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经皮激光汽化术联合杜仲腰痛丸治疗腰椎间盘突出症的效果观察 *

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摘要 目的:研究经皮激光汽化术联合杜仲腰痛丸治疗腰椎间盘突出症的临床效果。**方法:**选择2016年4月～2018年4月我院脊柱骨科收治的106例腰椎间盘突出症患者,随机分为两组。对照组单独采用经皮激光汽化术治疗,观察组联合口服杜仲腰痛丸治疗,每次8粒,每天3次。比较两组的治疗有效率,治疗前后的VAS评分、JOA评分,血清白介素-1β(IL-1β)、肿瘤坏死因子-α(TNF-α)水平的改变情况。**结果:**治疗后,观察组的治疗有效率为88.68%(47/53),明显高于对照组[73.58%(39/53)](*P<0.05*)。两组治疗后的VAS评分值均较治疗前明显降低(*P<0.05*),JOA评分值均较对照组明显升高(*P<0.05*),且观察组VAS评分值明显低于对照组,JOA评分值显著高于对照组(*P<0.05*)。两组治疗后的血清IL-1β、TNF-α水平均较治疗前明显降低(*P<0.05*),且观察组血清IL-1β、TNF-α水平明显低于对照组(*P<0.05*)。两组均未发生神经损伤和无椎间盘炎等并发症。**结论:**经皮激光汽化术联合杜仲腰痛丸治疗腰椎间盘突出症的临床效果明显优于单独采用经皮激光汽化术治疗,其可以显著改善患者的生活质量,降低疼痛程度,其作用机制可能与有降低患者血清炎症介质IL-1β、TNF-α的表达有关。

关键词:经皮激光汽化术;杜仲腰痛丸;腰椎间盘突出症;临床疗效

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Observation on the Effect of Percutaneous Laser Vaporization Combined with Duzhongyaotong Pill in the Treatment of Lumbar Disc Herniation*

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ABSTRACT Objective: To investigate the clinical effect of percutaneous laser vaporization combined with duzhongyaotong pill in the treatment of lumbar disc herniation. **Methods:** 106 cases of patients with lumbar disc herniation who were treated in our hospital from April 2016 to April 2018 were selected and randomly divided into two groups. The control group was treated with percutaneous laser vaporization alone, and the observation group was treated with duzhongyaotong pill orally, 8 capsules each time, 3 times a day. The therapeutic efficacy, changes of VAS score, JOA score, serum interleukin-1β (IL-1β) and tumor necrosis factor-α (TNF-α) levels before and after treatment were compared between the two groups. **Results:** After treatment, the effective rate of observation group was 88.68% (47/53), which was significantly higher than that of control group [73.58% (39/53)] (*P<0.05*). After treatment, the VAS scores of both groups were significantly lower than those before treatment (*P<0.05*), while the JOA scores were significantly higher than those before treatment (*P<0.05*), and the VAS scores of observation group were significantly lower than those of the control group, and the JOA scores were significantly higher than those of the control group (*P<0.05*). The serum levels of IL-1β and TNF-α in both groups were significantly lower than those before treatment (*P<0.05*), and the serum levels of IL-1β and TNF-α in the observation group were significantly lower than those in the control group (*P<0.05*). No neurological injury or intervertebral disc inflammation occurred in the two groups. **Conclusion:** The clinical effect of percutaneous laser vaporization combined with duzhongyaotong pill in the treatment of lumbar intervertebral disc herniation was better than that of percutaneous laser vaporization alone, which can significantly improve the quality of life of patients and reduce the degree of pain, and its mechanism may be related to the reduction of serum inflammatory mediators IL-1β and TNF-α expression.

