

doi: 10.13241/j.cnki.pmb.2019.24.027

活血化癥汤对髌骨骨折患者膝关节功能及炎症因子的影响*

江 锋¹ 高晓嵘² 史 达³ 赵聪喆³ 付 婷^{3Δ}

(1 西南医科大学附属中医医院 骨伤科 四川 泸州 646000; 2 延安大学附属医院 神经内科四病区 陕西 延安 716000;

3 西安交通大学附属红会医院 中医骨科骨关节病区 陕西 西安 710054)

摘要 目的:探讨髌骨骨折患者应用活血化癥汤对患者膝关节功能、炎症因子的影响。**方法:**选择 2015 年 3 月到 2017 年 3 月西南医科大学附属中医医院接诊的髌骨骨折患者 100 例作为研究对象,以随机数表法分为观察组($n=53$)和对照组($n=47$),两组患者均采用切开复位克氏针张力带内固定,观察组加用活血化癥汤。比较两组治疗后膝关节优良率、肿瘤坏死因子(TNF- α)、白细胞介素 6(IL-6)、白细胞介素 10(IL-10)、膝关节功能 Lysholm 评分、视觉模拟评分法(VAS)评分及不良反应发生情况。**结果:**治疗后,观察组患者优良率为 92.45%,显著高于对照组的 72.34%($P<0.05$);治疗前,两组患者 TNF- α 、IL-6 及 IL-10 水平无显著差异($P>0.05$);治疗后,两组 TNF- α 、IL-6 及 IL-10 水平较治疗前均显著改善($P<0.05$),且观察组 TNF- α 、IL-6 均明显低于对照组,IL-10 水平显著高于对照组($P<0.05$);治疗前,两组患者 Lysholm 评分、VAS 评分无显著差异($P>0.05$);治疗后,两组 Lysholm 评分、VAS 评分较治疗前均显著改善($P<0.05$),且观察组 Lysholm 评分均明显高于对照组,VAS 评分显著低于对照组($P<0.05$);观察组患者不良反应总发生率为 1.89%,显著低于对照组的 14.89%,差异具有统计学意义($P<0.05$)。**结论:**在髌骨骨折患者中使用活血化癥汤效果显著,可有效改善患者膝关节功能、炎症因子水平,值得推广与运用。

关键词:髌骨骨折;活血化癥汤;膝关节功能;炎症因子

中图分类号:R683.42 **文献标识码:**A **文章编号:**1673-6273(2019)24-4719-04

Curative Efficacy of Huoxue Huayu Decoction in Treatment of Patellar Fractures and Its Effects on Knee Function and Inflammatory Factors*

JIANG Feng¹, GAO Xiao-rong², SHI Da³, ZHAO Cong-zhe³, FU Ting^{3Δ}

(1 Department of Orthopedics and Traumatology, Affiliated Hospital of Traditional Chinese Medicine, Southwest Medical University, Luzhou, Sichuan, 646000, China; 2 Department of Neurology, Fourth ward, Yan'an University Affiliated Hospital, Yan'an, Shaanxi, 716000, China; 3 Orthopedics and Arthropathy Area of Traditional Chinese Medicine, Honghui Hospital Affiliated to Xi'an Jiaotong University, Xi'an, Shaanxi, 710054, China)

