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肺泡灌洗对肺脓肿患者肺表面活性蛋白 A 与高迁移率蛋白 1 水平的影响分析*

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摘要 目的:探讨肺泡灌洗对肺脓肿患者肺表面活性蛋白 A(SPA)与高迁移率蛋白 1(HMGA1)水平的影响。**方法:**采用回顾性、随机抽样方法,选取 2014 年 2 月-2017 年 6 月我院诊治的 120 例肺脓肿患者,根据治疗方法分成观察组、对照组,每组各 60 例,对照组给予常规治疗,观察组在对照组的基础上进行肺泡灌洗治疗,疗程 4 周。比较两组的临床有效率、治疗前后肺功能、血清 SPA 和 HMGA1 水平的变化。**结果:**治疗后,观察组总有效率(98.3%)显著高于对照组(88.3%) ($P<0.05$);两组的 FEV1、PaO₂ 均较治疗前显著升高($P<0.05$),且观察组以上指标均显著高于对照组($P<0.05$);两组患者血清 SPA、HMGA1 水平均较治疗前显著降低($P<0.05$),且观察组以上指标均显著低于对照组($P<0.05$)。**结论:**肺泡灌洗可有效提高肺脓肿的临床治疗效果,显著改善患者肺功能和血气状态,可能与降低患者血清 SPA 与 HMGA1 水平有关。

关键词:肺泡灌洗;肺脓肿;肺表面活性蛋白 A;高迁移率蛋白 1

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Effects of Bronchoalveolar Lavage on the Surface Active Protein A and High Mobility Protein 1 Levels of Patients with Pulmonary Abscess*

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ABSTRACT Objective: To investigate the effects of bronchoalveolar lavage on the surface active protein A(SPA) and high mobility protein 1(HMGA1) of patients with pulmonary abscess. **Methods:** A retrospective, random sampling method was performed in 120 cases of patients with pulmonary abscess in our hospital from February 2014 to June 2017, they were divided into the observation group and the control group by different treatment methods with 60 patients in each group. The control group was given routine treatment, the observation group was given bronchoalveolar lavage therapy based on the treatment of control group, all patients were observed for 4 weeks. The clinical efficacy, changes in lung function, serum SPA and HMGA1 levels before and after treatment were compared between the two groups. **Results:** The total effective rate in the observation group (98.3%) was significantly higher than that in the control group (88.3%) ($P<0.05$). The FEV1 and PaO₂ after treatment in both groups were significantly increased than those before treatment ($P<0.05$), and the above indicators of observation group were significantly higher than those in the control group ($P<0.05$). The serum SPA and HMGA1 levels after treatment in both groups were significantly lower than those before treatment ($P<0.05$), and the above indicators of observation group were significantly lower than those in control group ($P<0.05$). **Conclusions:** Bronchoalveolar lavage can effectively enhance the clinical therapeutic effect of pulmonary abscess, significantly improve the pulmonary function and blood gas status of patients, and its mechanism may be related to the reduction of serum SPA and HMGA1 levels of patients.

Key words: Bronchoalveolar lavage; Pulmonary abscess; Pulmonary surfactant protein A; High mobility protein 1

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前言

肺脓肿是一种呼吸内科常见炎症疾病,是由多种病原微生物引起的肺组织化脓性病变,病情进展快、临床症状显著,早期主要表现为化脓性炎症,随着疾病进展,肺实质形成包含各种坏死物的脓腔^[1,2]。全身应用抗生素及体位引流是肺脓肿的基本

治疗方法,但其在治疗某些继发性肺脓肿、巨大肺脓肿、张力性肺脓肿方面存在很多缺陷,常难以及时、有效控制和治愈肺脓肿^[3,4]。肺泡灌洗可对局部病灶脓液进行灌洗,还可局部注入抗生素,具有很好的消炎作用^[5,6]。

高迁移率蛋白 A (high mobility group A, HMGA1) 是 HMGA 家族的主要成员,参与染色质重构、基因转录,调节相关基

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因的表达,是转录的关键因子^[7,8]。肺表面活性蛋白(surfactant proteins,SP)A附着于肺泡表面,活性高,由肺泡Ⅱ型上皮细胞和细支气管非纤毛上皮细胞生成,可调节肺部功能^[9,10]。本研究旨在探讨肺泡灌洗治疗对肺脓肿患者血清SPA、HMGA1水平的影响,现报道如下。

