Am J Transl Res 2021;13(6):6759-6765
www.ajtr.org /ISSN:1943-8141/AJTR0131491

Original Article

Analysis of the effect of traction combined with paraffinotherapy on lumbar function in patients with lumbar disc herniation

Fei Hao

Department of Rehabilitation Medicine, Taihe County People's Hospital, Fuyang 236600, Anhui, China

Received February 6, 2021; Accepted February 24, 2021; Epub June 15, 2021; Published June 30, 2021

Abstract: Objective: To explore the effect of traction combined with paraffinotherapy on lumbar function in patients with lumbar disc herniation (LDH). Methods: 100 LDH patients treated in our hospital (from April 2018 to April 2020) were enrolled and randomized into a control group and experimentalexperimental group, with 50 patients each. The control group adopted traction, and the experimentalexperimental group adopted traction combined with paraffinotherapy. Pain symptoms, lumbar function, range of motion (ROM) and isometric muscle strength (IMS) of lumbodorsal muscle, quality of life, and clinical efficacy were compared before and after treatment. Results: ① After treatment, the effectiveness rate of 96% in the experimental group was higher than the 84% in the control group (P=0.046). ② Visual analogue scale (VAS) score in both groups after treatment was lower than that before treatment, and the experimental group was lower compared with controls (P < 0.05). ③ ROM and IMS of lumbodorsal muscle in both groups after treatment were higher than those before treatment, and the experimental group was higher compared with controls (P < 0.05). ④ The Japanese Orthopaedic Association (M-JOA score) and Oswestry disability index (ODI) in both groups after treatment were lower than those before treatment, and the experimental group was lower compared to controls (P < 0.05). ⑤ After treatment, the life quality indexes of both groups were higher than those before treatment, and the experimental group was higher compared to controls (P < 0.05). Conclusion: The treatment of traction combined with paraffinotherapy for LDH patients has significant therapeutic efficacy, and can alleviate lumbocrural pain, improve lumbar function and life quality, and is worthy of application.

Keywords: Traction, paraffinotherapy, lumbar disc herniation, lumbar function, quality of life, efficacy, effect

Introduction

Lumbar disc herniation (LDH) is a syndrome caused by compression of the cauda equina and nerve root due to disc degeneration, nucleus pulposus protrusion, and other causes [1]. LDH mainly occurs in a single intervertebral space, among which L4-5 and L5-S1 are the intervertebral spaces with the highest incidence, accounting for about 90% of the total incidence [2]. The main clinical manifestations of LDH are lumbocrural pain and even lumbar dysfunction, seriously affecting patients' life and health [3]. At present, the mainstay for treatment of LDH in the clinic includes surgical treatment and conservative treatment. Conservative treatment is the preferred option because surgical treatment has the disadvantages of major injury, multiple complications and unsatisfactory long-term outcome [4]. Clinical studies revealed that approximately 80% of patients treated for LDH through conservative treatment yielded a meaningful outcome [5]. Although acupuncture, traction, and paraffinotherapy, are considered common conservative treatment methods, no unified scheme for conservative treatment has been established [6]. In this paper, a retrospective study was undertaken to determine the effect of traction combined with paraffinotherapy on lumbar function in LDH patients.

Materials and methods

General information

100 LDH patients treated in our hospital during April 2018 to April 2020 were recruited

Table 1. Comparison of clinical data

Index	Experimental group (n=50)	Control group (n=50)	χ^2/t	P
Male/Female (n)	27/23	25/25	0.16	0.69
Age (years)	38.42±20.54	37.97±18.06	0.12	0.91
Course of disease (months)	22.81±2.63	22.67±2.60	0.27	0.80
Lesion site (n)	-	-	-	-
Single-level disc protrusion of L3-4	5	3	0.94	0.82
Single-level disc protrusion of L4-5	19	21		
Single-level disc protrusion of L5-S1	16	18		
Double-level disc protrusion between L4-5 and L5-S1	10	8		
Clinical symptoms (n)	-	-	-	-
Lumbocrural pain	24	23	0.04	0.84
Paraspinal tenderness	26	27		

and randomized into a control group and an experimental group. Baseline information in the two groups were homogeneous (P > 0.05), as shown in **Table 1**.