ABSTRACT Objective: To study Curative Efficacy of huoxue huayu decoctions in treatment of Patellar fractures and its effects on knee function and inflammatory factors. **Methods:** 100 cases of patella fracture patients admitted to Affiliated hospital of traditional Chinese medicine of southwest medical university from March 2015 to March 2017 were selected as the research objects, random number table method was used to divide the observation group ($n=53$) and control group ($n=47$). Patients in both groups were treated with open reduction kirschner wire tension band internal fixation, and the observation group was treated with huoxue huayu decoction. The excellent and good rates of knee joints, tumor necrosis factor (TNF- α), Interleukin 6 (IL-6), Interleukin 10 (IL-10), knee function Lysholm score, visual analogue score (VAS) score and adverse reactions were compared between the two groups after treatment. **Results:** After treatment, the excellent and good rates of the two groups were 92.45% and 72.34% respectively ($P<0.05$); Before treatment, there was no significant difference in the levels of TNF- α , IL-6 and IL-10 between the two groups ($P>0.05$); After treatment, the levels of TNF- α , IL-6 and IL-10 in the two groups were significantly improved compared with those before treatment ($P<0.05$), and the levels of TNF- α and IL-6 in the observation group were significantly lower than those in the control group, and the levels of IL-10 were significantly higher than those in the control group ($P<0.05$). Before treatment, there was no significant difference in Lysholm score and VAS score between the two groups ($P>0.05$); After treatment, Lysholm score and VAS score of the two groups were significantly improved compared with those before treatment ($P<0.05$), and Lysholm score of the observation group was significantly higher than that of the control group, VAS score was significantly lower than that of the control group ($P<0.05$); the total incidence of adverse reactions of the two groups were 1.89% and 14.89%, respectively, with statistical difference ($P<0.05$). **Conclusion:** The application of huoxue huayu decoction in patients

* 基金项目:四川省自然科学基金项目(2014A0021)

作者简介:江锋(1980-),男,博士研究生,主治医师,主要从事骨与关节损伤的治疗

Δ 通讯作者:付婷(1980-),女,硕士研究生,主治医师,主要从事骨与关节疾病损伤的康复治疗,

电话:13992839573, E-mail:horsego82@aliyun.com

(收稿日期:2019-06-11 接受日期:2019-07-05)

with patella fracture has a significant effect and can effectively improve the level of knee joint function and inflammatory factors in patients, which is worthy of promotion and application.

Key words: Patellar fracture; Huoxue huayu decoction; Knee function; Inflammatory cytokines

Chinese Library Classification(CLC): R683.42 **Document code:** A

Article ID: 1673-6273(2019)24-4719-04

前言

髌骨骨折是临床上常见的损伤,多发生在 20~50 岁之间,且男性多于女性^[1,2]。通常是由于直接暴力和间接暴力所致,临床表现以髌骨局部肿胀、疼痛、膝关节不能自主伸直,常伴有皮下淤斑以及膝部皮肤擦伤为主^[3,4]。髌骨是下肢活动中心的纽带,在下肢运动和行走中起着重要作用。髌骨解剖结构较为特殊,骨折后长时间的制动,膝关节不能及时锻炼,常发生膝关节功能障碍及炎症,严重影响患者术后恢复^[5,6]。随着医学的不断发展,临床通常采用手术治疗髌骨骨折,使髌骨得到解剖复位,恢复正常的生理结构,但是效果并不特别显著,部分患者由于长时间缺少运动,使血液得不到循环,致使炎症的发生^[7,8]。中医认为,骨折后期僵硬疼痛、活动不利,属于“骨痹、筋痹”范畴,因此,治疗应以活血行血、化瘀消肿、解痉止痛、舒筋通络为主^[9,10]。活血化瘀汤具有通畅血脉、消散瘀滞、调经止痛,调节促炎因子平衡等作用^[11,12]。本研究旨在探讨活血化瘀汤对髌骨骨折患者膝关节功能、炎症因子的影响。

1 资料与方法

1.1 一般资料

选择 2015 年 3 月-2017 年 3 月西南医科大学附属中医医院收治的 100 例髌骨骨折进行研究。采用随机分组法分为 2 组,观察组男 28 例,女 25 例;年龄 20-65 岁,平均(45.34±7.56)岁。对照组男 25 例,女 22 例;年龄 19~66 岁,平均(45.71±9.68)岁。两组患者一般资料比较差异不显著,具有可比性。

纳入标准:(1)影像检查确诊为髌骨骨折;(2)可以进行手术治疗患者;(3)对本次研究药物无过敏者。排除标准:(1)膝关节已长期融合于功能位,无疼痛和畸形等症状;(2)膝关节周围

肌肉瘫痪;(3)手术耐受力差、有较严重的糖尿病及心肺功能不全等患者。

1.2 方法

两组患者均给予切开复位克氏针张力带内固定术;观察组患者加用活血化瘀汤(桃仁 20 g、红花 20 g、骨碎补 20 g、丹参 15 g、生地黄 15 g、当归 15 g、赤芍 10 g、川芎 10 g)3 碗水煎至 1 碗水口服,1 天 1 剂。

