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经皮椎间孔镜法治疗腰椎间盘突出症的效果观察 *

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摘要 目的:探究经皮椎间孔镜法治疗腰椎间盘突出症的效果。**方法:**选择我院于2018年1月~2020年3月收治的腰椎间盘突出症患者77例为研究对象,根据入院顺序经随机数字表法分成两组,给予对照组39例患者进行开放手术:腰椎后路间盘切除、椎间融合、椎弓根钉内固定术,给予研究组38例患者经皮椎间孔镜法进行治疗。对比两组治疗后腰部功能恢复情况;两组手术时间、术中出血量、住院天数、切口长度等临床指标;两组术前及术后1 d 白介素-1 β (Interleukin-1 β , IL-1 β)及C反应蛋白(C-reactive protein, CRP)水平。**结果:**研究组的腰部功能恢复总优良率92.11%(35/38)显著高于对照组的腰部功能恢复总优良率66.67%(26/39)($P<0.05$);研究组的术中出血量、住院天数、切口长度、手术时间均显著少(短)于对照组($P<0.05$);术前,两组的IL-1 β 、CRP水平对比无显著性差异($P>0.05$);术后1 d,两组的IL-1 β 、CRP水平均比术前显著升高,但研究组显著低于对照组($P<0.05$)。**结论:**经皮椎间孔镜法治疗腰椎间盘突出症的效果显著,可有效改善患者临床指标,且损伤较小,值得推荐至临床广泛应用。

关键词:腰椎间盘突出症;经皮椎间孔镜法;开放手术

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Observation of the Effect of Percutaneous Transforaminal Endoscopic Discectomy for the Treatment of Lumbar Disc Herniation*

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ABSTRACT Objective: To explore the effect of percutaneous transforaminal endoscopic discectomy for the treatment of lumbar disc herniation. **Methods:** 77 patients with lumbar disc herniation treated in our hospital from January 2018 to March 2020 were selected as the research subjects. They were divided into two groups by random number table according to the order of admission. 39 patients in the control group were given open surgery: posterior lumbar discectomy, intervertebral fusion, pedicle screw internal fixation, and 38 patients in the study group were treated with percutaneous endoscopic. Compare the recovery of lumbar function after treatment between two groups of patients. Comparison of clinical indicators such as surgical time, intraoperative blood loss, length of hospital stay, and incision length between the two groups of patients. The levels of interleukin-1 β (IL-1 β) and C-reactive protein (CRP) were compared between the two groups of patients before and 1 day after surgery. **Results:** The total excellent rate of waist function recovery in the study group was 92.11% (35/38), which was significantly higher than that of the control group. The total excellent rate of waist function recovery was 66.67% (26/39) ($P<0.05$). Intraoperative blood loss, length of hospital stay, length of incision, and operation time were significantly less (shorter) in the study group than in the control group ($P<0.05$). Before surgery, there was no significant difference in the levels of IL-1 β and CRP between the two groups of patients ($P>0.05$). One day after surgery, the levels of IL-1 β and CRP in the two groups were significantly higher than before surgery, but the study group was significantly lower than the control group ($P<0.05$). **Conclusion:** Percutaneous intervertebral foramen is effective in treating lumbar intervertebral disc herniation. This method can effectively improve the clinical indicators of patients, and has less damage to patients. It is recommended to be widely used in clinical practice.

Key words: Lumbar disc herniation; Percutaneous discectomy; Open surgery

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前言

腰椎间盘突出症常见的腰部疾患之一^[1]。据统计,我国约有两亿多人患有此病,该病发病年龄以20~40岁多见,男性较多,常有腰扭伤史,好发部位为下腰椎,以腰5/骶1、腰4/腰5节段椎间盘突出最为多见^[2]。腰椎间盘突出症主要是由于腰椎间

盘存在不同程度的蜕变后,在外力的作用下导致椎间盘的纤维环破裂,从而导致出现突出脱出、膨出等现象^[3,4]。临床上,腰椎间盘突出症的治疗分为非手术治疗和手术治疗,绝大多数腰椎间盘突出症能经非手术治疗使症状消失,20%~30%的患者需手术治疗^[5]。传统开放手术创伤大、出血多、术中对腰背部肌肉、软组织的广泛剥离造成损伤,严重影响患者预后^[6]。经皮椎间孔

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镜技术是目前世界公认最为微创、有效的脊柱外科手术,手术切口仅为 0.7 cm,可以治疗几乎所有类型的腰椎间盘突出症,创伤小、出血少、对椎旁软组织损伤小,术后恢复快等特点,近年来在国内外各大医院广泛开展^[7]。本文通过探究经皮椎间孔镜法治疗腰椎间盘突出症的效果,旨在为临床治疗提供参考。