Key words: Percutaneous laser vaporization; Duzhongyaotong pill; Lumbar intervertebral disc; Clinical efficacy

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前言

腰椎间盘突出症是一种临床脊柱骨科的多发病及常见病，当纤维环受外力作用破裂、椎间盘劳损变性或者髓核发生退行性改变后出现脱出，会导致周围的脊髓以及脊神经受到不同程度的压迫，进而引发一系列的临床症状。大部分患者的发病部位位于 L5~S1 节段以及 L4~5 节段，是腰腿痛最重要和最常见的原因 [1-3]。经皮激光汽化术作为一种新型的微创介入治疗手段，具有不破坏脊柱稳定性，可以有效保留患者大部分的椎间盘，创伤轻微等优点，逐渐受到临床上的广泛重视[4-6]。目前，随着手术治疗腰椎间盘突出症的普及，患者术后发生下腰痛的研究报道日益增多。缓解腰椎间盘突出症患者术后下腰痛并改善其生活质量是临床上研究的热点问题[7-9]。

杜仲腰痛丸具有通络止痛、活血消肿以及壮腰健肾等多种功效，现代药理学研究表明杜仲腰痛丸具有消除根性水肿，改善机体微循环，解除痉挛状态，增强机体免疫功能，抗炎镇痛等效果[10]。本研究采用经皮激光汽化术联合杜仲腰痛丸，探讨了其治疗腰椎间盘突出症的临床效果和可能的作用机制。

1 资料与方法

1.1 一般资料

选择 2016 年 4 月～2018 年 4 月我院脊柱骨科收治的 106 例腰椎间盘突出症患者，纳入标准：① 均经 MRI 腰椎正侧位检查、腰椎 CT 检查以及过屈过伸位 X 线片检查确诊患有腰椎间盘突出症；② 中央型腰椎间盘突出症但无马尾神经损伤者；③ CT 显示髓核突出呈宽大基底型、髓核未破裂者；④ 单侧椎间盘突出症者；⑤ 签署知情同意书；⑥ 多间隙突出但符合上述条件者。排除标准：① 近 3 个月服用过激素或免疫抑制剂、抗凝血和抗黏附药物治疗的患者；② 突出物占椎管面积 40%以上者；③ 椎间隙严重狭窄者；④ 突出间盘后缘有钙化或椎体后缘有骨赘形成者；⑤ 有纤维环破裂，游离髓核进入椎管者；⑥ 合并有糖尿病、冠心病、高脂血症、肝硬化以及肝炎活动期等疾病患者；⑦ 凝血系统障碍患者；⑧ 其他原因导致的腰腿痛患者；⑨ 恶性肿瘤患者。

将 106 例腰椎间盘突出症患者随机分为两组。观察组 53 例，男 30 例，女 23 例；年龄 19～42 岁，平均(32.26± 11.83) 岁；病程 2 w~18 年，平均(3.87± 0.62) 年；L5~S1 椎间盘脱出者 32 例，L4～L 5 椎间盘突出者 21 例；旁中央区型 17 例，中央区型 15 例，极外侧区型 3 例，外侧区型 18 例。对照组 53 例，男 29 例，女 24 例；年龄 18～41 岁，平均 (31.17 ± 12.63) 岁；病程 2 w～18 年，平均 (3.85 ± 0.67) 年；L5～S1 椎间盘脱出者 33 例，L4～L 5 椎间盘突出者 20 例；旁中央区型 16 例，中央区型 15 例，极外侧区型 4 例，外侧区型 18 例。两组的基线资料比较差异均无统计学意义($P>0.05$)，具有可比性。

1.2 治疗方法

对照组单独采用经皮激光汽化术治疗，手术具体操作步骤如下：患者侧卧位，垫高腰部，铺无菌单，常规进行消毒，给予 5 mL 的 1 %利多卡因实施局部浸润麻醉。从腰椎间盘突出症患者的侧隐窝入路，用 18G、15 cm 长穿刺针进行穿刺，冠状面夹角与穿刺针夹角约 40° ，经安全三角区穿刺进入，使用 X 线机准确定位针尖的具体位置， 侧位示： 穿刺针于椎间隙后 1/3 处，正位示：穿刺针于椎间隙中央为最佳。然后拔出针芯，注入生理盐水，激光光导纤维的直径选用标准为 600 μm，将激光光导纤维的一端插进医用 0.9 %生理盐水中，使生理盐水超出针芯 0.4 cm，并且将激光光导纤维的另一端连接 ND-YAG 脉冲式激光治疗仪，功率设置为 15 W，持续时间 1.0 s，间隔时间 1.0 s，对每个病变的椎间盘给予的激光总能量大约为 600～1000 J，平均 3000 J。激光发射结束后，退出光导纤维。治疗期间可用 20 mL 针管抽吸至椎间隙为负压， 术中询问患者有无不适，根据患者反馈及时调整穿刺针深度、位置及激光能量。观察组联合口服杜仲腰痛丸(批号：甘药制字：Z09001921，生产厂家：甘肃省中医院制剂室，规格：40 g/ 瓶)治疗，每次 8 粒，每天 3 次，共给药治疗 2 w。