Inclusion/Exclusion criteria

Inclusion criteria: ① All patients met the diagnostic criteria of LDH, with the confirmation by CT and MRI. ② The results of straight leg raising test (SLRT) were positive. ③ Patients were conscious, had normal intellectual and cognitive level, and could clearly judge their own pain symptoms. ④ This study obtained the approval from the Hospital Ethics Committee, and all patients voluntarily participated in the study and signed the informed consent.

Exclusion criteria: ① Congenital spinal deformity or other injuries. ② Other serious organic diseases or osteoporosis. ③ Contraindications to drugs or bleeding tendency. ④ Patients didn't cooperate with or withdrew from the study.

Methods

Drug therapy: Patients in the two groups were given routine medication, and the method was as follows. ① 250 ml of glucose injection with 20 ml of salvia injection was intravenously administered for 14 days. ② During acute edema period, 250 ml of mannitol (20%) with 5-10 mg of dexamethasone was intravenously administered, once a day for 7 days. ③ Compound chlorzoxazone tablets were taken orally (2 tablets/time, 3 times/d), and Vitamin B1 was taken orally (20 mg/time, 3 times/d) [7].

Traction treatment: Both groups underwent traction treatment, and the methods were as follows. The patients in the supine position were treated with traction applying RXPC-400A cervical and lumbar traction bed (manufactured by Jiangsu Rixin Medical Equipment Co., Ltd.). Before treatment, the chest was fixed and the waist was fixed with leather pelvic traction belt. Before traction, the traction parameters, including traction force and the degree of angulation, were determined according to the patient's height, symptoms and other clinical data. During traction, slow traction was first applied for 15 min, and traction parameters were set as follows. Traction force was 100 N-1200 N, the degree of angulation was +10°-30°, traction distance was 55 mm-65 mm, and rotation angle was about 25° [8]. After slow traction finished, the doctor stood on the patient's affected side and pressed the prominent intervertebral space with both thumbs. Then, fast traction was performed, and the traction parameters were set as follows. Traction force was 3000 N or above, traction distance was 50 mm-70 mm, and angulation as well as rotation angle were unchanged. Meanwhile, the doctor pressed down with both hands to complete the reduction treatment. After traction, the patients rested in hard beds for 1 day, and the treatment was carried out once every other day for 14 days.

Paraffinotherapy: In the experimental group, traction treatment combined with paraffinotherapy was performed and the method was as follows. Medical paraffin wax was put into the XYL-IV Paraffin Wax Therapy Device (produced by Anyang Xiangyu Medical Equipment

Co., Ltd.) as well as heated to melt into liquid and then poured into a plate (30 cm × 40 cm × 20 cm) for cooling, in which the plate was pre-coated with a fresh-keeping film at a thickness of 2 cm. After the surface of paraffin wax was semi-solidified, the wax blocks were applied to the patients' lumbosacral region, and the quilt was simultaneously used to keep warm [9]. After the patients had no temperature sensation of wax, the wax was removed, and then the wax application site was cleaned with gauze to check whether there was scald (30 min/time, 2 times/d, for 14 days).

Evaluation indexes

(1) Pain symptoms. Visual analogue score (VAS) scale was adopted to evaluate the pain symptoms before and after treatment in both groups. The total score of VAS scale is 10 points, 0 for no pain, 1-4 for mild pain, 5-7 for moderate pain, and 8-9 for severe pain. Lower scores indicate less pain.

(2) Range of motion (ROM) and isometric muscle strength (IMS) of lumbodorsal muscle. The ROM and IMS of lumbodorsal muscle in the two groups before and after treatment were tested with Tergumed710 Spinal Column Function Test Appraisal Training System (produced by Proxomed, Germany). Each of them was tested twice, and the final results were averaged.

(3) Lumbar function. Modified Japanese Orthopaedic Association (M-JOA) low back pain scale and Oswestry Disability Index (ODI) scale was applied to assess the lumbar function in both groups. Total score of M-JOA low back pain scale is 30 points, and lower scores indicate less pain. The ODI scale consists of 10 questions and each of them is scored 0-5 points. Lower index indicates less lumbar dysfunction.

