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酪酸梭菌三联活菌散辅助雾化吸入治疗毛细支气管炎患儿的疗效及对免疫蛋白的影响

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[摘　要]　**目的：**探讨酪酸梭菌三联活菌散辅助雾化吸入治疗毛细支气管炎患儿的临床疗效及其对免疫蛋白的影响。**方法：**选取2015年5月至2017年12月延安市人民医院收治的108例毛细支气管炎患儿作为研究对象，分析所有患儿的临床资料，根据治疗方法将其分为对照组(50例)和观察组(58例)，对照组予以雾化吸入及抗感染、止咳化痰等常规临床治疗，观察组在对照组治疗基础上加用酪酸梭菌三联活菌散进行辅助治疗，治疗结束后比较2组的临床疗效及免疫蛋白等相关临床指标，并记录2组在治疗过程中的不良反应。**结果：**观察组发热、咳嗽、喘憋以及肺部啰音临床症状消失所需时间及住院时间均明显短于观察组(P<0.05)；观察组临床总有效率(91.38%)显著高于对照组(72.00%，P<0.05)；2组治疗后IgG，IgA和IgM水平较治疗前均升高(P<0.05)，但观察组治疗后IgG，IgA和IgM水平均显著高于对照组(P<0.05)；治疗后2组IL-17和IL-23水平均较治疗前下降(P<0.05)，但观察组IL-17和IL-23水平下降程度均显著大于对照组(P<0.05)；2组治疗过程中均未出现明显严重不良反应。**结论：**酪酸梭菌三联活菌散联合雾化吸入治疗毛细支管炎患儿具有较好的临床疗效，可显著改善患儿的炎性反应和提高其免疫功能，具有一定的安全性，值得作为临床上治疗毛细支气管炎患儿的适用治疗方案之一。

[关键词]　酪酸梭菌三联活菌散；雾化吸入；毛细支气管炎；临床价值

Efficacy of clostridium butyricum triple viable bacterial powders and aerosol inhalation in the treatment of capillary bronchitis and the influence on immunoprotein

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Abstract　**Objective:** To investigate the efficacy of clostridium butyricum triple viable bacterial powders and aerosol inhalation in the treatment of capillary bronchitis and influences on immunoprotein. **Methods:** A total of 108 patients with capillary bronchitis in our hospital from May 2015 to December 2017 were selected, they were

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divided into the observation group (n=50) and the control group (n=58) according to the treatment methods, the control group was given routine clinical treatment of aerosol inhalation, anti-infection and cough phlegm, the observation group was given clostridium butyricum triple viable bacterial powders on this basis, clinical effect and immunoprotein related indexes of the two groups were compared after treatment, adverse reactions during the treatment were recorded. **Results:** Clinical symptoms (fever, cough, dyspnea, rale) extinction time, hospital stay of the observation group were significantly shorter than those of the control group (P<0.05). Clinical total effective rate of the observation group was significantly higher than that of the control group (72.00%, P<0.05). After treatment, IgG, IgA and IgM levels of the two groups were all significantly increased (P<0.05), while IgG, IgA and IgM levels in the observation group were significantly higher than those in the control group (P<0.05). After treatment, IL-17, IL-23 levels of the two groups were all declined (P<0.05), while IL-17, IL-23 levels in the observation group declined more significantly than the control group (P<0.05). There was no severe adverse reactions occurred during the treatment in the two groups. **Conclusion:** Clostridium butyricum triple viable bacterial powders and aerosol inhalation have good clinical effect on the treatment of capillary bronchitis, which can significantly improve the inflammatory reaction and immunologic function, with certain safety. It is worthy of being one of the suitable treatments for children with bronchiolitis.

Keywords clostridium butyricum triple viable bacterial powders; aerosol inhalation; capillary bronchitis; clinical value

近年来我国婴幼儿下呼吸道感染性疾病的发病率逐渐升高，且发病种类逐年增多[1]。分析以往病例资料[2-3]可知：毛细支气管炎是婴幼儿较为常见的急性下呼吸道感染性疾病，目前临床上对于其具体发病机制尚未完全清楚。约80%的毛细支气管炎患儿因上呼吸道合胞病毒(respiratory syncytial virus，RSV)感染所致[4]。大量临床资料[5-6]显示：咳嗽、喘憋及呼吸急促和困难是毛细支气管炎患儿最为常见的临床表现，若不及时治疗，严重可导致患儿窒息进而危及生命，故该疾病已成为临床医生和家长们一个极为重视的问题。目前临床治疗以药物雾化吸入为主，目的在于改善患儿肺部环境和其呼吸状态[7]。研究[8-9]表明：婴幼儿器官系统发育尚未完善，免疫系统和免疫力尚存在缺陷，因此对病毒的侵袭抵抗力较弱且清除病毒的能力低，故提高患儿机体免疫力也是治疗毛细支气管炎的关键措施，但具体药物尚未明确。笔者回顾性分析108例毛细支气管炎患儿的临床资料，旨在探讨酪酸梭菌三联活菌散辅助雾化吸入治疗毛细支气管炎患儿的临床价值。

