

平喘止咳汤对慢阻肺急性加重期患者炎症标志物水平和动脉血气指标的影响

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【摘要】 目的 探究平喘止咳汤对痰热郁肺型慢阻肺急性加重期患者炎症标志物水平和动脉血气指标的影响。方法 按随机数表法将 2019 年 7 月至 2021 年 9 月期间于开封市中医院肺病科且病房住院就诊的 80 例痰热郁肺型慢阻肺急性加重期患者分为观察组和对照组各 40 例。对照组患者接受常规西医治疗, 持续治疗一周, 观察组患者在对照组治疗的基础上接受平喘止咳汤治疗, 连续服用一周。治疗前和治疗一周后比较两组患者的中医症状积分、炎症标志物水平[血清血清降钙素原(PCT)、超敏 C 反应蛋白(hs-CRP)、白细胞介素-6(IL-6)、 γ 干扰素(IFN- γ)]、动脉血气指标[氧分压(PaO₂)、二氧化碳分压(PaCO₂)、氧饱和度(SaO₂)]和疾病严重程度[慢性阻塞性肺疾病测量表(CAT)], 同时比较两组患者治疗期间的不良反应发生情况。结果 治疗前, 两组患者的中医证候积分、炎症标志物水平、动脉血气指标和 CAT 评分比较差异均无统计学意义($P>0.05$); 治疗一周后, 两组患者的中医证候积分较治疗前显著降低, 且观察组[主症(5.48 \pm 1.07)分、次症(4.30 \pm 0.85)分、舌脉(2.05 \pm 0.23)分]明显低于对照组[主症(7.53 \pm 1.61)分、次症(5.75 \pm 1.11)分、舌脉(2.55 \pm 0.40)分], 差异均有统计学意义($P<0.05$); 治疗一周后, 两组患者的 PCT、hs-CRP、IL-6 和 IFN- γ 水平均较治疗前明显降低, 且观察组[(0.28 \pm 0.09) ng/mL、(8.82 \pm 2.89) mg/L、(2.98 \pm 0.57) pg/mL、(8.94 \pm 2.27) ng/mL]明显低于对照组[(0.44 \pm 0.06) ng/mL、(14.55 \pm 3.25) mg/L、(3.29 \pm 0.61) pg/mL、(14.22 \pm 3.27) ng/mL], 差异均有统计学意义($P<0.05$); 治疗一周后, 两组患者的 PaO₂ 和 SaO₂ 水平较治疗前明显提高, 且观察组分别为(68.87 \pm 4.48) mmHg、(92.33 \pm 1.84)%, 明显高于对照组的(61.71 \pm 4.13) mmHg、(90.01 \pm 1.11)%, 但两组患者的 PaCO₂ 值均较治疗前明显降低, 且观察组为(39.89 \pm 3.06) mmHg, 明显低于对照组的(45.35 \pm 3.13) mmHg, 差异均有统计学意义($P<0.05$)。治疗一周后, 两组患者的 CAT 评分较治疗前显著降低, 且观察组为(12.60 \pm 2.56)分, 明显低于对照组的(17.50 \pm 2.70)分, 差异均有统计学意义($P<0.05$); 治疗期间, 观察组患者的不良反应总发生率为 7.5%, 略低于对照组的 10.0%, 但差异无统计学意义($P>0.05$)。结论 平喘止咳汤治疗痰热郁肺型慢阻肺急性加重期的效果显著, 其不仅能有效降低中医症状积分, 缓解疾病严重程度, 还可改善患者炎症标志物水平和改善动脉血气指标, 促进患者康复。

【关键词】 慢阻肺急性加重期; 平喘止咳汤; 血清炎症标志物; 动脉血气指标; 疗效

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Influence of Pingchuan Zhike decoction on inflammatory markers levels and arterial blood gas indicators in patients with acute exacerbation of chronic obstructive pulmonary disease. LIU Zhi-yong, HAN Sheng-bin, YANG Zeng-xiang, WU Qi-xiang. Department of Pulmonary Disease, Kaifeng Traditional Chinese Medicine Hospital, Kaifeng 475000, Henan, CHINA

