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单次与重复多次根管疏通填充对牙体牙髓病患者疼痛程度、咀嚼功能及炎症因子水平的影响*

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摘要 目的:探讨单次与重复多次根管疏通填充对牙体牙髓病患者疼痛程度、咀嚼功能及炎症因子水平的影响。**方法:**选取我院收治的 119 例牙体牙髓病患者,按照乱数表法将患者分为 A 组(n=59,重复多次根管疏通填充治疗)、B 组(n=60,单次根管疏通填充治疗)。比较两组患者临床疼痛程度、总有效率、咀嚼功能及炎症因子水平,记录两组并发症发生情况。**结果:**B 组治疗 2 周后的临床总有效率为 93.33%(56/60),高于 A 组的 74.58%(44/59)($P<0.05$)。治疗 2 周后两组患者咬合力、咀嚼效率升高,且 B 组高于 A 组($P<0.05$);两组患者治疗 2 周后牙龈指数、视觉疼痛模拟评分法(VAS)评分均下降,且 B 组低于 A 组($P<0.05$)。两组患者治疗 2 周后血清白介素-6(IL-6)、肿瘤坏死因子- α (TNF- α)、C 反应蛋白(CRP)水平均降低,且 B 组低于 A 组($P<0.05$)。B 组术后并发症发生率低于 A 组($P<0.05$)。**结论:**采用单次根管疏通填充治疗可有效改善牙体牙髓病患者临床症状及炎症因子水平,还可降低术后并发症发生率,疗效确切。

关键词:单次根管疏通填充;重复多次根管疏通填充;牙体牙髓病;疼痛程度;咀嚼功能;炎症因子

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Effects of Single and Repeated Root Canal Dredging and Filling on Pain, Masticatory Function and Inflammatory Factors in Patients with Dental Pulp Disease*

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ABSTRACT Objective: To investigate the effects of single and repeated root canal dredging and filling on the pain degree, masticatory function and inflammatory factors of patients with dental pulp disease. **Methods:** A total of 119 patients with dental pulp disease who were admitted to our hospital from February 2017 to May 2019 were selected, they were randomly divided into group A (n=59, repeated root canal dredging and filling treatment) and group B (n=60, single root canal dredging and filling treatment). The pain degree, total effective rate, masticatory function and inflammatory factor level of the two groups were compared, and the complications of the two groups were recorded. **Results:** The total clinical effective rate of group B was 93.33% (56/60), which was higher than that of group A 74.58% (44/59) ($P<0.05$). 2 weeks after treatment, the biting force and chewing efficiency of the two groups increased, and those of group B were higher than those of group A ($P<0.05$). 2 weeks after treatment, the gingival index and visual pain simulation score (VAS) of the two groups decreased, and those of group B were lower than those of group A ($P<0.05$). The serum levels of interleukin -6 (IL-6), tumor necrosis factor- α (TNF- α), C-reactive protein (CRP) of the two groups decreased at 2 weeks after treatment, and the levels of group B were lower than those of group A ($P<0.05$). The incidence of postoperative complications of group B was lower than that of group A ($P<0.05$). **Conclusion:** Single root canal dredging and filling can effectively improve the clinical symptoms of patients with dental pulp disease, with definite curative effect. At the same time, it can also reduce the level of inflammatory factors and the incidence of postoperative complications. It has certain clinical application value.

Key words: Single root canal dredging and filling; Repeated root canal dredging and filling; Dental pulp disease; Degree of pain; Masticatory function; Inflammatory factors

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前言

牙体牙髓病是临床常见的口腔类疾病,主要包括龋病、牙髓病、牙体组织缺损等^[1]。临床主要表现为剧烈疼痛,且温度刺

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激会加重疼痛的症状,若未能及时予以治疗,不仅可对患者口腔正常的生理功能及生活质量产生影响,还会影响患者外观形象^[2]。根管治疗是目前治疗牙体牙髓病的主要方法,此治疗方式可有效缓解患者疼痛,有效改善根尖及牙周环境^[3]。传统的根管疗法需重复多次治疗,主要包括根管疏通、根管消毒和根管填充三个步骤,虽可获得一定疗效,但疗程长,患者痛苦增加^[4]。近年来,现代医学的不断完善促使单次根管疗法开始于临床中应用^[5]。现临床对何种根管治疗方式最为理想尚无定论。鉴于此,本研究探讨了单次与重复多次根管疏通填充对牙体牙髓病患者的影响,以期临床治疗提供参考。

