doi: 10.13241/j.cnki.pmb.2019.12.036

维生素 A、D 治疗毛细支气管炎和儿童支气管哮喘的临床效果研究 *

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摘要 目的：探讨维生素 A、D 治疗毛细支气管炎和儿童支气管哮喘的临床效果。**方法：**选取 2016 年 1 月 -2018 年 1 月本院住院治疗的毛细支气管炎患儿 120 例、门诊就诊的支气管哮喘患儿 120 例、儿童保健门诊查体的健康患儿 40 例(近 1 年均无服用维生素 AD 史)作为研究对象。将毛细支气管炎组、哮喘组分别随机分为治疗组 40 例(常规治疗 + 口服维生素 AD 组)和对照组 40 例(常规治疗组)。治疗组补充口服维生素 AD1 粒 qd，疗程共 6 个月。分别比较三组血清维生素 A、D 水平，随访 6 个月、1 年内喘息的控制情况(喘息发作次数、持续时间、咳嗽程度、有无夜间症状或夜间憋醒、有无活动受限)及肺功能(第 1 秒用力呼气容积 (FEV1)、用力肺活量 (FVC)、FEV1/FVC)，哮喘组≥ 4 岁患儿进行儿童哮喘控制测试(C-ACT)评分评价哮喘的控制情况。**结果：**观察组与对照组患儿血清维生素 A、D 水平无显著性差异($P>0.05$)；观察组、对照组患者维生素 A、D 水平显著低于健康组患儿($P<0.05$)；观察组患儿喘息发作次数、喘息发作时间、夜间症状、夜间憋醒、活动受限发生情况均显著低于对照组 ($P<0.05$)。治疗后，两组各肺功能指标较治疗前均显著升高($P<0.05$)，观察组 FEV1、FVC、FEV1/FVC 水平及 C-ACT 评分均明显高于对照组($P<0.05$)，观察组进展支气管哮喘的发生率明显低于对照组($P<0.05$)。**结论：**维生素 A、D 治疗毛细支气管炎和儿童支气管哮喘的临床效果显著。

关键词：维生素 A；维生素 D；毛细支气管炎；支气管哮喘
中图分类号：R563.12；R562.25 **文献标识码：**A **文章编号：**17673-6273(2019)12-2366-04

Curative Efficacy of Vitamins A and D in the Treatment of Bronchiolitis and Childhood Bronchial Asthma*

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ABSTRACT Objective: To study Curative efficacy of Vitamins A and D in treatment of Bronchiolitis and childhood bronchial asthma. **Methods:** 120 cases of children with bronchiolitis admitted to our hospital from January 2016 to January 2018, 120 cases of children with bronchial asthma admitted to our outpatient department, and 40 cases of healthy children (no history of taking vitamin AD for nearly a year) examined in the outpatient department of children's health care were selected as subjects, the bronchiolitis group and asthma group were randomly divided into treatment group (40 cases) and control group (40 cases). The treatment group received oral vitamin AD1 qd supplement for 6 months. Respectively to compare three groups of serum vitamin A, D levels were followed up for 6 months, 1 year of control of breathing (breathing attack frequency, duration, and degree of cough, with or without symptoms or suppress wake up at night by night, and presence of restricted movement), and the evaluation of the lung function status (forced expiratory volume in 1 second (FEV1) and forced vital capacity (FVC), FEV1 / FVC); In the asthma group, children aged 4 years old were assessed for asthma control by c-act score. **Results:** There was no significant difference in vitamin A and D levels between the observation group and the control group ($P>0.05$). The levels of vitamin A and D in the observation group and the control group were significantly lower than those in the healthy group ($P<0.05$). The number and duration of attack were significantly lower in the observation group than in the control group ($P<0.05$). The incidence of nocturnal symptoms, nocturnal anapnea and activity restriction in the observation group was significantly lower than that in the control group ($P<0.05$). Before treatment, there was no significant difference in pulmonary function between the two groups($P>0.05$). After treatment, lung function indexes in both groups were significantly higher than before treatment($P<0.05$), and FEV1, FVC and FEV1/FVC levels in the observation group were significantly higher than those in the control group ($P<0.05$). Before treatment, there was no significant difference in c-act score between the two groups ($P>0.05$). After treatment, the c-act score in the observation group was significantly higher than that in the control group($P<0.05$). The progression of bronchial asthma in the observation group was lower than that in the control group ($P<0.05$). **Conclusion:** The use of vitamin A and D in patients with bronchiolitis and childhood bronchial asthma is effective and worthy of promotion and application.

