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## 天麻素耳迷根穴位注射联合注射用鼠神经生长因子治疗耳鸣的疗效研究\*

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**摘要 目的:** 研究天麻素耳迷根穴位注射联合注射用鼠神经生长因子治疗耳鸣的临床效果及对患者血液流变学和临床症状体征的影响。**方法:** 选择 2017 年 2 月~2018 年 2 月我院收治的 156 例耳鸣患者, 随机分为两组。对照组肌肉注射鼠神经生长因子, 每次 20 μg, 每天 1 次; 观察组联合耳迷根穴位注射天麻素, 每次 2 mL, 每天 1 次。两组均治疗 4 周后, 比较两组的治疗有效率, 治疗前后的血液流变学指标以及耳鸣对睡眠的影响、发生环境、持续时间、对情绪的影响、对生活和工作影响以及患者的主观感觉等临床症状体征评分。**结果:** 治疗后, 观察组的治疗有效率为 89.74%, 显著高于对照组(71.79%,  $P<0.05$ )。两组治疗后的全血黏度低切、血细胞比容、全血黏度高切及血浆黏度均较治疗前显著降低, 且观察组以上指标均显著低于对照组( $P<0.05$ )。两组治疗后耳鸣对睡眠的影响、发生环境、持续时间、对情绪的影响、对生活和工作影响以及患者的主观感觉等临床症状体征评分均较治疗前明显降低, 且观察组以上指标均显著低于对照组( $P<0.05$ )。**结论:** 天麻素耳迷根穴位注射联合注射用鼠神经生长因子可以提高耳鸣患者的治疗效果, 有效改善患者的血液流变学和临床症状。

**关键词:** 天麻素; 耳迷根穴位注射; 鼠神经生长因子; 耳鸣

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## Effect of Gastrodia Elata Root Injection Combined with Mouse Nerve Growth Factor on the Tinnitus Patients\*

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**ABSTRACT Objective:** To investigate the effect of gastrodia elata root injection combined with mouse nerve growth factor on tinnitus patients. **Methods:** Selected 156 cases of patients with SAP who were treated in our hospital from February 2017 to February 2018, divided into two groups randomly. The rats in the control group were injected intramuscular injection of mouse nerve growth factor, 20 g each time, 1 times a day, and the observation group was injected with gastrodin at the point of auricular root, 2 mL each time, 1 times a day. At 4 weeks after treatment, the effective rate of treatment, the hemorheological indexes before and after treatment, and the clinical symptoms and signs scores of tinnitus on sleep, occurrence environment, duration, emotional impact, life and work, and subjective feelings of patients were compared. **Results:** After treatment, the effective rate of observation group was 89.74%, which was significantly higher than that of the control group (71.79%,  $P<0.05$ ). The whole blood viscosity, blood cell volume, high blood viscosity and plasma viscosity of both groups after treatment were significantly lower than before treatment, and the above indicators in the observation group were significantly lower than the control group ( $P<0.05$ ). The effects of tinnitus on sleep, the environment, duration, mood, life and work, and subjective perception of the patients were significantly lower than those before treatment, and the above indicators in the observation group were significantly lower than the control group ( $P<0.05$ ). **Conclusion:** Gastrodia elata root injection combined with injection of mouse nerve growth factor can improve the therapeutic effect of tinnitus patients, and effectively improve the patient's hemorheology and clinical symptoms.

**Key words:** Gastrodin; Auricular root injection; Rat nerve growth factor; Tinnitus

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### 前言

耳鸣患者常伴有听力丧失、睡眠障碍、心烦、焦虑、生气、抑

郁以及注意力不集中等不良反应, 严重者对其工作、情绪及生活均会造成一定程度的不良影响, 甚至能引发精神躯体障碍病症<sup>[1-3]</sup>。由于耳鸣的具体发病机理尚未完全阐明, 且其临床症状

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极为复杂多样,迄今为止仍无明确有效的治疗药物或方法,很难实现治愈。临床上常常采用改善微循环、糖皮质激素、营养神经、抗病毒药物、高压氧和抗凝剂治疗为主,临床治疗方法尚未得到统一<sup>[4-6]</sup>。

听力主要依靠耳蜗螺旋神经元的传导和毛细胞的感受。神经生长因子具有促突起生长以及神经元营养双重生物学功能,对中枢及周围神经元的分化、发育、生长、再生以及功能特性的表达均发挥着重要的生物调控功能<sup>[7,8]</sup>,但单独使用的效果并不佳。因此,探寻一种安全且有效的治疗耳鸣的新方案是临床上迫切需要解决的难题。本研究主要探讨了天麻素耳迷根穴位注射联合注射用鼠神经生长因子治疗耳鸣的临床效果,并分析了其对患者临床症状体征和血液流变学的影响。

