSS: American hospital for special surgery knee score; Group A: Arthroscopic debridement group; Group B: Conservative treatment group.

high as 8.1%, and the prevalence in women is higher than that in men, and that in rural areas is higher than that in urban areas[13]. The treatment of KOA is mainly to relieve pain, improve or restore the function of the knee joint, correct the varus and valgus deformity of the joint, and then delay the service life of the joint. The main treatment measures for early and middle KOA mainly include health education, exercise therapy, physical therapy, walking assisted therapy, drug therapy, and knee arthroscopy. It is suggested that patients develop good living habits, reduce or avoid going up and down stairs, climbing mountains, squatting, and other behaviors that are easy to accelerate the wear of knee cartilage, meniscus degeneration, and rupture[14-16]. Studies have found that obese patients have a higher incidence of KOA, and weight loss can improve both knee function and knee pain[17]. The most commonly used drugs to relieve symptoms of KOA are NSAIDs[18], and other drugs commonly used to treat KOA include glucocorticoids, sodium hyaluronate, chitosan, and glucosamine, and so on, which may provide short-term relief of the symptoms in the early and middle stages of KOA[19,20]. Generally, long-term drug use is needed. Once the drug is stopped, symptoms are easy to occur repeatedly. However, long-term drug use has more adverse reactions and limited effect on pathological changes in the knee joint. In the late 1960s, European and American countries began to use arthroscopic technology to treat osteoarthritis, and arthroscopy technology was introduced into

Table 3 Visual analogue scale scores at walking time of the two groups before and after treatment

	n	VAS score, mean ± SD					
		Before treatment	1st mo after treatment	3rd mo after treatment	6th mo after treatment	12th mo after treatment	24th mo after treatment
Group A	98	4.06 ± 1.55	1.73 ± 1.63	1.31 ± 1.44	1.04 ± 1.41	0.94 ± 1.29	0.94 ± 1.26
Group B	80	4.08 ± 1.47	2.45 ± 1.58	1.63 ± 1.39	1.35 ± 1.41	1.15 ± 1.30	1.10 ± 1.27
t value		-0.060	-2.946	-1.493	-1.459	-1.081	-0.847
t' value		-	-	-	-	-	-
P value		0.952	0.004	0.137	0.146	0.281	0.398

Statistical difference between the two groups was tested by *t* test or *t'* test. The comparisons between visual analogue scale (VAS) scores at walking time before treatment and VAS scores at walking time at 1, 3, 6, 12, and 24 mo after treatment were performed by analysis of variance. Further pairwise comparisons of multiple data were conducted by the S-N-K method (*q* test) when variance was homogeneous, or Games-Howell method when variances was not homogeneous. Statistical significance was set at $P < 0.05$. n: Number of patients of the two groups; SD: Standard deviation; VAS: Visual analogue scale; Group A: Arthroscopic debridement group; Group B: Conservative treatment group.

Table 4 Visual analogue scale scores at rest time of the two groups before and after treatment

	n	VAS score, mean ± SD					
		Before treatment	1st mo after treatment	3rd mo after treatment	6th mo after treatment	12th mo after treatment	24th mo after treatment
Group A	98	1.22 ± 2.03	0.49 ± 1.19	0.02 ± 0.14	0.02 ± 0.14	0.02 ± 0.14	0.02 ± 0.14
Group B	80	1.21 ± 2.01	0.68 ± 1.39	0.21 ± 0.59	0.21 ± 0.59	0.21 ± 0.59	0.21 ± 0.59
t value		0.039	-	-	-	-	-
t' value		-	-0.942	-2.851	-2.851	-2.851	-2.851
P value		0.969	0.348	0.005	0.005	0.005	0.005

Statistical difference between the two groups was tested by *t* test or *t'* test. The comparisons between visual analogue scale (VAS) scores at rest time before treatment and VAS score at rest time at 1, 3, 6, 12, and 24 mo after treatment were performed by analysis of variance. Further pairwise comparisons of multiple data were conducted by the S-N-K method (*q* test) when variance was homogeneous, or Games-Howell method when variances was not homogeneous. Statistical significance was set at $P < 0.05$. n: Number of patients of the two groups; SD: Standard deviation; VAS: Visual analogue scale; Group A: Arthroscopic debridement group; Group B: Conservative treatment group.