1 对象与方法

1.1 对象

选取2015年5月至2017年12月延安市人民医院收治的108例毛细支气管炎患儿作为研究对象，其中男62例，女46例，年龄1~6(3.28±0.62)个月，病程1~10(3.54±1.64) d。纳入标准：所有患儿符合临床上毛细支气管炎明确诊断标准[10]，存在发热、咳嗽和喘憋等毛细支气管炎临床症状。本研究获延安市人民医院医学伦理委员会批准。排除标准：伴有原发性心、肾、肝、肺及脑等系统疾病者；除毛细支气管炎外存在其他呼吸道疾病者；存在恶性肿瘤者；对所用药物或其成分过敏者；临床资料不完整者。

1.2 方法

分析本研究108例毛细支气管炎患儿的临床资料，根据治疗方法将其分为对照组50例和观察组58例。对照组予以布地奈德(阿斯利康制药有限公司生产，批准文号：H20140475，规格：1 mg:2 mL×5支)。雾化吸入及止咳、营养支持等毛细支气管炎常规基础临床治疗，将1 mg布地奈德加入10 mL生理盐水后雾化吸入，2次/d，连用7 d，7 d为1个疗程。观察组在对照组治疗基础上加用酪酸梭菌三联活菌散(Toa制药公司生产，批准文号：S20130013；规格：1 g×6包)辅助治疗。温水冲服1 g/次，2次/d，连用7 d，7 d为1个疗程。2组均治疗2个疗程。治疗前后评估、检测及记录所有患儿的临床疗效、免疫蛋白等相关指标水平和不良反应。

IgG，IgA，IgM，IL-17和IL-23水平检测方法：所有患儿在入院当天以及治疗结束后次日清晨于空腹状态下抽取静脉血液5 mL，以3 000 r/min离心15 min后分离血清，并将其置于−70 ℃冰箱中

贮存以待检测。采用免疫比浊法测定IgG，IgA和IgM水平；采用ELISA检测IL-17和IL-23水平。

1.3 判断标准

观察患儿的临床疗效，发热、咳嗽、喘憋、肺部啰音消失及住院时间。临床疗效按照临床治疗标准[11]可分为治愈(患儿治疗后其相关临床症状较前比较均完全消失，且患儿睡眠较好，日常生活均可正常进行)、显效(患儿治疗后其相关临床症状较前比较显著缓解，且患儿睡眠较好)、有效(患儿治疗后相关临床症状较前比较稍好转，且患儿睡眠较前好转)和无效(患儿治疗后其相关临床症状及检查结果等较前比较均未有任何变化甚至进一步加重)，临床总有效率=(治愈+显效+有效)/总例数×100%。

1.4 统计学处理

采用SPSS 18.0软件进行数据处理，计量资料通过均数±标准差($\bar{x}\pm s$)表示，采用t检验，计数资料通过率/构成比描述，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 2组一般临床资料的比较

2组在性别、年龄及病程等一般临床资料差异无统计学意义(P>0.05，表1)。

2.2 2组患儿相关临床症状消失所需时间比较

观察组发热、咳嗽、喘憋以及肺部啰音临床症状消失所需时间及住院时间均明显短于观察组，差异均具有统计学意义(P<0.05，表2)。

2.3 2组临床疗效比较

观察组临床总有效率(91.38%)显著高于对照组(72.00%)，差异具有统计学意义(P<0.05，表3)。

2.4 2组治疗前后免疫球蛋白水平比较

2组治疗后IgG，IgA和IgM水平较治疗前均升高(P<0.05)，但观察组治疗后IgG，IgA和IgM水平上程度均显著大于对照组，差异均具有统计学意义(P<0.05，表4)。

2.5 2组治疗前后IL-17和IL-23水平比较

治疗后2组IL-17和IL-23水平均较治疗前下降，观察组下降程度显著高于对照组，差异均具有统计学意义(P<0.05，表5)。

2.6 2组患儿不良反应情况

治疗过程中2组患儿均未出现明显严重不良反应发生，且顺利完成治疗。

表1 2组一般临床资料比较

Table 1 Comparison of general clinical data between the 2 groups

组别	n	性别(男/女)	年龄/月	病程/d
对照组	50	28/22	3.12 ± 0.48	3.20 ± 1.48
观察组	58	34/24	3.28 ± 0.68	3.68 ± 1.72
t/χ^2		χ^2=0.075	t=1.391	t=1.542
P		0.784	0.167	0.126

表2 2组患儿相关临床症状消失所需时间比较($\bar{x}\pm s$)

Table 2 Comparison of the time required for the disappearance of clinical symptoms between the 2 groups ($\bar{x}\pm s$)

组别	n	症状消失所需时间/d				住院时间/d
		发热	咳嗽	喘憋	肺部啰音	
对照组	50	3.68 ± 1.54	6.46 ± 2.62	5.62 ± 1.62	7.86 ± 2.94	15.68 ± 4.26
观察组	58	2.12 ± 0.86	4.02 ± 2.02	3.06 ± 1.14	5.24 ± 2.16	10.36 ± 3.68
t/χ^2		6.614	5.433	9.594	5.323	6.964
P		<0.001	<0.001	<0.001	<0.001	<0.001