## 1 资料与方法

### 1.1 一般资料

选择2017年2月~2018年2月我院收治的156例耳鸣患者,均为单侧耳鸣,依据常规检查、病史、声阻抗和电测听检查明确诊断为耳鸣,所有患者均签署知情同意书。排除严重的抑郁病或精神病患者,哺乳期和妊娠期女性,随机分为两组。观察组78例,男41例,女37例;年龄14~76岁,平均 $(43.19 \pm 5.43)$ 岁;病程1w~20年,平均 $(10.36 \pm 2.37)$ 年。对照组78例,男42例,女36例;年龄15~78岁,平均 $(44.25 \pm 6.37)$ 岁;病程1w~20年,平均 $(11.19 \pm 2.54)$ 年。经统计学比较,两组间一般资料比较差异无统计学意义( $P > 0.05$ ),具有可比性。

### 1.2 治疗方法

对照组:肌肉注射鼠神经生长因子(批号:国药试字

S20020116,生产厂家:厦门北大之路生物工程有限公司,规格:2000 AU(4  $\mu$ g)/支)治疗,每次20  $\mu$ g,每天1次。观察组:联合耳迷根穴位注射天麻素(批号:国药准字H20066974,生产厂家:哈尔滨圣泰生物制药有限公司,规格:2 mL:200 mg)2 mL,每天1次,在进针时应缓慢,针刺感应出现向指端放射的触电感,当回抽无血时,快速推入药液。连续治疗4w。

### 1.3 观察指标

疗效评估:①痊愈:经过治疗后,患者在0.25~4 kHz各频率听阈受损频率的听阈达到健耳水平;②显效:受损频率听力提高>30 dB者;③有效:受损频率听力提高15~30 dB之间者;④无效:未达到上述指标者。

分别于治疗前、后抽取患者4 mL空腹静脉血,对患者的血浆纤维蛋白原、全血黏度低切、全血黏度高切、血浆黏度和血细胞比容进行测定。

评估两组治疗前后的耳鸣严重程度,主要包括对睡眠的影响、发生环境、持续时间、对情绪的影响、对生活和工作的影响以及患者的主观感觉,得分越高,表明其耳鸣程度越严重。

### 1.4 统计学分析

采用SPSS19.0统计学软件进行数据分析,计量资料以 $(\bar{x} \pm s)$ 表示,组间比较采用t检验,计数资料以[n(%)]表示,组间比较采用 $\chi^2$ 检验,以 $P < 0.05$ 表示差异存在统计学意义。

## 2 结果

### 2.1 两组临床疗效的对比

治疗后,观察组的有效率为89.74%,明显高于对照组(71.79%, $P < 0.05$ ),见表1。

表1 两组临床疗效对比[例(%)]

Table 1 Comparison of the clinical efficacy between the two groups [cases (%)]

| Groups            | n  | Cure    | Effective | Valid     | Invalid   | The total effect rate |
|-------------------|----|---------|-----------|-----------|-----------|-----------------------|
| Control group     | 78 | 3(3.85) | 20(25.64) | 33(42.31) | 22(28.20) | 56(71.79)             |
| Observation group | 78 | 5(6.41) | 24(30.77) | 41(52.56) | 8(10.26)  | 70(89.74)*            |

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

### 2.2 两组治疗前后血液流变学指标对比

两组治疗后的全血黏度低切、血细胞比容、全血黏度高切

及血浆黏度均较治疗前明显降低( $P < 0.05$ ),且观察组以上指标明显低于对照组( $P < 0.05$ ),见表2。

表2 两组治疗前后血液流变学指标对比 $(\bar{x} \pm s)$

Table 2 Comparison of the hemorheological indexes between two groups before and after treatment $(\bar{x} \pm s)$

| Groups            | n  |                  | Whole blood viscosity         | Whole blood viscosity         | Plasma viscosity              | Hematocrit (%)                 |
|-------------------|----|------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
|                   |    |                  | low cut (mPa·s)               | high cut (mPa·s)              | (mPa·s)                       |                                |
| Observation group | 78 | Before treatment | 12.45 $\pm$ 4.37              | 5.93 $\pm$ 0.75               | 1.97 $\pm$ 0.59               | 49.37 $\pm$ 5.24               |
|                   |    | After treatment  | 9.85 $\pm$ 3.12 <sup>#</sup>  | 5.27 $\pm$ 0.34 <sup>#</sup>  | 1.53 $\pm$ 0.37 <sup>#</sup>  | 45.20 $\pm$ 4.38 <sup>#</sup>  |
| Control group     | 78 | Before treatment | 11.97 $\pm$ 3.26              | 5.92 $\pm$ 0.83               | 1.98 $\pm$ 0.62               | 50.17 $\pm$ 4.93               |
|                   |    | After treatment  | 6.34 $\pm$ 2.78* <sup>#</sup> | 4.05 $\pm$ 0.29* <sup>#</sup> | 1.07 $\pm$ 0.24* <sup>#</sup> | 38.25 $\pm$ 4.31* <sup>#</sup> |

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

### 2.3 两组治疗前后主要临床症状体征评分对比

两组治疗后耳鸣对睡眠的影响、发生环境、持续时间、对情绪的影响、对生活和工作影响以及患者的主观感觉等临床症状体征评分均较治疗前明显降低( $P < 0.05$ ),且观察组以上指标