1.3 评估标准与观察指标

评估标准：① 治愈：患者基本恢复日常生活，症状体征基本消失，改善率达 75%～100%；② 显效：患者的直腿抬高 50° ～70° ，腰痛症状明显改善，改善率达 50%～74%；③ 有效：患者的腰部活动得到一定程度的缓解， 腰腿疼痛程度有所减轻，改善率达 25%～49%；④ 无效：患者的症状无改善或加重，改善率小于 25%。

采用 VAS 评分评估患者的疼痛程度，0 分提示患者无任何疼痛感，10 提示患者出现剧痛；采用 JOA 评分评估疼痛对患者生活质量的影响程度，评分值越高，提示患者的生活质量越好。比较两组治疗前后的 VAS 评分以及 JOA 评分。

采用酶联免疫吸附法检测并比较两组治疗前后的血清白介素 -1β(IL-1β)、肿瘤坏死因 -α(TNF-α)水平，试剂盒均购自北京普赞生物技术有限公司。

1.4 统计学分析

采用 SPSS19.0 软件，计量资料 $\bar{x}\pm s$ 表示，组间和组内对比采用 t 检验，组间率的比较用 x^2 检验，以 $P<0.05$ 表明差异有统计学意义。

2 结果

2.1 两组临床疗效对比

治疗后，与对照组[73.58%(39/53)]比较，观察组治疗有效率 88.68%(47/53)显著升高($P<0.05$)。

表 1 两组临床疗效对比[例(%)]

Table 1 Comparison of the clinical effect between two groups [n (%)]

Groups	n	Cure	Effective	Valid	Invalid	The total effect rate
Control group	53	5 (9.43)	15 (28.30)	19 (35.85)	14 (26.41)	73.58
Observation group	53	7 (13.21)	19 (35.85)	21 (39.62)	6 (11.32)	88.68*

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

2.2 两组治疗前后的 VAS 评分以及 JOA 评分对比

两组治疗后的 VAS 评分值均较治疗前明显降低($P<0.05$)，JOA 评分值均较治疗前明显升高($P<0.05$)，且观察组 VAS 评分值明显低于对照组，JOA 评分值显著高于对照组($P<0.05$)。

表 2 两组治疗前后的 VAS 评分以及 JOA 评分对比($\bar{x}\pm s$，分)

Table 2 Comparison of the VAS score and JOA score between two groups before and after treatment ($\bar{x}\pm s$, points)

Groups	n		VAS score	JOA score
Control group	53	Before treatment	8.13 ± 0.74	8.24 ± 1.37
		After treatment	4.27 ± 0.38 #	11.32 ± 2.54 #
Observation group	53	Before treatment	8.15 ± 0.62	8.23 ± 1.25
		After treatment	2.93 ± 0.41 *#	14.59 ± 2.63 *#

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

2.3 两组治疗前后的血清 IL-1β、TNF-α 水平对比

与治疗前比较，两组治疗后血清 IL-1β、TNF-α 水平均显著降低($P<0.05$)，且观察组显著低于对照组($P<0.05$)。

表 3 两组治疗前后的血清 IL-1β、TNF-α 水平对比($\bar{x}\pm s$，分)

Table 3 Comparison of the serum levels of IL-1 beta and TNF-alpha levels between two groups before and after treatment ($\bar{x}\pm s$, points)

Group	n		IL-1β (μg/L)	TNF-α (μg/L)
Control group	53	Before treatment	0.42 ± 0.21	1.90 ± 0.51
		After treatment	0.33 ± 0.12#	1.49 ± 0.37#
Observation group	53	Before treatment	0.43 ± 0.18	1.88 ± 0.47
		After treatment	0.26 ± 0.09*#	1.28 ± 0.24*#