China in the late 1970s. For decades, many authors have reported the experience of using this minimally invasive technique in the diagnosis and treatment of KOA. Arthroscopic dissection surgery is mainly performed on the pathological characteristics of KOA, in order to relieve knee pain, prevent further deterioration of joint symptoms, and improve joint function[21]. Arthroscopic surgery was performed to remove the free bodies in the articular cavity, shape the ruptured meniscus to prevent further tearing, polish the worn articular cartilage, and perform microfracture decompression for the peeled but not ruptured articular cartilage to promote cartilage regeneration and repair[22]. Arthroscopic surgery can alleviate the symptoms of some early and middle stage patients by moderately clearing the synovium that causes joint contracture, removing the osteophytes that affect joint extension and flexion, and flushing the inflammatory factors in the joint[9-11]. It has been reported that postoperative arthroscopic debridement combined with intraarticular injection of sodium hyaluronate is more effective than arthroscopic debridement alone[23]. Our study compared the medium-term efficacy of arthroscopic debridement and conservative treatment for KOA of Kellgren-Lawrence grades I-III. There were 44 male cases and 134 female cases with complete follow-up data. The number of female cases was about 3 times that of male cases, which was consistent with the reported incidence of KOA in women than in men[13]. Clinical observation has shown that the most common chief complaint of patients with KOA is pain during walking, and the pain is mostly related to the walking distance and can be relieved by itself after rest, while most patients with early and medium-term KOA have no obvious pain at rest. In this study, a total of 178 patients with complete follow-up data were found to have

moderate pain at the time of walking before treatment, and the pain decreased to mild pain at 1 mo after treatment and remained until 2 years after treatment. However, there was no significant difference between the arthroscopic debridement and conservative treatment group in the treatment of walking pain. Before treatment, VAS scores of both groups were mild pain in knee joint rest, and 67.4% (120/178) of patients had no pain in knee joint rest before treatment. Knee joint rest pain was significantly reduced in both groups after treatment, and the reduction of knee joint rest pain in the arthroscopic debridement group was greater than that in the conservative treatment group. It has been reported in the literature that sodium hyaluronate has the potential to improve the intraarticular environment and thereby improve articular cartilage metabolism[24]. The efficacy of arthroscopic debridement combined with intraarticular injection of sodium hyaluronate is better than that of arthroscopic debridement alone [25-27]. Arthroscopic debridement not only flushed out the inflammatory factors in the joint cavity, but also cleared the endogenous sodium hyaluronate in the joint. In our study, 4 mL of sodium hyaluronate was injected into the joint after arthroscopic debridement, which supplemented the loss of sodium hyaluronate caused by the debridement and further consolidated the surgical effect. There was no statistically significant difference in HSS score between the two groups at 1 mo after treatment, but the HSS score was significantly increased compared with that before treatment. We considered that the healing of intraarticular trauma and skin incision caused by arthroscopic debridement would take about 1 mo. Within 1 mo after the operation, there would be pain in the skin incision and intra-articular trauma during the joint movement. Patients could only walk for a short distance and did not dare to greatly exercise the flexion and extension function of the knee joint, so the increase of HSS score was limited. One month after the operation, the incision pain caused by the operation gradually subsided, so the patients gradually increased the walking distance, and the range of flexion and extension of the joint was also greatly improved through intensive functional exercise. Therefore, the HSS score of the arthroscopic defamation group was significantly improved compared with that of the conservative treatment group 3 mo after the operation, and the surgical effect lasted until 2 years after the operation. Moreover, in addition to urging patients to insist on quadriceps exercise for a long time after surgery, the arthroscopic debridement group did not need long-term oral analgesic drugs, which avoided adverse reactions caused by long-term oral drugs. Therefore, arthroscopic debridement is easy to be accepted by patients, and at the same time, it increases treatment compliance and reduces the rate of loss to follow-up.