1 资料与方法

1.1 一般资料

选取我院 2017 年 2 月~2019 年 5 月收治的 119 例牙体牙髓病患者。纳入标准:(1)符合《临床口腔科学》中的牙体牙髓病的诊断标准^[6];(2)经相关诊断确诊为牙体牙髓病,X 线片显示根尖有低密度投射影;(3)对根管治疗有一定的耐受力;(4)知情本研究且签署了同意书;(5)从发病至就诊时间为 1~7d。排除标准:(1)伴有口腔其他疾病者;(2)合并心肝肾等脏器功能不全者;(3)合并全身急性慢性感染者;(4)合并血液系统疾病者;(5)妊娠及哺乳期妇女;(6)就诊前接受其他牙科手术治疗者。根据乱数表法将患者分为 A 组(n=59,重复多次根管疏通填充治疗)、B 组(n=60,单次根管疏通填充治疗),其中 A 组男 32 例,女 27 例,年龄 43~68 岁,平均(52.91±4.06)岁;发病至就诊时间 1~7d,平均(3.82±0.57)d;体质量指数 21.3~26.5 kg/m²,平均(23.65±0.82)kg/m²。B 组男 34 例,女 26 例,年龄 41~69 岁,平均(52.73±3.96)岁;发病至就诊时间 2~7d,平均(3.96±0.66)d;体质量指数 21.6~26.1 kg/m²,平均(23.42±0.93)kg/m²。两组患者一般资料对比未见差异($P>0.05$),组间可比,此次研究经我院伦理学委员会批准进行。

1.2 治疗方法

所有患者治疗前均拍摄局部 X 线片,采取常规口腔探查,初步了解患牙根管情况和炎症情况,针对合并炎症者,应于治疗前予以抗炎治疗,所有患牙行常规降低咬合。在此基础上,A 组给予重复多次根管疏通填充治疗,具体操作如下:均给予牙体预备治疗,去除牙齿坏死部分,并临时修复裂性牙,将髓室顶揭开,随后彻底冲洗根管系统,在这一系列过程中,每一个步

骤均使用双氧水及生理盐水冲洗。B 组给予单次冲洗,冲洗后选取 10 号根管锉定位,根管填充剂采用氧化锌碘仿糊剂及牙胶,固定方式采用侧压法。A 组给予重复多次冲洗,上述治疗完成后,采用 10 号根管锉进行定位后使用氢氧化钙封口。

1.3 观察指标

(1)观察两组患者治疗 2 周后的临床疗效。疗效判定依据^[7]如下:痊愈:X 线检查显示牙体牙髓病变消失,牙龈肿胀、牙疼等临床症状完全消失,口腔咀嚼功能恢复正常;显效:牙龈肿胀、牙疼等临床症状基本消失,X 线检查显示牙体牙髓病变基本消失,口腔咀嚼功能基本恢复正常;有效:口腔咀嚼功能有所加强,牙龈肿胀、牙疼等临床症状有所缓解,X 线检查显示牙体牙髓病变有所改善;无效:口腔咀嚼功能、牙龈肿胀、牙疼等临床症状,X 线检查结果未见明显好转甚至加重。痊愈率+显效率+有效率=总有效率。(2)记录两组治疗期间并发症发生情况。(3)比较两组疼痛程度和咀嚼功能,其中咀嚼功能包括咬合力、牙龈指数、咀嚼效率,检测时间:治疗前、治疗 2 周后。咬合力采用 T-ScanIII 咬合分析仪(麦思科技有限公司)测定;牙龈指数测定使用钝头牙周探针测定,结合探诊、视诊,检查全口或几颗选定的牙;咀嚼效率采用花生米过筛称重法测定。疼痛程度采用视觉疼痛模拟评分法(Visual analogue scale, VAS)^[8]评定, VAS 分值 0~10 分,分数越高,疼痛感越强烈。(4)抽取患者空腹静脉血 5 mL,抽血时间:治疗前、治疗 2 周后清晨,离心半径 12 cm,经 3900 r/min 离心 17 min,分离待测。采用酶联免疫吸附试验检测血清白介素-6(Interleukin-6, IL-6)、肿瘤坏死因子- α (Tumor necrosis factor- α , TNF- α)、C 反应蛋白(C-reactive protein, CRP)。严格遵守试剂盒(武汉博士德生物科技有限公司)说明书进行操作。