【Abstract】 Objective To explore the influence of Pingchuan Zhike decoction on inflammatory markers levels and arterial blood gas indicators in patients with acute exacerbation of chronic obstructive pulmonary disease (AECOPD) of phlegm-heat lung stagnation type. **Methods** According to the random number table method, 80 patients with AECOPD of phlegm-heat lung stagnation type who were hospitalized in Department of Pulmonary Disease, Kaifeng Traditional Chinese Medicine Hospital from July 2019 to September 2021 were divided into an observation group and a control group, with 40 cases in each group. The patients in the control group received conventional western medicine treatment and continued treatment for 1 week, while the patients in the observation group were continuously treated with Pingchuan Zhike decoction for 1 week on the basis of treatment in the control group. The TCM symptoms scores, inflammatory markers [serum procalcitonin (PCT), hypersensitivity C-reactive protein (hs-CRP), interleukin-6 (IL-6), and interferon- γ (IFN- γ)], arterial blood gas indicators [partial pressure of oxygen (PaO₂), partial pressure of carbon dioxide (PaCO₂), oxygen saturation (SaO₂)], and disease severity [COPD Assessment Test (CAT)] before treatment and after 1 week of treatment were compared between the two groups, as well as the occurrence of adverse reactions during treatment. **Results** There were no statistically significant differences in TCM syndromes scores, levels of inflammatory markers, arterial blood gas indicators and CAT score between the two groups before treatment ($P>0.05$). After 1 week of treatment, the TCM syndromes scores in the two groups were significantly reduced compared with those before treatment, and the scores of primary symptom, secondary symptom, and tongue and pulse in the observation group were (5.48 \pm 1.07) points, (4.30 \pm 0.85) points, and (2.05 \pm 0.23) points, significantly lower than (7.53 \pm 1.61) points, (5.75 \pm 1.11) points, and (2.55 \pm 0.40) points in the control group, with statistically significant differences (all $P<0.05$). The PCT, hs-CRP, IL-6, and IFN- γ in the two groups were significantly reduced after 1 week of treatment than those before treatment, and the levels were (0.28 \pm 0.09) ng/mL, (8.82 \pm 2.89) mg/L, (2.98 \pm 0.57) pg/mL, and (8.94 \pm 2.27) ng/mL in the observation group, which were significantly lower than (0.44 \pm 0.06) ng/mL, (14.55 \pm 3.25) mg/L, (3.29 \pm 0.61) pg/mL, and (14.22 \pm 3.27) ng/mL in the control group ($P<0.05$). The PaO₂ and SaO₂ after 1 week of treatment were significantly increased in both groups compared with those before treatment, and the PaO₂ and SaO₂ in the observation group were (68.87 \pm 4.48) mmHg and (92.33 \pm 1.84)%, significantly higher than (61.71 \pm 4.13) mmHg and (90.01 \pm 1.11)% in the control group; PaCO₂ in the two groups was significantly lower than that before treatment, and the PaCO₂ in the observation group was (39.89 \pm 3.06) mmHg, significantly lower than (45.35 \pm 3.13) mmHg in the control group; the differences were statistically significant ($P<0.05$). After 1 week of treatment, the CAT scores were significantly lower in the two groups than those before treatment, and the score in the observation group was (12.60 \pm 2.56) points, significantly lower than (17.50 \pm 2.70) points in the control group, with statistically significant differences ($P<0.05$). During treatment, there was no statistically significant difference in the total incidence rate of adverse reactions between the two groups (7.5% vs 10.0%, $P>0.05$). **Conclusion** Pingchuan Zhike decoction has a significant effect in the treatment of AECOPD of phlegm-heat lung stagnation type. It can not only reduce the scores of TCM symptoms and alleviate the disease severity, but also significantly improve the inflammatory markers and arterial blood gas indicators and promote the rehabilitation of patients.