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

2.4 两组不良反应发生情况的比较

两组均未发生神经损伤和无椎间盘炎等并发症。

3 讨论

腰椎间盘突出症是由于劳累、外伤和持久性体位使机体的腰椎间盘组织出现损伤、退行性改变、纤维环全部或部分破裂，髓核组织以及残存的纤维环往椎管内突出，进而对附近的脊神经根造成压迫[11-14]。腰椎间盘突出症患者会出现为腰痛或伴下肢麻木、下肢疼痛等临床常表现，病情严重者会出现瘫痪和跛行，对患者的日常生活以及工作造成严重的影响。因为椎间盘在生理上的特殊性，较小的体积变化就会对其周围的神经以及组织产生极大的压力改变[15-18]。引发腰椎间盘突出症的因素包括先天异常、外力损伤、遗传因素以及椎间盘解剖功能低下等；持久性腰部体位不正、感受寒湿、突然负重、妊娠和腹压增加等也是重要的诱发因素[19-21]。临床治疗腰椎间盘突出症患者的手段有多种，包括微创治疗、手术治疗以及非手术治疗。

祖国传统医学认为腰椎间盘突出症属于 " 腰痛病 "、" 痹病 " 的范畴，包括湿热型、寒湿型、瘀血型和肾虚型 4 型，是因感受风寒湿邪、受到外伤以及肝肾亏虚等导致痹阻经络、气滞血瘀、经脉不通而引发[22]。杜仲腰痛丸主要由川牛膝、杜仲、桑寄生、当归、狗脊、山萸肉、赤芍、川芎、延胡索、土鳖虫、红花、桃仁、没药、乳香、木香、三七粉和炙甘草组成。现代药理学研究表明杜仲腰痛丸方中大部分的药物均具有解痉、抗炎和止痛功能；狗脊以及杜仲具有抗凝、扩张血管、增加血流量的效果；川芎能改善机体微循环，加快血液流动速度，抑制红细胞凝集，降低微血管的渗透性，有效调节微环障碍，还能抑制网状内皮的吞噬效果[23]。本研究结果显示观察组的治疗有效率为 88.68 %，明显高于对照组，且患者 VAS 评分值明显低于对照组，JOA 评分值显著高于对照组，表明与单独采用经皮激光汽化术治疗相比，经皮激光汽化术联合杜仲腰痛丸可以显著提高腰椎间盘突出症的治疗效果，改善患者的生活质量，降低疼痛程度。

多项临床和实验研究均发现腰椎间盘突出症患者腰腿疼痛与炎症反应紧密相关，因而形成了腰椎间盘突出症炎症发病机制学说[24]。IL-1 可以有效促使间盘胶质细胞生成前列腺素 E2 和一氧化氮，前列腺素 E2 是一种强烈的致痛物质，而一氧化氮在炎症反应中具有重要的效果，能导致血管通透性增加以及血管扩张[25-27]。TNF-α 主要通过发挥作用于血管内皮细胞，造成血管功能紊乱，促进血栓的形成。在正常椎间盘中，血清 TNF-α 水平较低，但是在退变椎间盘内水平显著升高[28-30]。本研究结果显示观察组治疗后的血清 IL-1β、TNF-α 水平明显低于对照组，提示杜仲腰痛丸提高腰椎间盘突出症的作用机制可能与其有效抑制患者血清炎症介质 IL-1β、TNF-α 的表达有关。杜仲腰痛丸可以通过改善机体的微循环，使毛细血管得以扩张，消除神经根的水肿和炎症；增强机体的免疫调节功能，消除及缓解患者的免疫炎症；具有抗炎镇痛的效果，可有效抑制炎症的渗出。

综上所述，经皮激光汽化术联合杜仲腰痛丸治疗腰椎间盘突出症的临床效果明显优于单独采用经皮激光汽化术治疗，可以显著改善生活质量，降低疼痛程度，其作用机制可能与有降低患者血清炎症介质 IL-1β、TNF-α 的表达有关。

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