(4) Quality of life. The World Health Organization Quality of Life scale (WHOQOL-BREF) was adopted to evaluate life quality in both groups before and after treatment. The scale mainly includes psychological function, social function, physiological function, as well as daily activities and each of them totals 100 points. Higher score indicates better life quality.

Efficacy evaluation

After treatment, treatment efficacy in both groups was evaluated, and the evaluation criteria were as follows. Cured: The lumbocrural pain disappeared completely, the ROM of lumbodorsal muscle returned to normal, no tenderness in the physical examination, the results of SLRT were negative, and daily life was not affected. Markedly effective: The lumbocrural pain was significantly alleviated, the clinical signs such as the ROM of lumbodorsal muscle and SLRT were markedly improved, and the impact on daily life was greatly reduced. Effective: The lumbocrural pain was alleviated, the clinical signs such as the ROM of lumbodorsal muscle and SLRT were improved, and the impact of daily life was reduced. Ineffective: The lumbocrural pain was not alleviated, the clinical signs such as the ROM of lumbodorsal muscle and SLRT did not change, and the daily life was still affected. Total effectiveness rate = (cured cases + markedly effective cases + effective cases)/total cases × 100%.

Statistical analysis

SPSS21.0 statistical software was adopted for data processing and GraphPad prism 7.0 was adopted for figure drawing. The measurement data were expressed as ($\bar{x} \pm s$), and tested by t-test. The enumeration data were expressed as [n (%)] and tested by χ^2 test. The statistical significance was set at $P < 0.05$.

Results

Comparison of therapeutic effect after treatment

The cases of being cured, markedly effective, effective, and ineffective of the experimental group were 16, 18, 14, 2, with a total effective rate of 96% (48/50); the cases of being cured, markedly effective, effective, and ineffective of the control group were 12, 17, 13, 8, with a total effective rate of 84% (42/50). The experimental group had a greater total effective rate than the control group (P=0.046, **Table 2**).

Comparison of VAS score

Before treatment, no difference in VAS score was found in the two groups ($P > 0.05$). After treatment, the VAS score in the two groups was lower than that before treatment, and the

Table 2. Comparison of therapeutic effect after treatment [n (%)]

Group	n	Being cured	Marked effect	Being effective	No effect	Total effective rate
Experimental group	50	16 (32)	18 (36)	14 (28)	2 (4)	48 (96)
Control group	50	12 (24)	17 (34)	13 (26)	8 (16)	42 (84)
X^2						5.005
P						0.046

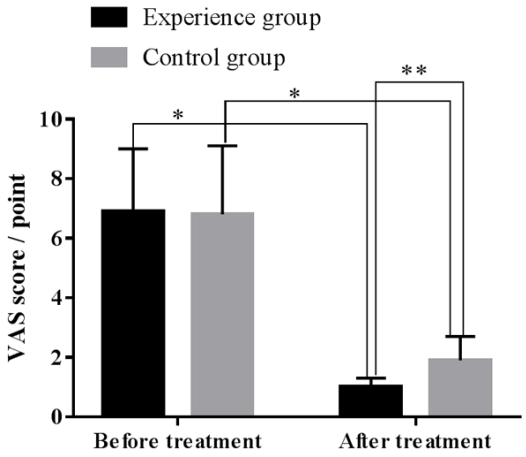

Figure 1. Comparison of VAS score before and after treatment. Note: the abscissa represents the phase, while the ordinate represents the VAS score. VAS score in experimental group was 6.9±2.1 before treatment and 1.0±0.3 after treatment. VAS score in control group was 6.8±2.3 before treatment and 1.9±0.8 after treatment. * indicated comparison of the VAS score after treatment and before treatment (P < 0.05). ** indicated comparison of the VAS score between two groups after treatment (P < 0.05).

VAS score in the experimental group was lower compared with control group (P < 0.05, **Figure 1**).

Comparison of the ROM and IMS of lumbodorsal muscle

Before treatment, no difference in the ROM and IMS of lumbodorsal muscle was found in the two groups (P > 0.05). The ROM and IMS of lumbodorsal muscle in the two groups after treatment were higher than those before treatment, and the experimental group was higher compared with the control group (P < 0.05, **Figure 2**).