【Key words】 Acute exacerbation of chronic obstructive pulmonary disease; Pingchuan Zhike decoction; Serum inflammatory markers; Arterial blood gas indicators; Efficacy

慢性阻塞性肺疾病(chronic obstructive pulmonary disease, COPD)是一种由吸烟、空气污染等因素引起的气道慢性炎症,导致不可逆的气流受限和持续的呼吸道症状,严重影响患者的生活质量^[1]。当患者出现呼吸困难加剧、咳嗽加重、咳痰增多等,导致肺功能下降、感染和肺部炎症的加重,可能会引起慢阻肺急性加重期(acute exacerbation of chronic obstructive pulmonary disease, AECOPD)^[2]。在临床实践中,为缓解患者在 AECOPD 期间的症状,常通过使用抗生素、止咳药、祛痰药等药物进行针对性治疗,以促进肺功能的康复^[3]。然而,越来越多的研究表明,在 AECOPD 的治疗中,单纯依赖西药对症治疗已经无法满足患者的

需要,其副作用不容忽视。因此,中医药在 AECOPD 患者辅助治疗中的应用引起广泛的关注和研究。在中医学中,COPD 多属于“咳嗽”、“喘病”、“肺胀”等范畴,通过辨证论治,根据患者的症状和体征判断病情的类型,选择相应的中药组合^[4]。目前根据中医理论,针对 COPD 的总治疗原则是“急则治其标”、“缓则治其本”,旨在迅速清热,涤痰浊,活血化瘀,宣肺降气,同时兼顾调养气阴^[5]。中医认为 AECOPD 的发生与外邪入侵、气滞、痰(痰热、痰浊)阻等因素有关,因而需通过调理体内的阴阳平衡、疏通气机、化痰解毒的方式来改善患者的病情^[6]。平喘止咳汤是一种传统中药汤剂,经过多年的临床验证,被广泛用于治疗呼吸系统

疾病,具有平喘止咳、化痰排痰的功效^[7]。基于此,本研究采用平喘止咳汤治疗痰热郁肺型 AECOPD,旨在进一步提高治疗效果,现将结果报道如下:

1 资料与方法

1.1 一般资料 选取 2019 年 7 月至 2021 年 9 月期间于开封市中医院肺病科住院治疗的 80 例痰热郁肺型 AECOPD 患者作为研究对象。纳入标准:(1)符合 AECOPD 西医诊断标准^[8];(2)符合痰热郁肺型中医诊断标准^[9]:主症,咳嗽,喘息,胸闷痰多,痰色黄质黏;次症,发热,口渴,大便干结;舌脉:舌质红苔黄,脉滑、数。(3)年龄 40~75 岁;(4)患者及其家属知情同意,且研究符合《赫尔辛基宣言》^[10]。排除标准:(1)患有肺结核、哮喘等肺部疾病;(2)处在妊娠或哺乳期;(3)存在认知或语言障碍,依从性较差。按随机数表法将患者分为观察组和对照组各 40 例,两组患者的一般资料比较差异均无统计学意义($P>0.05$),具有可比性,见表 1。本研究经我院医学伦理委员会批准。

表 1 两组患者的一般资料比较($\bar{x}\pm s$,例(%))

Table 1 Comparison of general data between the two groups ($\bar{x}\pm s$, n(%))

组别	例数	性别		年龄(岁)	病程(年)
		男性	女性		
观察组	40	25 (62.5)	15 (37.5)	67.43±6.51	5.64±1.17
对照组	40	27 (67.5)	13 (32.5)	66.87±7.07	6.01±1.55
χ^2/t 值		0.220		0.368	1.205
P 值		0.639		0.713	0.231

1.2 治疗方法

1.2.1 对照组 该组患者接受常规西医治疗。具体方法:静脉注射 0.4 g 盐酸莫西沙星注射液[南京正大天晴制药有限公司;国药准字 H20203073;规格:250 mL:0.4 g (以莫西沙星计)],1 次/d;静脉推注 60 mg 盐酸氨溴索注射液(瑞阳制药股份有限公司;国药准字 H20173342;规格:4 mL:30 mg),2 次/d。同时,在实施治疗过程中,综合考虑患者的实际病情,合理选择适用的止咳、祛痰、抗感染类药物治疗,持续一周。