1.4 统计学方法

采用 SPSS24.0 进行数据统计分析。以率(%)表示计数资料,采用 χ^2 检验。计量资料采用($\bar{x}\pm s$)表示,采用 t 检验。检验标准设置为 $\alpha=0.05$ 。

2 结果

2.1 临床总有效率比较

B 组治疗 2 周后的临床总有效率为 93.33%(56/60), 高于 A 组的 74.58%(44/59)($P<0.05$);见表 1。

表 1 临床总有效率比较 例(%)

Table 1 Comparison of total clinical effective rates between the two groups n(%)

Groups	Cure	Markedly effective	Effective	Invalid	Total effective rate
Group A(n=59)	8(13.56)	16(27.12)	20(33.90)	15(25.42)	44(74.58)
Group B(n=60)	12(20.00)	21(35.00)	23(38.33)	4(6.67)	56(93.33)
χ^2					8.730
P					0.003

2.2 疼痛程度和咀嚼功能的比较

治疗前两组咬合力、牙龈指数、咀嚼效率、VAS 评分比较无差异($P>0.05$);两组治疗 2 周后咬合力、咀嚼效率升高,且 B

组高于 A 组($P<0.05$);两组患者治疗 2 周后牙龈指数、VAS 评分均下降,且 B 组低于 A 组($P<0.05$);见表 2。

表 2 疼痛程度和咀嚼功能的比较($\bar{x} \pm s$)Table 2 Comparison of pain degree and mastication function($\bar{x} \pm s$)

Groups	Bite force(lbs)		Chewing efficiency(%)		Gingival index		VAS score(scores)	
	Before	2 weeks after	Before	2 weeks after	Before	2 weeks after	Before	2 weeks after
	treatment	treatment	treatment	treatment	treatment	treatment	treatment	treatment
Group A(n=59)	92.54±5.63	112.15±6.71*	62.28±4.31	74.64±6.57*	0.92±0.11	0.76±0.12*	5.19±1.34	2.61±0.78*
Group B(n=60)	92.03±6.54	129.74±10.55*	62.72±5.34	88.57±7.61*	0.87±0.18	0.45±0.19*	5.24±1.37	1.13±0.35*
t	0.456	9.315	0.494	10.681	1.825	10.621	0.201	13.391
P	0.650	0.000	0.622	0.000	0.071	0.000	0.841	0.000

Note: compared with before treatment, * $P < 0.05$.

2.3 炎症因子水平比较

两组治疗前血清 IL-6、TNF- α 、CRP 水平比较无差异($P > 0$).

05); 治疗 2 周后两组血清 IL-6、TNF- α 、CRP 水平均降低,且 B 组较 A 组低($P < 0.05$);见表 3。

表 3 炎症因子水平比较($\bar{x} \pm s$)Table 3 Comparison of inflammatory factors($\bar{x} \pm s$)

Groups	IL-6(ng/mL)		TNF- α (ng/mL)		CRP(mg/L)	
	Before treatment	2 weeks after treatment	Before treatment	2 weeks after treatment	Before treatment	2 weeks after treatment
Group A(n=59)	2.65±0.54	1.67±0.63*	9.66±1.65	6.05±0.91*	11.51±1.37	7.49±1.38*
Group B(n=60)	2.72±0.47	1.08±0.41*	9.73±1.76	3.69±0.68*	11.66±1.31	4.07±1.42*
t	0.755	6.065	0.224	16.044	0.611	13.321
P	0.452	0.000	0.823	0.000	0.543	0.000

Note: compared with before treatment, * $P < 0.05$.