1 资料与方法

1.1 一般资料

选择我院于 2018 年 1 月~2020 年 3 月收治的腰椎间盘突出症患者 77 例,纳入标准:通过 MRI 或 CT 影像检查均确诊为腰椎间盘突出症,且病史超过三个月,严格保守治疗后复发且疼痛较重者;或首次发作,疼痛剧烈,影响患者的睡眠。排除标准:存在腰椎不稳症、病变节段椎间孔极度狭窄者、语言障碍者、皮肤病或皮肤损伤者、手术禁忌者等。77 例患者根据入院顺序随机分成两组,其中,对照组 39 例患者,男性患者 23 例,女性患者 16 例,患者平均年龄为 42.77 ± 5.92 岁,平均病程为 12.17 ± 2.31 个月;研究组 38 例患者,男性患者 21 例,女性患者 17 例,患者平均年龄为 42.54 ± 6.15 岁,平均病程为 12.21 ± 2.26 个月;两组的基础资料对比无差异($P > 0.05$)。本研究获得我院伦理委员会的同意,且患者家属知情同意。

1.2 治疗方法

给予对照组患者腰椎后路间盘切除、椎间融合、椎弓根钉内固定术进行治疗,患者取俯卧位,给予气管插管全身麻醉,胸前及耻骨联合前垫起,避免受压。消毒铺巾,已目标椎间盘平面做约 10~12 cm 后正中切口,沿棘突剥离两侧的骶棘肌,显露病变间隙上下椎体棘突、椎板及关节突,C 臂透视下定位,植入椎弓根钉棒系统,枪式咬骨钳咬除病变间隙的椎板,去除病变较重侧的下关节突,保护并牵拉神经根、硬膜囊,用髓核钳彻底摘除突出的髓核,去除纤维环至终板,将咬下的椎板及棘突修剪成小颗粒状骨后,部分植入椎间隙前方植骨,部分放入大小合

适的 cage 椎间隙融合器内,置入椎间隙深度以 cage 后缘椎体后缘 3 mm 为宜。再以椎弓根钉棒系统适当加压,C 臂透视椎弓根钉位置良好。放置引流,逐层缝合切口。

给予研究组患者经皮椎间孔镜法进行治疗,具体操作为:指导患者取侧卧位,C 臂透视机下标记穿刺部位和进针方向,常规消毒,使用利多卡因局麻。于 X 线透视下进行穿刺,并做一 0.8 cm 左右的切口。逐级放扩张导管,放置扩大椎间孔、工作套管。经椎间孔镜镜头使用生理盐水将突出椎间盘进行冲洗,确保镜头清晰,清理局部软组织,辨别后纵韧带、黄韧带、神经根,完全取出椎管中突入的髓核组织,止血后将椎间孔镜退出,常规缝合切口。

1.3 观察指标

(1) 对比两组治疗后腰部功能恢复情况,通过改良 Mac Nab 治疗效果评定标准进行评估,治疗后,患者的腰痛、腿痛等症状消失,可正常生活即为优;患者存在轻微的腰痛、腿痛等症状,但是不会影响日常生活即为良;患者的腰痛、腿痛等症状减轻,但是活动受限,影响日常生活即为可;患者腰痛、腿痛等症状没有好转,甚至是加重,严重影响日常生活即为差^[8];(2) 记录并对比两组手术时间、术中出血量、住院天数、切口长度等临床指标^[9];(3) 采用双抗体夹心酶联免疫吸附法检测两组患者术前及术后 1 d IL-1 β 及 CRP 水平^[10],并进行对比。

1.4 统计学分析

采用 SPSS 20.0 软件,计数资料以%表示,行卡方分析;计量资料以($\bar{x} \pm s$)表示,经 t 检验; $P < 0.05$ 有统计学意义。

2 结果

2.1 腰部功能恢复情况对比

研究组的腰部功能恢复总优良率 92.11%(35/38) 显著高于对照组 66.67%(26/39),两组对比有显著差异($P < 0.05$),见表 1。

表 1 腰部功能恢复情况对比[例(%)]

Table 1 Comparison of waist function recovery [n (%)]

Groups	n	Excellent	Good	Fair	Poor	Total excellent
Research group	38	23(60.53)	12(31.58)	3(7.89)	0(0.00)	35(92.11)*
Control group	39	12(30.77)	14(35.90)	7(17.95)	6(15.38)	26(66.67)

Note: * $P < 0.05$, compared with the control group.

2.2 临床指标对比

研究组的术中出血量、住院天数、切口长度、手术时间均显

著少(短)于对照组($P < 0.05$),见表 2。

表 2 临床指标对比($\bar{x} \pm s$)

Table 2 Comparison of clinical indicators ($\bar{x} \pm s$)

Groups	n	Intraoperative time (min)	Intraoperative blood loss (mL)	The number of days in hospital (d)	Notch length (cm)
Research group	38	$75.14 \pm 14.21^*$	$10.21 \pm 2.15^*$	$2.24 \pm 0.34^*$	$0.72 \pm 0.08^*$
Control group	39	104.85 ± 15.08	37.65 ± 5.88	5.30 ± 0.62	1.96 ± 0.11

Note: * $P < 0.05$, compared with the control group.