1.2.2 观察组 该组患者在对照组治疗的基础上接受平喘止咳汤治疗,均连续治疗直至出院。具体药方:肉桂 3 g,甘草、木香各 5 g,桔梗、杏仁、法半夏、

茯苓、红景天、麦冬各 10 g,陈皮、桑白皮、天花粉、瓜蒌皮、款冬花、五味子各 15 g。医院代煎,每剂药物煎取 2 袋,每袋 200 mL,每天服用一剂,每次 200 mL,分为早晚两次温服,连续服用一周。

1.3 观察指标与评价方法 (1)中医症状积分:治疗前和治疗一周后,采用中医证候积分评估两组患者的中医症状。根据中医诊断标准,对患者主症(4 项)、次症(3 项)和舌脉(2 项)等严重程度进行评分,每项评分范围 0~4 分,分值越高意味着患者痰热郁肺型 AECOPD 的症状更严重。(2)炎症标志物水平:治疗前和治疗一周后,在空腹状态下进行静脉血采集,约 5 mL,通过血清酶联免疫吸附法对血清降钙素原(serum procalcitonin, PCT)、超敏 C 反应蛋白(hypersensitivity C-reactive protein, hs-CRP)、白细胞介素-6(interleukin-6, IL-6)、 γ 干扰素(interferon- γ , IFN- γ)这四个指标的变化水平进行检测。(3)动脉血气指标:治疗前和治疗一周后,使用血气分析仪(RAPIDLab 348EX 型,德国西门子)检测氧分压(partial pressure of oxygen, PaO₂)、二氧化碳分压(partial pressure of carbon dioxide, PaCO₂)和氧饱和度(oxygen saturation, SaO₂)来评估人体的呼吸功能和氧气供应情况。(4)疾病严重程度:治疗前和治疗一周后,采用慢性阻塞性肺疾病测量表(COPD Assessment Test, CAT)^[11]评估两组患者的疾病严重程度,此量表具有 8 个条目,总分 0~40 分;分值越高意味着患者疾病程度越严重。(5)不良反应:比较两组患者治疗期间的声嘶、头晕、恶心等不良反应发生情况。

1.4 统计学方法 应用 SPSS25.0 统计学软件进行数据分析。计量资料符合正态分布,以均数±标准差($\bar{x}\pm s$)表示,组间比较采用独立样本 t 检验,组内不同时间点比较则采用配对样本 t 检验。计数资料比较采用 χ^2 检验。以 $P<0.05$ 表示差异有统计学意义。

2 结果

2.1 两组患者治疗前后的中医症状积分比较 治疗前,两组患者的中医证候积分比较差异无统计学意义($P>0.05$);治疗一周后,两组患者的中医证候积分较治疗前明显降低,且观察组明显低于对照组,差异均有统计学意义($P<0.05$),见表 2。

表 2 两组患者治疗前后的中医症状积分比较($\bar{x}\pm s$,分)

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

组别	例数	主症		次症		舌脉	
		治疗前	治疗后	治疗前	治疗后	治疗前	治疗后
观察组	40	11.55±2.05	5.48±1.07 [*]	8.53±1.69	4.30±0.85 [*]	6.03±1.13	2.05±0.23 [*]
对照组	40	10.88±2.62	7.53±1.61 [*]	9.00±1.88	5.75±1.11 [*]	5.93±1.18	2.55±0.40 [*]
t 值		1.274	6.707	1.176	6.560	0.387	6.853
P 值		0.207	0.001	0.243	0.001	0.700	0.001

注:与本组治疗前比较,^{*} $P<0.05$ 。

Note: Compared with that in the same group before treatment, ^{*} $P<0.05$.