1 资料与方法

1.1 一般资料

表1 两组一般资料对比

Table 1 Comparison of the general information between two groups

Groups	Cases(n)	Gender (male/female)	Age (years)	Disease site (upleft/upright/ /downright)	Disease course (d)	BMI(kg/m ²)
Observation group	60	33/27	43.11± 2.87	13/17/15/15	8.13± 2.48	22.33± 2.48
Control group	60	35/25	43.93± 3.13	16/14/13/17	8.09± 3.14	22.98± 3.14

1.2 治疗方法

对照组采用常规治疗,包括营养支持、体位引流、抗感染等。

观察组在对照组的基础上进行肺泡灌洗治疗,对患者进行2%利多卡因局部麻醉,取仰卧位,经口腔进镜至病变段支气管,边插入边吸引,使镜端距脓腔最近处。然后经纤支镜活检孔注入0.2% 100 mL替硝唑,0.9%、37℃、100 mL无菌生理盐水进行肺泡灌洗,连续2-3次,每次吸引负压40-100 mmHg,反复操作至灌洗液清亮,1次/周。

两组都治疗观察4周。

1.3 观察指标

(1)疗效评定标准:治愈:胸部CT或X线片显示脓腔消失,痰培养阴性,体温恢复正常,咳痰消失;好转:胸部CT或X线片显示脓腔明显缩小,但痰培养阳性,体温、咳痰等明显缓解。无效:症状无减轻甚或恶化。(2)肺功能及血气分析:所有患者在

采用回顾性、随机抽样方法,选取2014年2月-2017年6月我院诊治的120例肺脓肿患者。纳入标准:符合诊断标准;年龄20-80岁;临床表现为发热、畏寒、咳嗽、咳痰等症状;已签知情同意书。排除标准:合并重大器官疾病者;入院前3周存在感染,使用过激素、免疫性药物及抗生素的患者;妊娠、哺乳期妇女。根据治疗方法分成观察组、对照组,各60例。两组患者的一般资料对比无差异($P>0.05$),见表1。本研究已通过医院伦理委员会批准。

治疗前后进行肺功能及血气分析,主要指标为FEV1与PaO₂。

(3)SPA与HMGA1检测:在治疗前后抽取患者的血液标本3-5 mL,抗凝处理后进行每分钟3000 rpm离心10 min,取上清并进行批量检测。SPA与HMGA1含量采用ELISA法检测,操作按说明书进行。

1.4 统计学分析

用SPSS22.0软件进行统计学分析,计量资料与计数数据分别以($\bar{x} \pm s$)、n(%)表示,分别采用t检验、 χ^2 检验,以 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 两组总有效率对比

治疗后,观察组的总有效率(98.3%)显著高于对照组(88.3%)($P<0.05$),见表2。

表2 两组总有效率对比

Table 2 Comparison of the total effective rate between two groups

Groups	Cases(n)	Recovery	Improvement	Inefficient	Total effective rate (%)
Observation group	60	53	6	1	98.3*
Control group	60	40	13	7	88.3

Note: compared with control group, * $P<0.05$.

2.2 两组治疗前后动脉血气分析与肺功能

治疗后,两组的FEV1、PaO₂均较治疗前显著提高($P<0.05$),

且观察组显著高于对照组($P<0.05$),见表3。

表3 两组治疗前后动脉血气分析与肺功能的比较($\bar{x} \pm s$)

Table 3 Comparison of the aArterial blood gas analysis and lung function before and after treatment between two groups($\bar{x} \pm s$)

Groups	Cases(n)	FEV1(L)	PaO ₂ (mmHg)	FEV1(L)	PaO ₂ (mmHg)
		Before treatment	After treatment	Before treatment	After treatment
Observation group	60	2.14± 0.45	3.09± 0.56**	60.23± 6.49	79.19± 5.62**
Control group	60	2.09± 0.53	2.78± 0.41*	60.14± 6.78	72.14± 6.15*