2.3 术前及术后 1 d IL-1 β 、CRP 水平对比

术前, 两组患者的 IL-1 β 、CRP 水平对比无显著性差异

($P > 0.05$);术后 1 d, 两组患者的 IL-1 β 、CRP 水平均比术前显著升高,但研究组显著低于对照组($P < 0.05$),见表 3。

表3 术前及术后1 d IL-1 β 、CRP 水平对比($\bar{x} \pm s$)
Table 3 Comparison of IL-1 β and CRP levels before and after 1 day ($\bar{x} \pm s$)

Groups	n	IL-1 β (pg/mL)		CRP (mg/L)	
		Preoperative	One day after surgery	Preoperative	One day after surgery
Research group	38	194.85 $\pm$ 18.56	215.94 $\pm$ 20.36 ^{*#}	0.16 $\pm$ 0.04	0.55 $\pm$ 0.09 ^{*#}
Control group	39	196.12 $\pm$ 16.05	253.41 $\pm$ 22.68 [#]	0.16 $\pm$ 0.05	1.38 $\pm$ 0.25 [#]

Note: * $P < 0.05$, compared with the control group; # $P < 0.05$, compared with preoperative.

3 讨论

腰椎间盘突出症是在椎间盘退变的基础上,因纤维环松弛、髓核突出等引起腰痛和神经功能障碍^[11-13]。患者临床表现主要有腰痛、坐骨神经痛、下肢疼痛和(或)麻木感、间歇性跛行、肌肉瘫痪等^[14,15]。目前,临床上治疗该症的方法主要为手术治疗和保守治疗,大部分患者先采取保守治疗,失败后,在采取手术治疗,可以短期内解除痛苦,防止神经进一步压迫变性坏死^[16-18]。

椎间孔镜是治疗椎间盘突出的一种微创手术所采用的一个器械,与脊柱内窥镜类似,是一个配备有灯光的管子,它从患者身体侧方进入椎间孔,可使操作者在安全工作三角区实施手术^[19-21]。经椎间孔自然孔道操作,可完全摘除任何突出及变性的髓核,且经该技术操作后,患者皮肤切口较小,出血量较少,是同类手术中患者创伤最小,效果最好的微创治疗椎间盘突出的手术^[22-24]。本文研究结果显示,研究组的腰部功能恢复总优良率92.11%(35/38)显著高于对照组的腰部功能恢复总优良率66.67%(26/39);研究组的术中出血量、住院天数、切口长度、手术时间均显著少(短)于对照组;表明,经皮椎间孔镜法治疗腰椎间盘突出症的效果显著。分析其原因:腰椎后路间盘切除、椎间融合、椎弓根钉内固定术作为开放手术,主要包括椎板髓核摘除、半椎板或全椎板的切开减压,植骨融合、内固定等,术中切口较长,创伤较大,术中出血较多,损害支配椎旁肌的脊神经后支,多裂肌和最长肌的去神经和萎缩,引发术后的慢性腰痛,同时,侧切椎间隙内的髓核时有损害大血管的风险,使降低其效果,导致患者术后恢复时间相对较长;而椎间孔镜手术是一个非常微创的手术,皮肤切口仅7 mm,如同一个黄豆粒大小,术后仅缝1针,患者术后恢复较快。

有研究表明,手术操作作为创伤性操作,会诱发机体的炎症反应,而炎症因子水平可反映机体创伤程度^[25,26]。CRP是一种由肝脏合成的,反映体内急性炎症的一种反应蛋白^[27,28];IL-1是一种细胞因子,它是由活化的巨噬细胞所产生,参与免疫反应^[29,30]。本文研究结果显示,术前,两组的IL-1 β 、CRP水平对比无显著性差异;术后1 d,两组的IL-1 β 、CRP水平均比术前显著升高,但研究组显著低于对照组。表明,经皮椎间孔镜法治疗腰椎间盘突出症对患者损伤较小。分析其原因:腰椎后路间盘切除、椎间融合、椎弓根钉内固定术切口较长,手术切除病变椎间盘后,使得前中柱稳定性下降,影响腰椎的稳定性,同时腰部肌肉失神经支配引起慢性腰痛症状,对患者的创伤大,增加了炎症因子水平,而经皮椎间孔镜手术结合了内窥镜技术和经皮穿刺术,从椎间孔下方安全三角进入病变区域,经椎间孔自然孔道操作,手术切口较小,不会破坏腰椎正常结构和相关韧带的稳定性,对患者损伤较小。

综上所述,经皮椎间孔镜法治疗腰椎间盘突出症的效果显著,可显著改善临床指标,且对患者损伤较小,值得推荐至临床应用。

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