

# 指压推拿腰腿痛对血浆β-EP、cAMP、cGMP、PGE<sub>2</sub>的影响

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**摘要** 运用RIA方法对64例腰腿痛患者作分组观察测试了指压推拿穴位前后血浆β-EP、cAMP、cGMP、PGE<sub>2</sub>的含量变化。结果显示：当指压推拿后腰痛缓解的即刻，显效组血浆β-EP有明显的升高(P<0.05)，但cAMP、cGMP、PGE<sub>2</sub>的升降变化不一(P>0.05)，从而推测推拿镇痛的作用环节可能在于有选择性地激活体内源性镇痛系统，促进β-EP的释放增加。

**关键词** 指压推拿 放射免疫测定方法 (RIA) 腰腿痛

推拿按摩治疗腰腿痛的手法与机理研究正日益受到国内外的高度重视。根据痛与镇痛研究的新思路，本文运用放射免疫测定方法(Radioimmunoassay; RIA)测定观察腰腿痛患者指压推拿穴位前后血浆β-内啡肽(β-endorphinlike; β-EP)、环核苷酸(cAMP, cGMP)、前列腺素E<sub>2</sub>(Prostaglandin E<sub>2</sub>; PGE<sub>2</sub>)的含量变化及其与镇痛疗效的关系，旨在探索手法治疗腰腿痛的效应途径。

### 研究对象

腰椎间盘突出症42例，急性腰扭伤22例；其中，男43例，女21例；最小17岁，最大68岁，平均43岁；腰椎间盘突出症患者均处于症状发作期或急性期，病程多为3—6个月；急性腰扭伤为伤后2天之内。诊断标准参照《黄家驷外科学》(第4版)。本组病例起病后未接受过针灸或手法治疗。首次指压推拿穴位(委中、承山、腰臀部阿是穴)前后分组测定血浆β-EP, cAMP, cGMP, PGE<sub>2</sub>的含量，并评定即刻镇痛疗效。

### 测定方法

采血时间为上午8:30—10:30。分别于首次指压推拿前(静坐15分后)和指压推拿20分时抽取静脉血5ml，尔后按不同测试要求进行样品前处理与测定。

#### 1. β-EP、cAMP、cGMP测定

β-EP测定采用上海第二军医大学生理教研室放免药盒。样品前处理及测试方法同我们以往报道<sup>[1]</sup>。用JFM—82型γ计数器测试。cAMP、cGMP测定采用上海中医学院同位素室放免药盒。样品前处理及测试方法按说明书操作，用LKB1275型γ计数器测定。

#### 2. PGE<sub>2</sub>测定

采血注射器和收集管予先硅化处理。选用英国Amreshen公司生产的PGE<sub>2</sub>放免药盒，方法与步骤按说明书操作，用上海原子能研究所82型微电脑液闪仪测定。

#### 3. 统计方法

采用配对比较t检验、X<sup>2</sup>检验。

### 结 果

#### 1. 指压推拿对血浆β-EP的影响

本组30名正常人血浆β-EP测定值为146.01±47.50pg/ml，与高氏报道的正常值156.54±26.61pg/ml相近<sup>[2]</sup>。当指压推拿20分钟时，血浆β-EP呈不同程度的升高。其中，显效组10例升高，1例下降，有效组16例升高，7例下降，无效组6例升高，4例下降，显示血浆β-EP的变化与指压即刻镇痛疗效有相关性(P<0.05)。

#### 2. 指压推拿对血浆cAMP、cGMP的影响

指压推拿对血浆cAMP, cGMP的影响(pg/ml,  $\bar{X} \pm SD$ )，见表1，表2。

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表1 指压推拿对血浆cAMP的影响

疗效	项目	n	指压前	指压后	P
显效	cAMP	11	22.47±11.67	18.24±4.75	>0.05
	cGMP	11	2.12±1.13	3.52±1.19	<0.05
有效	cAMP	22	14.41±4.17	15.14±6.35	>0.05
	cGMP	22	2.65±0.82	2.44±1.03	>0.05
无效	cAMP	10	14.28±5.39	15.81±6.90	>0.05
	cGMP	10	2.42±1.15	2.78±1.03	>0.05

表2 指压推拿对血浆cAMP/cGMP比值的影响  
( $\bar{X} \pm SD$ )

疗效	n	指压前	指压后	P
显效	11	20.17±27.02	5.58±1.84	>0.05
有效	22	5.51±2.35	6.51±4.08	>0.05
无效	10	10.49±12.30	7.31±2.96	>0.05

3. 指压推拿对血浆PGE<sub>2</sub>的影响

20例腰腿痛患者指压20分钟后, 血浆PGE<sub>2</sub>14例上升, 2例基本不变, 4例下降。其变化呈一定的升高趋势。

表3 指压推拿对血浆PGE<sub>2</sub>的影响  
(Pg/ml;  $\bar{X} \pm SD$ )

指压得气	n	指压前	指压后	P
强	13	450±100	624±401	>0.05
弱	7	399±55	413±75	>0.05

## 讨 论

## 1. 指压手法对β-EP释放系统的激活作用

腰腿痛的产生不外乎伤害性刺激因子、痛相关物质、神经冲动、传导途径和中枢感受等环节。现认为β-EP镇痛作用最强。推拿按摩、手法治疗腰腿痛的作用机制, 除了改变病变时脊柱异常的受力状态、改善局部血液循环之外, 对血浆β-EP的影响尚未见有报告。以往, 龚金德(1982)、Vernon(1986)报道, 推拿、脊柱旋转手法治疗腰痛的即刻镇痛效应与血中内啡肽升高有关<sup>[3-4]</sup>。笔者(1989)等人

