·论　著·

米力农联合高频通气治疗新生儿持续性肺动脉高压临床疗效研究

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【摘要】 目的　探讨米力农联合高频通气治疗新生儿肺动脉高压临床疗效。**方法**　选取周至县人民医院和陕西省人民医院收治的新生儿肺动脉高压患儿 40 例,随机分为对照组和治疗组,每组 20 例。对照组给予高频通气及对症治疗和支持治疗,治疗组在常规治疗的基础上加用米力农,负荷量 50 μg/kg,维持量 0.50～0.75 μg/(kg·min)微量泵持续给入。治疗 3 d 后,对比治疗前后患儿临床有效率、血气及血压。**结果**　(1)治疗后两组患者症状均有改善,且治疗组有效率(85%)明显高于对照组(70%),差异有统计学意义($P<0.05$);(2)两组患者血气水平均有改善,且治疗组较对照组明显好转,差异有统计学意义($P<0.05$);(3)治疗后两组患者血压改善,且治疗组血压较对照组明显好转,差异有统计学意义($P<0.05$)。**结论**　米力农联合高频通气能够明显改善新生儿肺动脉高压的临床症状,对临床具有指导意义,值得临床推广。

【关键词】 新生儿肺动脉高压;　高频通气;　米力农;　临床疗效

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Study on clinical efficacy of milrinone combined with high frequency ventilation in treatment of neonatal persistent pulmonary hypertension

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【Abstract】 Objective　To investigate the clinical effect of milrinone combined with high frequency ventilation in the treatment of neonatal pulmonary hypertension. **Methods**　40 neonatal patients with pulmonary hypertension in the neonatal intensive care unit (NICU) of our hospital were selected and randomly divided into two groups, 20 cases in each group. The control group was given the high frequency ventilation, symptomatic therapy and supportive treatment, on this basis the treatment group was added with milrinone, loading dose of 50 μg/kg and maintenance dose of 0.50－0.75 μg/ (kg· min) by micropump continuous infusion. The clinical effective rate, blood gas and blood pressure after 3 d treatment were compared between before and after treatment. **Results**　(1)The symptoms after treatment in the two group were improved, the effective rate in the treatment group was 85%, which was significantly higher than 70% in the control group, the difference was statistically significant ($P<0.05$). (2)The blood gas levels after treatment in the two groups were improved, and the improvement in the treatment group was more obvious than the control group, the difference was statistically significant ($P<0.05$). (3) the blood pressure after treatment in the two groups was improved, but the improvement in the treatment group was more obvious, the difference was statistically significant ($P<0.05$). **Conclusion**　Milrinone combined with high frequency ventilation can significantly improve the clinical symptoms of neonatal pulmonary hypertension, has the guidance significance in clinic and is worth clinical promotion.

【Key words】 neonatal pulmonary artery hypertension;　high frequency ventilation;　milrinone; clinical effect

新生儿肺动脉高压是由于新生儿出生后肺动脉持续高压,肺动脉压超过体循环动脉压,是新生儿从胎儿型循环转向成人型循环出现障碍,而引起心房及导管水平血流右向左的分流[1],临床上多表现为严重的低氧血症。由于其持续严重的低氧症状,造成患儿多器官障碍、衰竭,在 20 世纪 80 年代,其病死率高达 12%～33%[2-3],随着新生儿重症监护相关技术的不断进步及完善,以及对其病理、病机及治疗原则的不断深入研究,使病死率降低至 10%[4-5],现代医学多采取高频通气。研究表明,米力农能够明显改善患儿低氧血症,高频通气又是作为治疗新生儿肺动脉高压的常用手段,作者通过米力农联合高频通气,观察临床有效率、血气、血压,来探究米力农联合高频通气对新生儿肺动脉高压的治疗效果。

1　资料与方法

1.1　一般资料　选择 2014 年 1～9 月于周至县人民医院和陕西省人民医院以新生儿肺动脉高压为诊断而收入院患者 40 例。诊断标准:在适当通气的情况下,新生儿仍有严重发绀、低氧血症,且 X 线片不能解释的低氧程度,排除先天性心脏病及气胸者,患儿在围生期有重度窒息史,或有严重胎粪吸入综合

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征,纯氧试验、高氧高通气试验阳性,多普勒超声检查计算肺动脉收缩压大于 75%体循环收缩压可确定诊断[6-7]。纳入标准:参照《新生儿持续性肺动脉高压》[8-10]。(1)符合的新生儿持续性肺动脉高压诊疗常规诊断标准;(2)出生 28 d 内的新生儿;(3)无先天性心脏病;(4)患儿家属自愿参与本试验,并签署知情同意书。排除标准:(1)不符合纳入标准者;(2)患儿家属拒绝调研或不合作者;(3)资料不完整影响结果分析者。将所选患者随机分为两组。治疗组 20 例,其中男 11 例,女 9 例,平均胎龄(37.25±2.12)周,平均日龄(17.14±7.12)d,平均体质量(3.09±1.02)kg;对照组 20 例,其中男 8 例,女 12 例,平均胎龄(37.23±2.34)周,平均日龄(18.56±8.14)d,平均体质量(3.24±1.12)kg。两组患者的年龄、体质量、性别比例等一般资料比较,差异无统计学意义($P>0.05$),具有可比性。