Comparison of M-JOA score and ODI index

Before treatment, no obvious difference in M-JOA score and ODI index was found in the two groups (P > 0.05). The M-JOA score and ODI index in the two groups after treatment were lower than those before treatment, and the experimental group was lower compared to the control group (P < 0.05, **Figure 3**).

Comparison of quality of life

Before treatment, no difference in the life quality indexes was found in the two groups (P > 0.05). After treatment, the indexes of the quality of life in the two groups were higher than those before treatment, and the experimental group was higher compared with the control group (P < 0.05, **Table 3**).

Discussion

LDH is common in people aged 20 to 50 years old. Recently, LDH incidence has been on a rise, and is commonly seen in young adults, exerting widespread damage on people's life and health [10]. For LDH, lumbocrural pain and motor dysfunction are pronounced. Besides, the pain and intervertebral disc degeneration give rise to a decrease of lumbar activities, further leading to the decrease of back muscular strength and the ROM of lumbodorsal muscle, which is mainly manifested as the decline of ROM and IMS [11]. Therefore, the LDH treatment is devoted to reducing pain and restoring motor function. Despite considerable efforts in the surgical treatment of LDH in the past decades, experts in LDH rehabilitation still emphasize that conservative treatment is an important way to treat LDH [12].

The clinical symptoms of LDH are mainly radicular pain. When the symptoms are mild, the protruding lumbar intervertebral disc will stimulate the posterior longitudinal ligament and then result in low back pain. When the symptoms are severe, the nerve root will be compressed, or the arteriovenous plexus in the spinal canal and intervertebral foramen will be stimulated, thus leading to the soft tissue edema, and even some severe clinical symptoms such as adhesion of surrounding tissues, ischemia, hypoxia, accumulation of metabolites, and lumbocrural pain [13]. Therefore, the key to LDH treatment is to make the intervertebral disc return to its original position and relieve the compression as well as adhesion.

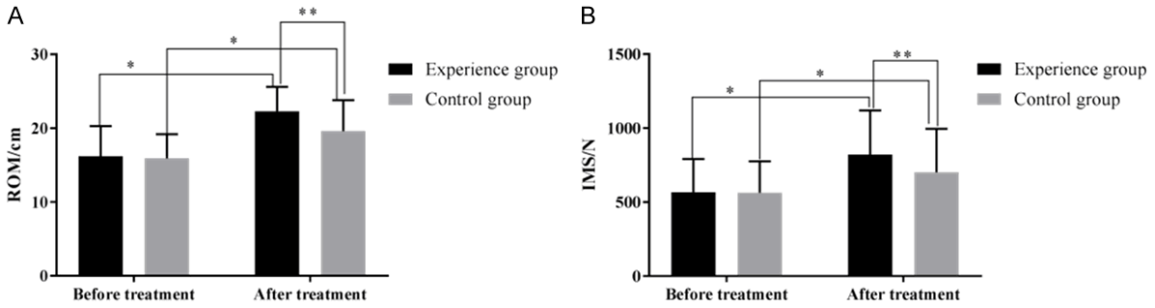

Figure 2. Comparison of the ROM and IMS of lumbodorsal muscle. Note: A. Comparison of the ROM of lumbodorsal muscle. The abscissa represents the treatment phase, while the ordinate represents the ROM of lumbodorsal muscle. The ROM before treatment and after treatment in the experimental group were 16.2±4.1 and 22.3±3.2 respectively. The ROM before treatment and after treatment in the control group were 15.9±3.3 and 19.6±4.2 respectively. * indicated comparison of ROM between two groups after and before treatment ($P < 0.05$). ** indicated comparison of ROM between two groups after treatment ($P < 0.05$). B. Comparison of IMS of lumbodorsal muscle between the two groups before and after treatment. The abscissa represents the phase, while the ordinate represents the IMS of lumbodorsal muscle. The IMS in the experimental group was 567.4±224.3 before treatment and 821.5±297.8 after treatment; while the IMS in the control group was 563.7±211.7 before treatment and 701.3±294.6 after treatment. * indicated comparison of IMS between two groups after treatment and before treatment ($P < 0.05$). ** indicated comparison of IMS between two groups after treatment ($P < 0.05$).