表3 2组临床疗效比较

Table 3 Comparison of clinical effects between the 2 groups

组别	n	治愈	显效	有效	无效	临床总有效/[例(%)]
对照组	50	12	20	4	14	36 (72.00)
观察组	58	20	28	5	5	53 (91.38)
χ^2						6.956
P						0.008

表4 2组治疗前后免疫球蛋白水平比较($\bar{x} \pm s$)

Table 4 Comparison of immunoglobulin levels before and after treatment in 2 groups ($\bar{x} \pm s$)

组别	n	IgG/(g·L^{-1})		IgA/(g·L^{-1})		IgM/(g·L^{-1})	
		治疗前	治疗后	治疗前	治疗后	治疗前	治疗后
对照组	50	12.20 ± 3.42	14.98 ± 3.86*	2.42 ± 0.80	3.94 ± 1.46*	1.38 ± 0.68	2.86 ± 1.02*
观察组	58	12.26 ± 3.40	18.64 ± 4.54*	2.50 ± 0.86	5.98 ± 2.06*	1.42 ± 0.60	4.26 ± 1.84*
t		0.091	4.474	0.498	5.848	0.325	4.782
P		0.928	<0.001	0.620	<0.001	0.746	<0.001

与治疗前比较，*P<0.05。

Compared with before the treatment, *P<0.05.

表5 2组治疗前后IL-17和IL-23水平比较($\bar{x} \pm s$)

Table 5 Comparison of IL-17 and IL-23 levels before and after the treatment in the 2 groups ($\bar{x} \pm s$)

组别	n	IL-17/(ng·mL^{-1})		IL-23/(ng·mL^{-1})	
		治疗前	治疗后	治疗前	治疗后
对照组	50	38.54 ± 8.54	24.58 ± 5.26*	32.58 ± 6.28	18.94 ± 4.26*
观察组	58	38.50 ± 6.50	18.04 ± 3.52*	32.50 ± 6.20	10.86 ± 3.08*
t		0.028	7.684	0.067	11.400
P		0.978	<0.001	0.947	<0.001

与治疗前比较，*P<0.05。

Compared with before the treatment, *P<0.05.

3 讨论

毛细支气管炎病变主要侵犯直径75~300 μm的毛细支气管，又称之为喘憋性肺炎[12]。该疾病主要由呼吸道合胞病毒所致，其他依次为副流感病毒、腺病毒、流感病毒，也有少部分患儿可因肺炎支原体、衣原体感染所致[13-14]。毛细支气管炎所导致的呼吸道炎症是因呼吸道内炎性细胞释放的多种细胞因子、炎性递质与呼吸道内细胞受体共同作用的结果[15]，故减少患儿机体炎性反应和提高其免疫能力是治疗毛细支气管炎的主要措施[16-17]。

本研究结果显示：采用酪酸梭菌三联活菌散辅助布地奈德雾化吸入治疗和仅采用雾化吸入等治疗的毛细支气管炎患儿治疗后临床症状均消失，且相关炎性指标水平均下降，而免疫球蛋白水平均上升，由此可见，上述两种方案对治疗毛细支气管炎患儿均具有一定的临床价值。但前者治疗的毛细支气管炎患儿发热、咳嗽、喘憋以及肺部啰音等症状消失所需时间及住院时间均显著

短于后者，且与后者相比较，炎性因子水平明显下降，免疫球蛋白水平也显著提高。本研究还表明：采用前者方案治疗的患儿临床总有效率显著高于后者，提示酪酸梭菌三联活菌散辅助布地奈德雾化吸入治疗毛细支气管炎患儿更具有临床价值。酪酸梭菌三联活菌散对毛细支气管炎患儿其机体中Th17/Th2细胞的平衡具有一定的改善作用[18-19]。Th17细胞属于人体$CD4^+$T细胞亚群的一种，其主要分泌IL-17，而IL-17可致患儿机体发生强烈的炎性反应[20-21]。本研究显示：采用酪酸梭菌三联活菌散联合雾化吸入治疗的患儿IL-17水平显著上升，提示该方案可明显改善患儿机体炎性反应。而IL-23也属于炎症细胞的一种[22]，考虑原因为酪酸梭菌三联活菌散对患儿机体的免疫功能具有一定的调节作用[23]，且通过抑制淋巴、单核以及树突等多种免疫炎症细胞的活性进一步减少IL-23的释放[24-25]。

本研究结果还显示：采用酪酸梭菌三联活菌散联合雾化吸入治疗，患儿免疫球蛋白的水平显著上升，提示该药物方案对免疫功能具有调节作用。且采用酪酸梭菌三联活菌散联合雾化吸入治疗的患儿均未出现明显不良反应，提示该方案具有一定的安全性。

综上所述，酪酸梭菌三联活菌散联合雾化吸入治疗毛细支管炎患儿具有较好的临床疗效，可显著改善患儿的炎性反应并提高患儿的免疫功能，具有一定的安全性，可作为临床上治疗毛细支气管炎患儿的适用治疗方案之一。

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