2.2 两组患者治疗前后的炎症标志物水平比较 治疗前,两组患者的PCT、hs-CRP、IL-6和IFN- γ 水平比较差异均无统计学意义($P>0.05$);治疗一周后,两组患者的PCT、hs-CRP、IL-6和IFN- γ 水平均较治疗前显著降低,且观察组明显低于对照组,差异均有统计学意义($P<0.05$),见表3。

2.3 两组患者治疗前后的动脉血气指标比较 治疗前,两组患者的PaO₂、PaCO₂和SaO₂水平比较差异均无统计学意义($P>0.05$);治疗一周后,两组患者的

PaO₂和SaO₂水平较治疗前明显提高,且观察组明显高于对照组,但两组患者的PaCO₂值均较治疗前显著降低,且观察组明显低于对照组,差异均有统计学意义($P<0.05$),见表4。

2.4 两组患者治疗前后的疾病严重程度比较 治疗前,两组患者的CAT评分比较差异无统计学意义($P>0.05$);治疗一周后,两组患者的CAT评分较治疗前明显降低,且观察组明显低于对照组,差异均有统计学意义($P<0.05$),见表5。

表3 两组患者治疗前后的炎症标志物水平比较($\bar{x}\pm s$)

Table 3 Comparison of inflammatory markers levels before and after treatment between the two groups ($\bar{x}\pm s$)

组别	例数	PCT (ng/mL)		hs-CRP (mg/L)		IL-6 (pg/mL)		IFN- γ (ng/mL)	
		治疗前	治疗后	治疗前	治疗后	治疗前	治疗后	治疗前	治疗后
观察组	40	1.05±0.24	0.28±0.09 ^a	86.85±5.58	8.82±2.89 ^a	89.11±2.86	2.98±0.57 ^a	49.98±8.48	8.94±2.27 ^a
对照组	40	0.98±0.20	0.44±0.06 ^a	86.49±4.81	14.55±3.25 ^a	89.18±3.82	3.29±0.61 ^a	50.25±9.54	14.22±3.27 ^a
t值		1.417	9.355	0.309	8.333	0.093	2.348	0.134	8.389
P值		0.160	0.001	0.758	0.001	0.926	0.021	0.894	0.001

注:与本组治疗前比较,^a $P<0.05$ 。

Note: Compared with that in the same group before treatment, ^a $P<0.05$.

表4 两组患者治疗前后的动脉血气指标比较($\bar{x}\pm s$)

Table 4 Comparison of arterial blood gas indicators before and after treatment between the two groups ($\bar{x}\pm s$)

组别	例数	PaO ₂ (mmHg)		PaCO ₂ (mmHg)		SaO ₂ (%)	
		治疗前	治疗后	治疗前	治疗后	治疗前	治疗后
观察组	40	53.79±3.57	68.87±4.48 ^a	50.99±3.10	39.89±3.06 ^a	87.26±3.45	92.33±1.84 ^a
对照组	40	53.01±3.19	61.71±4.13 ^a	50.22±3.17	45.35±3.13 ^a	87.41±3.04	90.01±1.11 ^a
t值		0.291	7.432	0.328	7.889	0.206	6.828
P值		0.772	0.001	0.743	0.001	0.837	0.001

注:与本组治疗前比较,^a $P<0.05$ 。

Note: Compared with that in the same group before treatment, ^a $P<0.05$.

表5 两组患者治疗前后的CAT评分比较($\bar{x}\pm s$,分)

Table 5 Comparison of CAT scores before and after treatment between the two groups ($\bar{x}\pm s$, points)

组别	例数	治疗前	治疗后
观察组	40	32.48±3.13	12.60±2.56 ^a
对照组	40	31.62±3.04	17.50±2.70 ^a
t值		1.247	8.329
P值		0.216	0.001

注:与本组治疗前比较,^a $P<0.05$ 。

Note: Compared with that in the same group before treatment, ^a $P<0.05$.