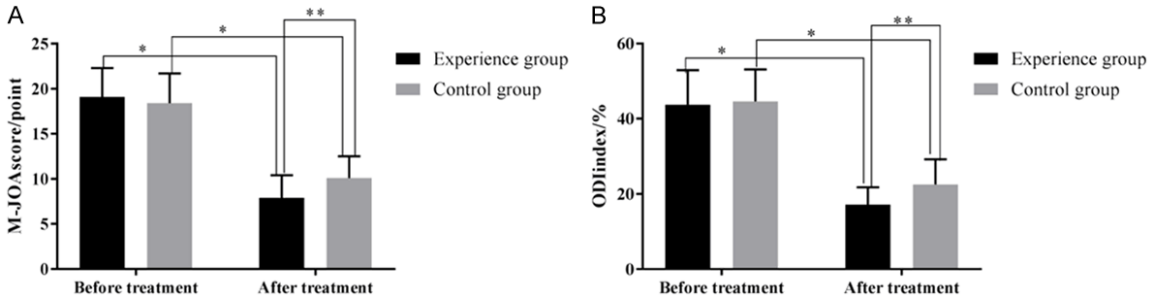

Figure 3. Comparison of M-JOA score and ODI index before and after treatment. Note: A. Comparison of M-JOA scores. The abscissa represents the treatment phase, while the ordinate represents the M-JOA score. The M-JOA score in the experimental group was 19.1±3.2 before treatment and 7.9±2.5 after treatment; while the M-JOA score in the control group was 18.4±3.3 before treatment and 10.1±2.4 after treatment. * indicated comparison of the M-JOA score between two groups after and before treatment ($P < 0.05$). ** indicated comparison of the M-JOA score between the two groups ($P < 0.05$). B. Comparison of ODI index between two groups before and after treatment. The abscissa represents the treatment phase, while the ordinate represents the ODI index. ODI index in experimental group was 43.7±9.2 before treatment and 17.2±4.6 after treatment. ODI index in control group was 44.6±8.5 before treatment and 22.5±6.7 after treatment. * indicated comparison of the ODI index between two groups after and before treatment ($P < 0.05$). ** indicated comparison of the ODI index after treatment between the two groups ($P < 0.05$).

Table 3. Comparison of quality of life ($\bar{x} \pm s$, point)

Group	n	Psychological function		Physiological function		Daily activities		Social function	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Experimental group	50	60.5±5.4	85.7±6.3*	61.4±6.4	81.8±7.2*	58.2±6.3	84.8±7.2*	63.2±6.2	82.7±7.2*
Control group	50	61.4±6.0	79.4±6.2*	62.1±6.2	75.7±6.8*	58.3±6.0	79.3±7.1*	63.3±6.1	76.9±6.8*
t		0.788	5.040	0.555	4.355	0.081	3.846	0.081	4.141
P		0.432	0.000	0.580	0.000	0.935	0.000	0.935	0.000

Note: *indicated comparison between two groups after treatment and before treatment ($P < 0.05$).

Traction is a common treatment for LDH, wherein the antagonistic effect of force in the traditional traction promotes the displacement of the herniated nucleus pulposus, thus allevi-

ating the stimulation and compression on the nerve root. However, this method can only complete one-dimensional straight traction, and cannot change the traction angle and distance according to the patients' actual condition and constitution [14]. With the advancement of traction equipment, three-dimensional slow and fast traction treatment can set the traction angle and distance in advance according to the patients' conditions and constitutions, and can complete the traction action instantaneously [15]. Compared with traditional traction, it increases the intervertebral space as well as the tension of the posterior longitudinal ligament, loosens the nerve root adhesion, reduces its compression, and effectively alleviates the lumbocrural pain.