1.3 观察指标

采集患者清晨静脉血 5 mL, 3000 r·min⁻¹ 离心, 时间 10 min, 提取上层血清后,置于零下 20℃ 的冷冻箱内存储以备检测,血清 TNF-α、IL-6 及 IL-10 均采用酶联免疫吸附法进行检测(试剂盒购于赫澎(上海)生物科技有限公司),仪器均使用 Formacs TOC/TN 分析仪。所有操作均严格按照试剂盒说明进行;Lysholm 评分^[13]:总分 100 分,分值越高,膝关节功能越强;VAS 评分^[14]:分值越高,疼痛越强烈。

优良率评定标准^[10]:优:可自如活动,关节活动度丢失低于 15°;良:下蹲屈膝高于 100°;中:可自主活动,下蹲屈膝 90~100°;差:屈膝低于 90°,活动丢失度高于 70°。优+良=总优良率。

1.4 统计学分析

以 Spss18.0 软件包处理,计量资料用均数±标准差($\bar{x} \pm s$)表示,组间比较使用独立样本 t 检验,计数资料以率表示, χ^2 检验, $P < 0.05$ 表示差异具有统计学意义。

2 结果

2.1 两组膝关节功能恢复比较

观察组患者优良率为 92.45%,显著高于对照组的 72.34% ($P < 0.05$),见表 1。

表 1 两组膝关节功能恢复情况比较 [n(%)]

Table 1 Comparison of knee function recovery between the two groups [n(%)]

Groups	n	Optimal	Good	Middle	Poor	The excellent
Observation group	53	34(64.15)	15(28.30)	3(5.66)	1(1.89)	49(92.45)
The control group	47	18(38.30)	16(34.04)	10(21.28)	3(6.38)	34(72.34)
χ^2 value						7.141
P value						0.008

2.2 两组炎症因子水平比较

治疗后,两组 TNF-α、IL-6 均显著降低,IL-10 显著高于治疗前($P < 0.05$),且观察组 TNF-α、IL-6 显著低于对照组,IL-10 高于对照组($P < 0.05$),见表 2。

2.3 两组 Lysholm、VAS 评分比较

治疗后,两组 Lysholm 评分均显著升高、VAS 评分显著下

降($P < 0.05$),且观察组 Lysholm 高于对照组,VAS 评分显著低于对照组($P < 0.05$),见表 3。

2.4 两组并发症比较

观察组并发症发生率为 1.89%,显著低于对照组的 14.89% ($P < 0.05$),见表 4。

表 2 两组炎症因子水平比较($\bar{x} \pm s$)Table 2 Comparison of levels of inflammatory cytokines between the two groups before and after treatment($\bar{x} \pm s$)

Groups	n	TNF- α (ng/mL)		IL-6(pg/mL)		IL-10(pg/mL)	
		Before the treatment	After treatment	Before the treatment	After treatment	Before the treatment	After treatment
Observation group	53	0.97 $\pm$ 0.12	0.42 $\pm$ 0.09	83.61 $\pm$ 12.04	67.25 $\pm$ 9.12	11.36 $\pm$ 2.04	37.56 $\pm$ 4.71
The control group	47	0.98 $\pm$ 0.13	0.65 $\pm$ 0.10	84.01 $\pm$ 13.15	72.35 $\pm$ 11.34	11.41 $\pm$ 2.31	23.51 $\pm$ 4.51
t value		0.399	12.106	0.159	2.490	0.115	15.187
P value		0.690	0.000	0.874	0.014	0.909	0.000

表 3 两组患者治疗前后 Lysholm 评分、VAS 评分比较($\bar{x} \pm s$, 分)Table 3 Comparison of Lysholm score and VAS score before and after treatment between the two groups($\bar{x} \pm s$, score)