Key words: Vitamin A; Vitamin D; Bronchiolitis; Bronchial asthma
Chinese Library Classification(CLC): R563.12; R562.25 Document code: A
Article ID: 1673-6273(2019)12-2366-04

* 基金项目：山东省自然科学基金项目(ZR2016HL44)
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(收稿日期：2019-02-06 接受日期：2019-02-28)

前言

毛细支气管炎是2岁以下婴幼儿特有的呼吸道感染性疾病,主要表现为呼吸道的非特异性、变应性炎症和气道高反应性,与哮喘发病机制相似[1,2]。毛细支气管炎患儿易发生反复咳喘甚至可进展为哮喘[3,4]。近年来,我国哮喘患儿发病率逐年上升,加重了家庭和社会的负担[5,6]。目前部分研究认为维生素A、D的缺乏或与喘息发作有关[7,8]。维生素A具有调节免疫、保护上皮细胞完整性、抗氧化及调节气道高反应性等作用,在支气管哮喘的发生发展过程中有着至关重要的作用。有研究显示维生素D受体基因多态性与哮喘的发生有相关性[9,10]。孕期增加维生素D的摄入量可以降低儿童早期哮喘的风险[11,12]。然而,也有研究报道维生素D摄入对哮喘和过敏性疾病具有副作用。本研究主要探讨了生素A、D治疗毛细支气管炎和儿童支气管哮喘的临床效果,结果报道如下。

1 资料与方法

1.1 一般资料

选取2016年1月-2018年1月本院住院治疗的毛细支气管炎患儿120例、门诊就诊的支气管哮喘患儿120例、儿童保健门诊查体的健康患儿40例 (近1年均无服用维生素AD史)作为研究对象,研究已获得我院伦理会批准实施。将细支气管炎组、哮喘组分别随机分为治疗组40例, 观察组男29例,女11例;年龄1~8岁,平均(3.85± 0.62)岁;对照组男28例,女12例;年龄1~9岁,平均(4.13± 0.72)岁。两组一般资料比较差异均无统计学意义(P>0.05),具有可比性。

纳入标准[13]:(1)无先天性疾病;(2)无神经意识障碍;(3)患儿家属知情同意。排除标准:(1)遗传性疾病;(2)免疫性疾病;(3)心脑血管疾病者。

1.2 治疗方法

对照组采用布地奈德(规格:64 μg;生产厂家:AstraZeneca AB; 国药准字H20090402)1 mg+2.5 mL 0.9%氯化钠溶液雾化吸入治疗,每次15分钟,一天3次。

观察组在对照组的基础上加用维生素AD治疗, 维生素AD(规格:每粒含维生素A 3000单位,维生素D2 300单位;生产厂家: 国药控股星鲨制药 (厦门) 有限公司; 国药准字H35020244)1天1次口服。两组均治疗6个月。

1.3 观察指标

所有患者抽取空腹静脉血静脉血5 mL,EDTA抗凝后离心15 min,速度为2500 r/min,提取上层血清液,储存于冷冻箱内备检,使用液相串联质谱法(LC-MSMS)对血清维生素A、D进行检测;肺功能德国康讯Power Cube Body肺功能检测系统测定FEV1、FVC、FEV1/FVC水平, 仪器购于北京裕天医疗技术有限公司。

1.4 统计学分析

数据用SPSS 18.0软件进行统计分析。计量资料用 表示,组间比较用独立样本t检验, 多组间比较采用单因素方差分析,计数资料比较采用 x^2 检验,以 P<0.05表示差异具有统计学意义。

2 结果

2.1 三组患儿血清维生素A、D水平的比较

观察组与对照组患儿维生素A、D水平比较无显著性差异(P>0.05),但其均显著低于健康组患儿(P<0.05),见表1。

表1 三组患儿血清维生素A、D水平的比较($\bar{x}\pm s$)

Table 1 Comparison of the serum vitamin A and D levels among three groups($\bar{x}\pm s$)

Groups	n	Vitamin A(mg/L)	Vitamin D(ng/mL)
Observation group	40	0.28± 0.05	17.74± 1.46
Control group	40	0.27± 0.06	15.29± 5.24
Health groups	40	0.32± 0.07	37.10± 13.11
P value		0.001	0.000

2.2 两组患儿喘息发作次数、喘息发作时间的比较

观察组患儿喘息发作次数及喘息发作时间均显著低于对照组(P<0.05),见表2。

表2 两组患儿喘息发作次数、喘息发作时间的比较

Table 2 Comparison of the number and duration of asthma attacks between observation group and control group

Groups	n	Number of attacks(n/%)		Attack time(d)
		No attack	The onset of	
Observation group	40	37(92.50)	3(7.50)	2.51± 0.86
Control group	40	28(70.00)	12(30.00)	6.21± 1.24
P value		0.010		0.000

2.3 两组患儿夜间症状、夜间憋醒、活动受限发生情况的比较

观察组患儿夜间症状、夜间憋醒、活动受限发生情况均显著低于对照组(P<0.05),见表3。

表 3 两组患儿夜间症状、夜间憋醒、活动受限发生情况的比较[例(%)]