均明显低于对照组( $P < 0.05$ ),见表3。

## 3 讨论

耳鸣指的是在周围环境中并无电刺激或者相应声源存在

表 3 两组治疗前后主要临床症状体征评分对比( $\bar{x} \pm s$ , 分)

Table 3 Comparison of the main clinical signs score between two groups before and after treatment( $\bar{x} \pm s$ )

| Groups            | n  |                  | Impact on sleep               | Environment                   | Duration                      | Influence on mood             | Impact on life and work       | Subjective feelings of patients |
|-------------------|----|------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|---------------------------------|
| Observation group | 78 | Before treatment | 2.46 $\pm$ 0.83               | 1.78 $\pm$ 0.74               | 2.58 $\pm$ 0.84               | 2.42 $\pm$ 0.73               | 2.08 $\pm$ 0.72               | 2.54 $\pm$ 1.03                 |
|                   |    | After treatment  | 1.43 $\pm$ 0.72 <sup>#</sup>  | 1.49 $\pm$ 0.32 <sup>#</sup>  | 1.67 $\pm$ 0.73 <sup>#</sup>  | 1.81 $\pm$ 0.59 <sup>#</sup>  | 1.53 $\pm$ 0.41 <sup>#</sup>  | 1.82 $\pm$ 0.74 <sup>#</sup>    |
| Control group     | 78 | Before treatment | 2.45 $\pm$ 0.92               | 1.79 $\pm$ 0.63               | 2.59 $\pm$ 0.83               | 2.41 $\pm$ 0.75               | 2.07 $\pm$ 0.69               | 2.53 $\pm$ 1.04                 |
|                   |    | After treatment  | 0.79 $\pm$ 0.65 <sup>*#</sup> | 1.03 $\pm$ 0.42 <sup>*#</sup> | 0.91 $\pm$ 0.64 <sup>*#</sup> | 0.93 $\pm$ 0.46 <sup>*#</sup> | 1.05 $\pm$ 0.32 <sup>*#</sup> | 1.07 $\pm$ 0.52 <sup>*#</sup>   |

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

的状况下,人体的脑内或耳内产生的声音感觉,只有患者可以感受到<sup>[9,10]</sup>。因耳鸣的具体发病机制尚未完全阐明,且患者的临床症状复杂多样,目前尚无较为确切的治疗方法。鼠神经生长因子作为神经营养剂、保护剂和再生剂,可促进神经细胞的分化、成熟,同时促进神经元突起生长,进而促进受损脊髓功能的恢复<sup>[11-13]</sup>。鼠神经生长因子不仅可以对正常神经细胞发挥营养因子功效,还可以修复以及保护受损的神经细胞,因此被广泛应用于神经系统疾病的临床治疗研究<sup>[14,15]</sup>。但采取肌肉注射鼠神经生长因子的治疗周期较长,且吸收入内耳中的剂量无法发挥治疗的最佳效果,大部分患者的注射部位常常出现较为显著的疼痛感,部分患者甚至无法耐受长期反复的臀位肌注,会中断治疗,拒绝注射<sup>[16,17]</sup>。

穴位注射治疗作为一种全新的治疗方法,主要通过穴位向患者的机体内注射药物,以最低的药物剂量发挥最佳的治疗效果<sup>[18,19]</sup>。与肌注注射相比,穴位注射的治疗具有显著的优势,其能把药物直接注入到患者的患处,通过循经作用而影响脏腑,且所注射的药物通过对穴位的刺激主要,能更好地调节以及激发机体内在的生理功能,从而增强免疫功能,疏导气血<sup>[20,21]</sup>。天麻素具有改善循环和扩张心脑血管等作用,耳迷根穴位注射天麻素,药物可以被耳后的动脉吸收,进而扩张大脑末梢动脉以及从外耳道后上部进入内耳的动脉血管,改善内耳供血<sup>[22,23]</sup>。本研究结果显示天麻素耳迷根穴位注射与注射用鼠神经生长因子之间协同作用、针刺样作用、药物作用的叠加,可以提高耳鸣患者的治疗效果。

穴位注射天麻素能有效调节局部神经代谢,改善微循环,加速病变组织神经纤维功能恢复正常生理功能<sup>[24,25]</sup>。本研究结果显示天麻素联合注射用鼠神经生长因子可以改善耳鸣患者的血液流变学。天麻素可以改善迷路动脉、小脑后下动脉、内耳和小脑前下动脉的供血不足,有效保护神经细胞,增加心肌细胞的能量代谢<sup>[26-28]</sup>,而且天麻素还可以扩张脑血管、增强脑细胞的抗缺氧能力、增加脑血流量以及降低脑血管阻力,改善脑供血情况<sup>[29-31]</sup>。天麻素注射液与注射用鼠神经生长因子联合应用可以更有效改善耳鸣患者的临床症状。分析其原因为,天麻素经耳迷根穴能有效刺激迷走神经,产生神经兴奋,使患者的神经病态得到逆转,进而减轻耳鸣。

综上所述,天麻素耳迷根穴位注射联合注射用鼠神经生长因子可以提高耳鸣患者的治疗效果,并可有效改善患者的血液流变学和临床症状。

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