Paraffinotherapy is a physiotherapy method wherein the affected area is immersed in heated wax liquor or the heated wax block is applied to the affected area, and it hence plays an important role in loosening adhesion and relieving swelling. Clinical practice has proved that paraffinotherapy for LDH patients can enhance the blood circulation of the waist, alleviate muscle spasm, accelerate the dissipation of inflammation and promote tissue repair [16]. This is mainly because the heat of paraffinotherapy can penetrate into the patient's subcutaneous area of 2-5 cm, and the warming effect is more durable and can stop edema, and increase metabolism, thus greatly enhancing blood circulation and alleviating inflammatory edema [17]. Unfortunately, during paraffinotherapy, attention should be paid to the temperature to avoid skin burn. In addition, paraffin wax should be disinfected regularly.

Although 80% of patients can be alleviated or cured LDH by the conservative treatment, the conservative treatment still has a guarded outcome. Studies have shown that the combined treatment of LDH is more effective than the single conservative treatment [18]. The study demonstrated that effectiveness rate in experimental group was higher compared with the control group. Besides, after treatment, the VAS score and life quality indexes in experimental group were also better compared with control group. This was similar to the results of Jianhua et al. [19], in which 240 LDH patients were randomly into treatment group (120 cases with traction combined with acupuncture) and control group (120 cases with traction). The result showed that cure rate of the treatment group (76.7%) was higher than 58.3% of control group ($P < 0.05$). This indicates that traction combined treatment can improve the treatment effect and LDH patients' quality of life, as well as reduce their pain symptoms.

We also found that although the ROM and IMS of lumbodorsal muscle, M-JOA score as well as ODI index after treatment in both groups were better. But the ROM and IMS of lumbodorsal muscle, M-JOA score, and ODI index in the experimental group were obviously higher compared with control group. This was in line with the results of Peng et al. [20]. In their studies, 66 patients with LDH were randomized into control group (33 patients with traction) and observation group (33 patients with traction combined with Shentong Zhuyu Decoction). The result showed that the ODI index in both groups after treatment was lower, and the ODI index in the observation group was lower compared with the control group ($P < 0.05$). This indicates that traction combined treatment can improve patients' spinal function.

In conclusion, traction combined with paraffinotherapy for LDH patients has potential therapeutic benefits, and it alleviates lumbocrural pain, and improves patients' lumbar function and life quality, which is worthy of application.

Disclosure of conflict of interest

None.

Address correspondence to: Fei Hao, Department of Rehabilitation Medicine, Taihe County People's Hospital, No. 21 Jiankang Road, Taihe, Fuyang 236600, Anhui, China. Tel: +86-15245876416; E-mail: taihehaofei123@126.com

References

[1] Chen BL, Guo JB, Zhang HW, Zhang YJ, Zhu Y, Zhang J, Hu HY, Zheng YL and Wang XQ. Surgical versus non-operative treatment for lumbar disc herniation: a systematic review and meta-analysis. Clin Rehabil 2018; 32: 146-160.

[2] Jeong DK, Choi HH, Kang JI and Choi H. Effect of lumbar stabilization exercise on disc herniation index, sacral angle, and functional improvement in patients with lumbar disc herniation. J Phys Ther Sci 2017; 29: 2121-2125.