There are still some shortcomings in this study. Due to the limitation of the Kellgren-Lawrence grade in predicting the extent of articular cartilage and meniscus lesions in the knee joint, further study could combine the advantages of magnetic resonance imaging in the diagnosis of articular cartilage and meniscus lesions to determine the inclusion criteria. The follow-up time of this study is only 2 years, and further extension of the follow-up time is needed.

CONCLUSION

This study indicates that compared with conservative treatment, arthroscopic debridement can significantly improve the knee resting pain and knee functional status of patients with KOA of Kellgren-Lawrence grades I-III within 2 years after treatment, which is worthy of clinical promotion.

ARTICLE HIGHLIGHTS

Research background

Arthroscopic debridement is a mature treatment for knee osteoarthritis (KOA). Due to the differences in the research subjects, methods, and efficacy evaluation indexes, there are great differences in the surgical efficacy reported in the literature.

Research motivation

To evaluate the effect of arthroscopic debridement in the treatment of KOA of Kellgren-Lawrence grades I-III.

Research objectives

To compare the medium-term efficacy of arthroscopic debridement and conservative treatment for KOA of Kellgren-Lawrence grades I-III.

Research methods

Patients with Kellgren-Lawrence grades I-III KOA who were admitted to the orthopedic clinic of our hospital from July 2018 to December 2018 and agreed to undergo arthroscopic surgery were included in an arthroscopic debridement group, and those who refused surgical treatment were included in the a conservative treatment group. Gender, age, body mass index (BMI), side of KOA, American hospital for special surgery knee score (HSS score) before treatment, visual analogue scale (VAS score) during walking and rest before treatment, conservative treatment content, and surgical procedure were recorded. Outpatient visits were conducted at the 1st, 3rd, 6th, 12th, and 24th mo after treatment in the two groups. The changes of HSS score and VAS score in each group before and after treatment were statistically analyzed, and the differences of HSS score and VAS score in different treatment stages between the two groups were also compared.

Research results

There was no statistically significant difference in the general data (gender, age, BMI, side of KOA, Kellgren-Lawrence grade distribution, HSS score, and VAS score) between the two groups before treatment. The HSS scores of the conservative treatment group at the 1st, 3rd, 6th, 12th, and 24th mo after treatment were significantly higher than that before treatment ($P < 0.05$). There was no statistical difference in HSS scores of the conservative treatment group among the 1st, 3rd, 6th, 12th, and 24th mo ($P > 0.05$). The HSS score of the knee arthroscopic debridement group at the 1st mo after surgery was significantly higher than that before surgery ($P < 0.05$). HSS scores of the knee arthroscopic debridement group at the 3rd, 6th, 12th, and 24th mo were significantly higher than those before surgery and at the 1st mo after surgery ($P < 0.05$). There were no statistically significant differences in HSS scores at the 3rd, 6th, 12th, and 24th mo after surgery ($P > 0.05$). HSS scores at the 3rd, 6th, 12th, and 24th mo were significantly higher in the arthroscopic debridement group than in the conservative treatment group ($P < 0.05$). There was no statistical difference in HSS scores between the two groups before treatment and at the 1st mo of follow-up ($P > 0.05$). VAS scores during walking and rest were significantly decreased in both groups, and the VAS score during rest was significantly lower in the arthroscopic debridement group than in the conservative treatment group, but there was no significant difference in the VAS score during walking between the two groups.

Research conclusions

Compared with conservative treatment, arthroscopic debridement can significantly improve the knee resting pain and knee functional status of patients with KOA of Kellgren-Lawrence grades I-III within 2 years after treatment.

Research perspectives

The efficacy of arthroscopic debridement should be further evaluated in a large sample multicenter randomized controlled study.

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