Groups	n	Lysholm score		VAS score	
		Before the treatment	After treatment	Before the treatment	After treatment
Observation group	53	67.81 $\pm$ 2.91	91.13 $\pm$ 4.13	3.69 $\pm$ 1.34	0.61 $\pm$ 0.31
The control group	47	67.69 $\pm$ 2.87	81.63 $\pm$ 3.34	3.72 $\pm$ 1.51	1.38 $\pm$ 0.43
t value		0.207	12.544	0.105	10.353
P value		0.836	0.000	0.916	0.000

表 4 两组患者不良反应发生情况比较[n(%)]

Table 4 Comparison of adverse reactions between the two groups[n(%)]

Groups	n	Delayed union	Joint effusion	Total incidence
Observation group	53	1	0	1(1.89)
The control group	47	3	4	7(14.89)
χ^2 value				5.726
P value				0.017

3 讨论

髌骨形状类似卵圆形,与股骨滑车相关节,是人体最大的籽骨,发生率占所有骨折类型的 10%左右,其发病原因可能由直接或间接暴力引起^[15]。直接损伤来自膝关节前方的暴力;间接损伤来自膝关节屈曲、髌骨撕裂时股四头肌的强烈收缩,并伴有膝关节伸展装置中髌骨支持带撕裂,严重影响患者的生活质量^[16,17]。

临床上通常使用手术治疗髌骨骨折,切开复位克氏针张力带内固定是常用方法,机体髌骨的完整性得到重建,从而恢复髌骨的生物学功能,但临床效果不甚理想,患者会出现疼痛或术后感染等并发症^[18,19]。所以,在临床治疗中应当注意减少并发症,减轻疼痛。中医认为,髌骨因受到暴力而骨折可直接破坏局部骨组织的气血运行,导致血行不畅,因此治疗应以气、血、瘀三方面入手^[20,21]。活血化瘀汤由桃仁、红花、骨碎补、丹参、生地黄、当归、赤芍、川芎组成,能够疏通血脉,消除疼痛,使病变部位恢复正常^[22,23]。

有研究表明^[24],活血化瘀汤能促进髌骨骨折患者经脉通畅,减少肌肉萎缩与筋腱挛缩,改善关节滑利,改善活动功能,促进患肢的有效康复。本研究也表明,联合治疗的患者优良率高达 92.45%,明显高于单独使用切开复位克氏针张力带内固

定的患者,且不良反应总发生率也低于单独治疗的患者,与上述观点基本一致。这提示联合活血化瘀汤可有效改善患者的膝关节功能恢复,降低不良反应发生率。原因是活血化瘀汤方中桃仁、红花具有活血祛瘀;赤芍、川芎,可行瘀止痛,凉血消肿,助君药之药性;骨碎补能够提高外周血钙、磷等矿物质水平,同时激活成骨细胞,促进骨保护素分泌,最终改善其膝关节功能。另外,联合治疗的患者 Lysholm 评分均明显高于单独使用切开复位克氏针张力带内固定的患者,VAS 评分显著低于单独使用切开复位克氏针张力带内固定的患者,与 Khan 的研究结果相似^[25]。手术创伤能激活炎症反应,促进炎症介质的合成,术后持续疼痛会进一步放大炎症反应^[26,27]。TNF- α 、IL-6、IL-10 均是体内重要的炎症指标,能够直接介导炎症反应,造成组织损伤,同时在局部招募炎症细胞,促进炎症反应的级联放大^[28,29]。本研究结果还显示,治疗后患者 TNF- α 、IL-6、IL-10 明显改善,且联合活血化瘀汤治疗的患者改善程度优于单独使用切开复位克氏针张力带内固定的患者。与 Aksahin 的研究结果相似^[30]。这提示联合治疗能明显改善患者的炎症因子水平。原因可能是活血化瘀汤中药物可直接作用于参与骨折修复功能旺盛的成骨细胞、纤维母细胞等,且当归为引药入血分,加丹参功同四物,进一步加强养血活血的功效;生地黄,具清热养血的功效,可消除气血郁滞所生之热;诸药合用,共奏活血化瘀、消肿止

痛、强筋健骨之效。

综上所述，在髌骨骨折患者中使用活血化瘀汤疗效较好，可有效改善患者膝关节功能、炎症因子水平。

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