的研究分别表明, 电针、指压推拿治疗腰痛的镇痛疗效与腰髓脑脊液内啡肽升高有关。以此推测指压过程中有内源性啡样物质的释放。此外, β—内啡肽具有免疫样活性作用, β—内啡肽的激活还可能同时影响免疫应答调节机制, 从而利于腰部病损区域致炎致痛物质的清除, 产生一定的抗炎镇痛效应。

2. 指压手法对血浆环核苷酸、PGE<sub>2</sub>的作用  
目前认为, 环核苷酸、PG类物质是传递神经—内分泌信息的中间环节, 并参与痛觉调制机制。

PGE<sub>2</sub>作为局部激素, 可引起血管扩张, 痛觉过敏; 机械刺激周围神经可加速PG类的释放。指压后血浆PGE<sub>2</sub>呈轻度升高的现象, 提示指压穴位可刺激局部释放PG等。我们运用美国休斯(Hushgh)飞机公司研制的红外彩色热象系统(TVS)观察发现, 其为一清晰明亮度高的热区(直径3—4cm), 定点测温较指压前上升2~3℃, 对指压后的局部穴位组织(承山)取样作OLYMPUS光镜下组织形态学观察发现, 其有小淋巴管破损和变性, 肌纤维损伤甚至断裂等现象。这些变化可看作为PGE<sub>2</sub>在局部升高的前因后果。故运用指压、针刺或其他手段刺激穴位治疗腰腿痛或其他软组织疼痛时, 可激活机体内源性镇痛系统(EAS), 达到即刻镇痛的效果。

## 参 考 文 献

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## Abstract of Original Articles

### Experimental study and Clinical observation on the mechanism of steroid induced ischemic necrosis of the femoral head

Wang Kun-zheng (王坤正) et al

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Sixty-four Japanese White rabbits were randomly divided into two groups: Hydrocortisone acetate of 8mg/kg were injected

Hypodermically to the experimental group and normal saline 0.32mg/kg to the control group in the same way every week. The results showed that application of the steroid drug could produce fat degeneration and necrosis of osteocytes and fat embolism in the small blood vessels of the femoral head. The abnormal hypertrophied fat cells in the bone marrow compressed small veins in the femoral head to cause blood stasis of the capillaries. The growth and regeneration of the capillary were inhibited.

Clinically, 109 cases of steroid induced ischemic necrosis of femoral head were treated with repair of deformed head, filling cancellous bone into the necrotic area and grafting fibula with anastomosis of blood vessels. Followed up studies from 1-10 years postoperatively showed that the excellent and good rate was 86.6%.

**key words** Femoral head necrosis, hydrocortisone acetate, pathology

(Original article on page 5 )

### Influence of plasma B-endorphin, cAMP, cGMP and PGE2 contents during finger pressure manipulation in treating waist-leg pain

Jiang Hong (姜宏) et al

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RIA method was applied to determine the amount of plasma P-endorphin, cAMP, cGMP and PGE2 pre- and posttreatment in 64 cases waist-leg pain patients treated with finger pressure manipulation on acupoints. The results showed that during the instant of releasing of waist pain there was evident of raising of plasma P-endorphin ( $p < 0.05$ ) in the markedly effective group, but there was no definite change ( $p < 0.05$ ) of cAMP, cGMP and PGE2 contents. It is considered that the analgesic effect of manipulation is probably due to selective activity of endo-analgesic system of the organism in promoting increasing of P-endorphin.

**Key words** Finger pressure manipulation radioimmunoassay (RIA), waist-leg pain

(Original article on page 8 )

**Vertebral type of cervical spondylosis treated with traditional Chinese medicine**

Wang Hui (王惠) et al

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One hundred and seventy-five cases of vertebral type of cervical spondylosis were treated by comprehensive therapy of Chinese herbs, Zhi xuan Tang and manipulation with satisfactory results. The total effective rate was 99.4%. The Chinese herbs were modified by Bu Yang Huan Wu Tang and Dao Tan Tang. It bears the action of invigorating Qi and activating blood circulation, eliminating of phlegm and removing stasis, relieving muscular spasm and tranquilizing the mind. Manipulation of lifting, shifting and rotating shaking Yao methods on the neck were applied.

**Key words** Vertebral type of cervical spondylosis, traditional Chinese medicinal therapeutic method

(Original article on page 10)

**Analysis of chronic lower third tibia-fibula fracture treated with sliding bone-plate transplantation method**

Bi Da-wei (毕大卫) et al

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Twenty-one cases of chronic lower third tibia-fibula fracture were treated with modified boneplate sliding transplantation method and external fixator. The results showed that an excellent and good rate was 90.3%. It is superior than traditional transplantation plus long leg plaster of paris fixation.

**Key words** Fracture of tibia and fibula, bone transplantation, fracture fixator

(Original article on page 12)

**Adjustable balancing traction fixator in treating unstable fracture of the tibia and fibula**

Jiang Ming-xuan (姜明轩) et al

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Sixty five cases of unstable fracture of the tibia and fibula were treated with adjustable balancing traction fixator. The results showed that all were healed, average clinical healing time being 8.4 weeks. The recovery of the function of knee and ankle joints within three months was around 98%. The rate of excellent and good was 92.3%.

**Key words** Adjustable balancing traction fixator. fracture of the tibia and fibula

(Original article on page 19)