2.4 并发症发生情况比较

A 组术后发生 3 例牙龈肿胀、2 例感染、4 例咬合不适,并发症发生率为 15.25%(9/59),B 组术后发生 1 例牙龈肿胀、1 例咬合不适,并发症发生率为 3.33%(2/60),B 组术后并发症发生率低于 A 组($\chi^2=5.039$, $P=0.025$)。

3 讨论

近年来,人们生活水平不断改善,在生活方式和饮食结构的双重变化影响下,口腔问题日益严峻,牙体牙髓病的发生率逐年递增^[9-11]。牙体病和牙髓组织的疾病均可统称为牙体牙髓病,由于牙体解剖学的因素,致使其牙髓腔内易出现急性炎症,急性炎症可导致髓腔内压力升高,周围组织神经受到不同程度的压迫,加之炎症渗出物的浸润,给患者牙髓腔内造成剧烈的疼痛^[12-14]。根管治疗是指将机械与化学法结合,去除牙管内感染物、坏死物,并通过特殊物质填充、封闭牙冠的方式有效避免病变往牙根尖蔓延,阻止疾病进展的治疗方法^[15,16]。现阶段临床已明确认可根管治疗的疗效,但有关具体进行几次疏通填充治疗尚存在一定争议^[17]。重复多次根管疏通填充治疗的优点在于可彻底的清除根管内的细菌,但重复冲洗的同时也增加了再次感染的风险,易加重炎症反应^[18]。单次根管疏通填充治疗可一次性的消毒、疏通及填充根管,可减少根管系统在口腔环境中的暴露时间,明显缩短了治疗周期^[19],但单次根管疏通填充治疗对术者的操作要求水平较高,需施术者一次性尽可能的清除感染物,同时还应避免对根尖造成刺激^[20]。

本次研究结果显示,B 组治疗 2 周后的临床总有效率、疼痛程度和咀嚼功能改善均优于 A 组,可见单次根管疏通填充治疗牙体牙髓病,可有效改善患者临床症状,疗效确切,分析其原因,单次根管疏通填充治疗可一次性完成牙髓消毒、根管制备、填充等步骤,缩短了治疗疗程,减轻患者疼痛,同时还可避免对牙周组织的持续性损伤,改善咀嚼功能^[21]。此外单次疏通填充采用的根管填充剂主要为氧化锌碘仿糊剂及牙胶,其中氧化锌碘仿糊剂流动性和渗透性良好,可发挥较好的杀菌效果,进行局部消毒,同时碘仿遇渗透液时,可使碘缓慢游离,发挥杀菌、防腐、消毒作用,同时碘仿还可吸收创面渗透液,促进牙髓吸收,从而提高临床疗效^[22,23]。既往研究结果^[24]表明,牙体牙髓疾病的发病过程也有炎症因子的广泛参与。IL-6、TNF- α 、CRP 是临床常见的炎症因子,通过参与局部炎症反应和牙周组织的破坏而参与牙体牙髓病的病情进展^[25,26]。本次研究中,两组患者炎症因子水平均有所改善,且单次根管疏通填充治疗者改善效果更佳,这可能是由于单次疏通填充可减少根管感染的风险,间接减少对炎症因子的刺激;另单次使用大量抗菌液冲洗根管就能够有效的去除细菌,同时其填充剂亦可发挥杀菌消炎的作用,加强抗炎作用^[27,28]。另 B 组术后并发症发生率低于 A 组,可见单次根管疏通填充治疗可减少术后并发症发生率,这可能与单次在治疗过程中避免反复引入感染及减少刺激根尖组织有关^[29]。余道信等学者^[30]研究认为,单次根管疏通填充治疗牙体牙髓病的有效性好,安全性高,这与本次研究基本一致。

综上所述,采用单次根管疏通填充治疗可有效改善牙体牙

髓病患者临床症状及炎性因子水平,还可降低术后并发症发生率,疗效确切。

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