1.2　方法

1.2.1　治疗方法　(1)两组患儿均给予高频通气治疗,呼吸机(德国德尔格公司生产的 Babylog8000 呼吸机)参考系数设置:吸入氧体积分数 30%～90%,平均气道压(1.60～2.67)×10^3 Pa,振荡频率 8～12 Hz。根据两组患儿病情对症治疗,纠正酸中毒,监测体温、脉搏、血压、血糖、电解质平衡,补充维生素,应用抗菌药物防治感染,给予多巴胺等维持正常心功能,加强有效循环。(2)治疗组在常规治疗的基础上加用米力农(鲁南贝特制药有限公司,批准文号国药准字 1050H0719),剂量为负荷量 50 μg/kg,维持量 0.50～0.75 μg/(kg·min)微量泵持续给入。

1.2.2　观察指标　治疗前后分别记录心电监测仪上收缩压(SBP),彩色多普勒检查测量肺动脉收缩压(SPAP),在呼吸机上记录动脉血氧饱和度(PaO_2)、动脉血二氧化碳饱和度($PaCO_2$)、氧合指数(OI)。

1.2.3　疗效判定标准　患儿动脉 PaO_2 提高大于 1.32×10^3 Pa 则判定为有效,否则为无效。

1.3　统计学处理　采用 SPSS19.0 统计软件进行分析,计量资料以 $\bar{x}\pm s$ 表示,比较采用 t 检验,计数资料以率表示,比较采用 χ^2 检验,以 $P<0.05$ 为差异有统计学意义。

2　结　　果

2.1　临床疗效比较　治疗组的治疗有效率为 85%(17/20),对照组为 70%(14/20),治疗组明显高于对照组,差异有统计学意义($P>0.05$)。

2.2　治疗前后两组患儿血气改变比较　两组血气均有所改善,与对照组比较,治疗组血气指标明显改善,差异有统计学意义($P<0.05$),见表 1。

表 1　治疗前后两组患儿血气比较情况($\bar{x}\pm s$)

组别	n		PaO_2 (×10^3 Pa)	$PaCO_2$ (×10^3 Pa)	OI
治疗组	20	治疗前	6.78±1.21	5.71±0.98	42.34±6.01
		治疗后	8.75±1.64*▲	3.11±1.16*▲	17.53±7.02*▲
对照组	20	治疗前	6.73±1.17	5.52±1.20	42.32±5.48
		治疗后	7.24±0.98*	4.74±1.43*	25.54±5.86*

注:与治疗前比较,* $P<0.05$;与对照组比较,▲$P<0.05$。

2.3　治疗前后两组患儿血压比较　治疗后两组血压均有所改善,与对照组比较,治疗组血压明显改善,差异有统计学意义($P<0.05$),见表 2。

表 2　治疗前后两组患儿血压比较($\bar{x}\pm s$,mm Hg)

组别	n		SPAP	SBP
治疗组	20	治疗前	59.4±9.2	64.9±11.8
		治疗后	25.7±8.8*▲	68.6±11.2*▲
对照组	20	治疗前	59.6±9.3	65.2±12.3
		治疗后	35.1±10.1*	67.3±10.7*

注:与治疗前比较,* $P<0.05$;与对照组比较,▲$P<0.05$。

3　讨　　论

新生儿持续肺动脉高压是以新生儿出生后出现明显的肺动脉压升高为主要特征,其发病率高达 0.1%～0.3%[11-12]。新生儿持续性肺动脉高压多继发于胎粪吸入综合征、急性呼吸窘迫综合征,出生后 12 h 内可出现发绀、气急,通常不会出现呼吸暂停、三凹征或呻吟等,临床缺乏特异性表现[13-14],以往对新生儿持续性肺动脉高压的病机及病因缺乏详细研究,导致治疗药物不多,治疗方法的选择不多,病死率高,但近几年多采用高频通气、维持体循环压力、降低肺动脉高压的基本方法[15-16],其治疗的有效性得到了临床的肯定。有研究表明米力农在新生儿持续性肺动脉高压的治疗上能降低肺动脉高压、提高血氧饱和度、改善心功能[17-18]。

本研究中,治疗组的治疗有效率(85%)明显优于对照组(70%),差异有统计学意义($P<0.05$),提示米力农联合高频通气能明显改善患儿的低氧症状,临床疗效明显;两组患儿经治疗后血气均有改善,且治疗组 PaO_2、$PaCO_2$、OI 明显好于对照组,提示米力农可能具有扩血管、降低肺动脉高压的作用;两组患儿经治疗后血压均有改善,且治疗组 SPAP、SBP 明显优于对照组。有研究表明,米力农主要是通过抑制磷酸二酯酶,使细胞内环磷腺苷(CAMP)浓度增加,增加可以被机体所利用的钙离子流入心肌收缩蛋白细胞,增强心肌收缩力和正性肌力,使心排血量增加,同时使血管平滑肌松弛,进一步扩张血管,从而可降低心前、后负荷,降低左心室充盈压,改善左室功能,增加心脏指数[19]。本研究中可看出米力农具有改善心功能的作用、降低动脉高压的作用。

综上所述,米力农联合高频通气能降低患儿肺动脉高压,维持体循环,改善心功能,降低病死率,提高临床疗效,值得在临床上进行推广。

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