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

2.3 两组治疗前后血清SPA与HMGA1水平变化对比

治疗后,观察组血清SPA与HMGA1水平分别为(36.55± 4.18) ng/mL和(1.49± 0.53) μ g/mL,对照组分别为(46.33± 6.92)

ng/mL和(3.09± 0.76) μ g/mL,两组较治疗前均显著降低($P<0.05$),且观察组低于对照组($P<0.05$),见表4。

表 4 两组治疗前后血清 SPA 与 HMGA1 水平变化对比($\bar{x} \pm s$)Table 4 Comparison of the serum SPA, HMGA1 levels before and after treatment between two groups ($\bar{x} \pm s$)

Groups	Cases(n)	SPA(ng/mL)		HMGA1(μ g/mL)	
		Before treatment	After treatment	Before treatment	After treatment
Observation group	60	78.55 $\pm$ 6.73	36.55 $\pm$ 4.18* [#]	10.55 $\pm$ 2.58	1.49 $\pm$ 0.53* [#]
Control group	60	78.10 $\pm$ 7.09	46.33 $\pm$ 6.92*	11.03 $\pm$ 3.10	3.09 $\pm$ 0.76*

Note: compared with before treatment, *P<0.05; compared with control group, [#]P<0.05.

3 讨论

肺脓肿是由于感染引发的肺部组织的液化、坏死,肉芽组织包围而形成脓肿,从而导致肺部乃至全身发生一系列的反应,严重影响患者的身心健康^[11,12]。该病常发生于青壮年男性,初期表现为肺组织的炎症反应,病情加重后患者可出现精神不振、四肢无力,甚或导致感染中毒性休克的发生^[13,14]。细菌感染为肺脓肿的常见病因,机体抵抗力下降、支气管堵塞等因素也会造成病变,导致肺组织出现脓肿^[15,16]。

开胸手术治疗是治疗继发性肺脓肿的有效方法,但是对于患者的创伤过大,也容易给患者身心带来痛苦^[17,18]。常规药物治疗与引流治疗的效果一直不佳,且停药后容易复发,主要在于肺脓肿脓腔可形成脓肿壁,全身用药药物不易透过脓肿壁进入脓腔,导致实际作用药物浓度低^[19,20]。肺泡灌洗是根据外科学脓肿局部清创的原理结合纤支镜技术进行局部治疗,特别是纤支镜可直达病变部位,可在肺导管病灶局部注入抗生素,可在肺脓肿治疗中能进行吸引、冲洗^[21,22]。本研究结果显示观察组的总有效率(98.3%)显著高于对照组(88.3%);治疗后两组的 FEV1、PaO₂ 均显著提高,且观察组更显著,表明肺泡灌洗可显著改善患者血气功能、提高肺功能。从机制上分析,经纤维支气管镜灌洗可以冲洗、吸引脓性分泌物,促进炎性病灶吸收、脓腔愈合;也可使微小肺不张的复张,可以提高脓腔内药物浓度,促使坏死脱落物质排出,有利于炎症吸收,从而改善肺功能^[23-25]。

促进痰排出、疏通支气管是肺脓肿治疗的关键所在,而患者黏膜充血、水肿,使得常规治疗的效果不好^[26,27]。HMGB-1 可通过多种免疫及非免疫细胞激活体外系统的炎症,可诱导黏附因子,还可破坏内皮细胞的屏障作用,从而参与炎症反应,在肺组织损伤修复中发挥重要作用^[28]。SPA 是肺表面维护肺泡结构和功能的重要活性物质,SPA 经肺泡毛细血管进入血液循环,引起血 SPA 水平升高,从而引发肺部损伤,故 SPA 可作为评价肺损伤的重要标志物^[29]。本研究结果显示两组治疗后血清 SPA、HMGA1 水平均显著降低,且观察组显著低于对照组。从机制上分析,肺泡灌洗治疗有抑菌、杀菌功能,可稀释肺脓肿分泌物,促进坏死脱落物质的排出,有助于炎症吸收,从而促进降低 HMGA1 水平^[30]。肺泡灌洗可将病变处脓液、病原微生物清除、排出,肺泡灌洗液也会刺激支气管黏膜,利于痰液排出,引起咳嗽反射,改善患者肺通气功能及缺氧状态,从而有利于降低 SPA 水平^[31]。

综上所述,肺泡灌洗可有效提高肺脓肿的临床治疗效果,显著改善患者肺功能和血气状态,可能与降低患者血清 SPA 与 HMGA1 水平有关。

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