2.5 两组患者的不良反应比较 治疗期间,观察组患者的不良反应总发生率为7.5%,略低于对照组的10.0%,但差异无统计学意义($\chi^2=0.000$, $P=1.000>0.05$),见表6。

表6 两组患者的不良反应比较(例)

Table 6 Comparison of adverse reactions between the two groups (n)

组别	例数	声嘶	头晕	恶心	总发生率(%)
观察组	40	1	1	1	7.5
对照组	40	1	1	2	10.0

3 讨论

《丹溪心法·咳嗽》中提及:“肺胀而咳,或左或右

不得眠,此痰挟瘀血碍气而病”,与痰热郁肺型AECOPD的症状相对应,主要表现为痰液黏稠度高、黄绿色或脓性,痰量较多,伴有气喘、呼吸困难以及咳嗽等症状,需要及时就医,以延缓病情进展并降低治疗难度^[12]。据《医门法律》记载,平喘止咳汤是一种传统中医秘方,在治疗慢性支气管炎和哮喘等呼吸系统疾病方面表现出色,也可治疗痰热郁肺型,这种汤剂可调理气机、清除痰湿、平喘止咳,具有广泛的应用价值^[13]。

AECOPD中痰液的积聚和黏稠度升高是一个常见的问题,气道内存在大量黏性分泌物,使得气道变得狭窄,严重影响呼吸功能^[14]。而本研究发现,平喘止咳汤治疗痰热郁肺型AECOPD效果显著,有效降低气道高分分泌水平,缓解疾病严重程度,究其原因得益于平喘止咳汤药理作用。一方面,平喘止咳汤中的有效成分能够刺激呼吸道的纤毛运动,增加痰液的排出速度,改善肺功能;另一方面,该药汤中所含的药材具有清热解毒、宣肺化痰、活血化瘀的功效,可以促进疾病的康复。例如,肉桂具有温阳散寒、引火归元的作用;甘草具有清热解毒、润肺止咳的功效^[15];木香则能够疏通气道、健脾止痛^[16];款冬花、桔梗、杏仁等药物则具有

祛痰平喘、宣肺降气的功效,能够舒缓气道的痉挛,减缓肺部的痰液积聚^[17];法半夏、茯苓、红景天等药物具有燥湿化痰、健脾补虚、活血平喘等功效,也都可以针对性地调节肺部功能,对痰热郁肺型 AECOPD 的治疗起到重要的作用^[18]。而天花粉作为重要的辅助药物,其具有清热生津、润燥化痰、消肿排脓的作用,能够减轻炎症反应,帮助患者恢复健康^[19]。

此外,本研究还发现,在平喘止咳汤治疗痰热郁肺型 AECOPD 的过程中,患者的炎症标志物水平也明显降低,这表明该药剂能够有效地抑制炎症反应,缓解患者的病情。这可能是因为平喘止咳汤中的药材组合具有抗炎、抗菌、抗病毒等多种作用,如麦冬作为滋阴润肺的草药,可在一定程度上缓解炎症反应,减轻病变的程度。当患者处于急性加重期时,病毒和病原微生物迅速扩散并导致炎症反应加剧。平喘止咳汤中的药材能够抑制炎症介质的释放,减轻气道炎症反应,从而减少气道狭窄和阻塞的程度,改善呼吸力学指标^[20]。其次,在呼吸系统的疾病中,免疫系统的异常反应和失调往往导致疾病的恶化。平喘止咳汤中的药材能够调节免疫系统的功能,促进巨噬细胞和淋巴细胞的活性,增强机体的抵抗力,减少疾病发作的频率和严重程度。

本研究中,采用平喘止咳汤治疗的痰热郁肺型 AECOPD 患者的动脉血气指标也得到明显的改善,这可能是因为平喘止咳汤通过改善气道黏液高分泌状态,减轻气道炎症反应,起到改善患者动脉血气指标的作用^[21]。气道狭窄和阻塞导致 AECOPD 患者呼吸困难,这就导致二氧化碳在体内滞留,进而引发低氧血症和高碳酸血症^[22]。而平喘止咳汤中的药物成分能够舒张气道,减少气道阻力,使空气更容易进入肺部,同时促进二氧化碳的排出。如此,患者体内氧气的供应得到改善,同时二氧化碳的排出也更加顺畅,从而改善动脉血气指标。

综上所述,平喘止咳汤治疗痰热郁肺型 AECOPD 的效果显著,其不仅能有效降低患者的中医症状积分,缓解疾病严重程度,还可改善患者炎症标志物水平和改善动脉血气指标,促进患者康复。

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