[3] Zhang B, Xu H, Wang J, Liu B and Sun G. A narrative review of non-operative treatment, especially traditional Chinese medicine therapy, for lumbar intervertebral disc herniation. Biosci Trends 2017; 11: 406-417.
[4] Fontana Carvalho AP, Dufresne SS, Rogerio de Oliveira M, Couto Furlanetto K, Dubois M, Dallaire M, Ngomo S and da Silva RA. Effects of lumbar stabilization and muscular stretching on pain, disabilities, postural control and muscle activation in pregnant woman with low back pain. Eur J Phys Rehabil Med 2020; 56: 297-306.
[5] Han L, Zhao P, Guo W, Wei J, Wang F, Fan Y, Li Y and Min Y. Short-term study on risk-benefit outcomes of two spinal manipulative therapies in the treatment of acute radiculopathy caused by lumbar disc herniation: study protocol for a randomized controlled trial. Trials 2015; 16: 122.
[6] Kose G, Tastan S, Temiz NC, Sari M and Izci Y. The effect of low back pain on daily activities and sleep quality in patients with lumbar disc herniation: a pilot study. J Neurosci Nurs 2019; 51: 184-189.
[7] Ozsoy G, Ilcin N, Ozsoy I, Gurpinar B, Buyukturan O, Buyukturan B, Kararti C and Sas S. The effects of myofascial release technique combined with core stabilization exercise in elderly with non-specific low back pain: a randomized controlled, single-blind study. Clin Interv Aging 2019; 14: 1729-1740.
[8] Yılmaz E, Çıkrıkçıoğlu HY and Baydur H. The effect of functional disability and quality of life on decision to have surgery in patients with lumbar disc herniation. Orthop Nurs 2018; 37: 246-252.
[9] Liu J, Zhu Y, Wang Z, Yu P, Xue C, Jiang H, Li X and Tang D. Clinical research for whether the Traditional Chinese medicine could promote the resorption of lumbar disc herniation: a randomized controlled trial. Medicine (Baltimore) 2020; 99: e21069.
[10] Cai C, Gong Y, Dong D, Xue J, Zheng X, Zhong Z, Shao J and Mi D. Combined therapies of modified taiyi miraculous moxa roll and cupping for patients with lumbar intervertebral disc herniation. Evid Based Complement Alternat Med 2018; 2018: 6754730.
[11] Dabo X, Ziqiang C, Yinchuan Z, Haijian N, Kai C, Yanbin L, Qiang F and Chuanfeng W. The clinical results of percutaneous endoscopic interlaminar discectomy (PEID) in the treatment of calcified lumbar disc herniation: a case-control study. Pain Physician 2016; 19: 69-76.
[12] Yu PF, Jiang H, Liu JT, Li XC, Qian X, Han S and Ma ZJ. Traditional Chinese medicine treatment for ruptured lumbar disc herniation: clinical observations in 102 cases. Orthop Surg 2014; 6: 229-35.
[13] Yuan WA, Huang SR, Guo K, Sun WQ, Xi XB, Zhang MC, Kong LJ, Lu H, Zhan HS and Cheng YW. Integrative TCM conservative therapy for low back pain due to lumbar disc herniation: a randomized controlled clinical trial. Evid Based Complement Alternat Med 2013; 2013: 309831.
[14] Demirel A, Yorubulut M and Ergun N. Regression of lumbar disc herniation by physiotherapy. Does non-surgical spinal decompression therapy make a difference? Double-blind randomized controlled trial. J Back Musculoskelet Rehabil 2017; 30: 1015-1022.
[15] Yao M, Xu BP, Li ZJ, Zhu S, Tian ZR, Li DH, Cen J, Cheng SD, Wang YJ, Guo YM and Cui XJ. A comparison between the low back pain scales for patients with lumbar disc herniation: validity, reliability, and responsiveness. Health Qual Life Outcomes 2020; 18: 175.
[16] Chen M, Chen R, Xiong J, Yi F, Chi Z and Zhang B. Effectiveness of heat-sensitive moxibustion in the treatment of lumbar disc herniation: study protocol for a randomized controlled trial. Trials 2011; 12: 226.
[17] Hu QF, Pan H, Fang YY and Jia GY. Percutaneous endoscopic lumbar discectomy for high-grade down-migrated disc using a trans-facet process and pedicle-complex approach: a technical case series. Eur Spine J 2018; 27: 393-402.
[18] Chen R, Chen M, Su T, Zhou M, Sun J, Xiong J, Chi Z, Xie D and Zhang B. A 3-arm, randomized, controlled trial of heat-sensitive moxibustion therapy to determine superior effect among patients with lumbar disc herniation. Evid Based Complement Alternat Med 2014; 2014: 154941.
[19] Chen R, Chen M, Xiong J, Su T, Zhou M, Sun J, Chi Z, Zhang B and Xie D. Influence of the deqi sensation by suspended moxibustion stimulation in lumbar disc herniation: study for a multicenter prospective two arms cohort study. Evid Based Complement Alternat Med 2013; 2013: 718593.
[20] Sun K, Zhu LG, Wei X, Yu J, Feng MS, Yin H, Liang L, Zhang YL and Qi BY. Efficacy and safety of Shentong Zhuyu Decoction for lumbar disc herniation: systematic review and Meta-analysis. Zhongguo Zhong Yao Za Zhi 2020; 45: 1159-1166.