Table 3 Comparison of the incidence of nocturnal symptoms, nocturnal anaesthesia and activity restriction between the two groups[n(%)]

Groups	n	Symptoms at night	Suppress awake at night	Restricted movement
Observation group	40	3(7.50)	2(5.00)	1(2.50)
Control group	40	11(27.50)	9(22.50)	7(17.50)
P value		0.019	0.023	0.025

2.4 两组患儿治疗前后肺功能的比较

治疗前，两组患儿肺功能比较无显著差异($P>0.05$)；治疗后，两组各肺功能指标较治疗前均显著升高($P<0.05$)，观察组FEV1、FVC、FEV1/FVC水平均明显高于对照组($P<0.05$)，见表4。

表 4 两组患儿治疗前后肺功能的比较($\bar{x}\pm s$)

Table 4 Comparison of the lung function between the two groups before and after treatment($\bar{x}\pm s$)

Groups	n	FEV1(%)		FVC(%)		FEV1/FVC	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Observation group	40	68.13± 7.31	79.43± 6.52	52.31± 5.39	66.85± 4.32	61.03± 4.75	73.43± 5.27
Control group	40	67.97± 6.68	69.97± 6.42	52.76± 4.62	53.41± 7.48	60.95± 5.02	63.38± 5.45
P value		0.919	0.000	0.690	0.000	0.942	0.000

2.5 两组患儿治疗前后 C-ACT 评分及进展支气管哮喘发生情况的比较

治疗前，两组患儿 C-ACT 评分水平比较无显著差异($P>0.05$)；治疗后，观察组患儿 C-ACT 评分显著高于对照组($P<0.05$)；观察组进展支气管哮喘发生率明显低于对照组($P<0.05$)，见表 5。

表 5 两组患儿 C-ACT 评分及进展支气管哮喘发生情况的比较

Table 5 Comparison of the c-act scores and incidence of progressive bronchial asthma between the two groups

Groups	n	C-ACT		Progressive bronchial asthma
		Before treatment	After treatment	
Observation group	40	18.31± 1.93	23.09± 1.87	4(10.00)
Control group	40	18.29± 1.95	21.63± 2.05	15(37.50)
P value		0.963	0.001	0.004

3 讨论

毛细支气管炎是婴幼儿常见病，可诱发气道的非特异性炎症及气道变应性炎症，其发病机制与哮喘相似[14-16]。支气管哮喘是一种常见的呼吸系统疾病，临床表现为咳嗽、喘息和呼吸困难[17,18]。近年来，如何有效治疗毛细支气管炎和儿童支气管哮喘已成为广泛关注的问题[19-21]。目前临床上通常使用常规布地奈德治疗，布地奈德是一种具有高效局部抗炎作用的糖皮质激素，可增强内皮细胞的稳定性，抑制免疫反应，降低抗体合成，但是其对患儿肺功能效果不明显，故较多学者提出在此基础上联合治疗以提高其临床疗效[22-24]。

维生素 AD 是人体生长发育的必需物质，对婴幼儿的发育有重要作用，能够维持免疫稳态和防治自身免疫性疾病，通过多种机制影响着哮喘的发生发展[25-28]。Mclellan K[29]研究显示维生素 A、D 治疗毛细支气管炎和儿童支气管哮喘效果显著，能改善患者的临床症状。本研究结果显示，纯使用常规治疗的患儿和联合维生素 A、D 治疗的患儿的维生素 A、D 水平显著低于正常患儿。此外，联合维生素 A、D 治疗的患儿喘息发作次数、喘息发作时间、夜间症状、夜间憋醒、活动受限发生情况、进展支气管哮喘低于单独使用常规治疗的患儿，C-ACT 评分显著高于单独使用常规治疗的患儿。以上结果提示联合维生素 A、D 能够明显改善患儿的临床症状。分析原因是因为维生素 A、D 是一种类固醇类激素，具有增强单核细胞功能，能够促进促进 T 淋巴细胞转化、自然杀伤细胞活化及促进体液免疫功能等作用，同时促进胸腺增生，如与免疫增强剂合用，可提高机体免疫力和对感染的抵抗能力，改善患者的临床症状，提高其临床疗效。Krogulska A[30]研究表明维生素 A、D 能够明显改善患儿的肺功能各项指标。本研究结果显示联合维生素 A、D 治疗的患儿肺功能均明显高于单独使用常规治疗的患儿，与上述观点基本一致。分析其原因是因为维生素 A、D 能够促进单核细胞向巨噬细胞分化，调节巨噬细胞反应，防止炎症细胞因子和介质的释放，从而减轻炎症反应；调节各种免疫细胞的生长、分化成熟的分泌，提高机体免疫力。

综上所述，维生素 A、D 治疗毛细支气管炎和儿童支气管哮喘的临床效果显著，值得临床适宜应用。

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