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序贯通气转换标准差异对重症肺炎伴呼吸衰竭病人病程及临床预后的影响

王何刚[1],杨克[2],王世英[3]

作者单位:[1]西安市第一医院呼吸科,陕西 西安710002;[2]云南省阜外心血管病医院麻醉科,云南 昆明650000;[3]武汉市第五医院麻醉科,湖北 武汉430050

通信作者:杨克,男,副主任医师,研究方向为围术期肺保护级神经病理性痛,E-mail:44240263@qq.com

摘要:目的　探讨序贯通气转换标准差异对重症肺炎伴呼吸衰竭病人病程及临床预后的影响。**方法**　选取武汉市第五医院2016年1月至2018年1月收治重症肺炎伴呼吸衰竭病人共100例,以随机数字表法分为控制窗组(50例)和呼吸试验组(50例),分别根据肺部感染控制窗(PICW)和自主呼吸试验(SBT)确定序贯通气转换时机;比较两组病人通气用时、重症监护病房(ICU)住院用时、住院总用时、再插管率、呼吸机相关性肺炎(VAP)发生率及院内死亡率。**结果**　呼吸试验组病人有创通气用时、机械通气总用时、ICU住院用时及住院总用时分别为(7.65±1.48)d,(10.10±2.10)d,(14.22±2.05)d,(20.74±3.51)d,均显著短于控制窗组的(12.93±2.04)d,(16.33±3.17)d,(22.14±3.60)d,(29.47±4.64)d,$P<0.05$;呼吸试验组病人再插管率和VAP发生率分别为14.00%,8.00%,显著低于控制窗组的38.00%,24.00%($P<0.05$);同时两组病人院内死亡率比较差异无统计学意义($P>0.05$)。**结论**　针对重症肺炎伴呼吸衰竭病人根据SBT确定序贯通气转换时机可有效缩短通气时间,加快病情康复进程,预防再插管和VAP发生,价值优于PICW。

关键词:呼吸,人工/方法;　呼吸功能不全;　序贯通气转换;　肺部感染控制窗;　自主呼吸试验;　肺炎;　呼吸衰竭;　病程;　预后

Influence of sequential ventilation conversion standard difference on the disease course and clinical prognosis of patients with severe pneumonia combined with respiratory failure

WANG Hegang[1], YANG Ke[2], WANG Shiying[3]

Author Affiliations: [1]*Department of Respiratory Medicine, First Hospital of Xi'an City, Xi'an, Shaanxi* 710002, *China*; [2]*Department of Anesthesiology, Fuwai Cardiovascular Hospital of Yunnan Province, Kunming, Yunnan* 650000, *China*; [3]*Department of Anesthesiology, Fifth Hospital of Wuhan City, Wuhan, Hubei* 430050, *China*

Abstract: Objective　To investigate the influence of sequential ventilation conversion standard difference on the disease course and clinical prognosis of patients with severe pneumonia combined with respiratory failure. **Methods**　100 patients with severe pneumonia combined with respiratory failure admitted to the Fifth Hospital of Wuhan from January 2016 to January 2018 were divided into a control window group (50 cases) and a respiratory test group (50 cases) by random number table method. Determine the timing of sequential ventilation conversion according to the Pulmonary Infection Control Window (PICW) and Spontaneous Breathing Test (SBT); and the ventilation time, ICU hospitalization time, total hospitalization time, re-intubation rate, VAP rate and hospital mortality of both groups were compared. **Results**　The invasive ventilation time, total mechanical ventilation time, ICU hospitalization time and total hospitalization time of breathing test group were (7.65±1.48)d, (10.10±2.10)d, (14.22±2.05)d, (20.74±3.51)d, which were significantly shorter than control window group which respectively were (12.93±2.04)d, (16.33±3.17)d, (22.14±3.60)d, (29.47±4.64)d ($P<0.05$). The re-intubation rate and VAP rate of B group for 14.00% and 8.00% were significantly lower than control window group for 38.00% and 24.00% ($P<0.05$). There was no statistically significant difference in the hospital mortality between 2 groups ($P>0.05$). **Conclusion**　Compared with PICW, SBT for sequential ventilation conversion standard on patients with severe pneumonia combined with respiratory failure can efficiently shorten the invasive ventilation time and total mechanical ventilation time, accelerate the recovery process and be helpful to reduce the risk of re-intubation and VAP, and is better than PICW.

Key words: Respiration, artificial/methods;　Respiratory insufficiency;　Sequential ventilation conversion;　Pulmonary infection control window;　Spontaneous breathing experiments;　Pneumonia;　Respiratory failure;　Disease course;　Prognosis

重症肺炎伴呼吸衰竭病人病死率可达15%~35%,而老年人群死亡率更接近45%,且超过70%需行气管插管或切开机械通气[1-2]。,对于重症肺炎伴呼吸衰竭者积极行机械通气有助于减轻呼吸困难症状[3],而有创机械通气与无创正压通气(NIPPV)序贯应用还能够进一步缩短通气时间,降低呼吸机相关性肺炎(VAP)发生风险[4];但临床医师在何种标准下转换为NIPPV更有助于改善病人临床预后则无统一标准。本研究旨在探讨根据用肺部感染控制窗(PICW)和自主呼吸试验(SBT)确定序贯通气转换时机对重症肺炎伴呼吸衰竭病人病程及临床预后的影响,为临床选择标准确定提供更多循证依据,现报告如下。

1 资料与方法

1.1 一般资料 选取武汉市第五医院2016年1月至2018年1月收治重症肺炎伴呼吸衰竭病人共100例,以随机数字表法分为控制窗组和呼吸试验组,每组各50例;控制窗组病人中男性29例,女性21例,年龄(57.58±6.71)岁,急性生理和慢性健康评分(APACHE-II评分)(19.42±1.84)分,CPIS评分(8.21±1.04)分;呼吸试验组病人中男性31例,女性19例,年龄(57.81±6.75)岁,APACHEII评分(19.55±1.89)分,CPIS评分(8.14±1.06)分。两组病人一般资料比较差异无统计学意义(性别:$\chi^2=1.74$,$P=0.31$。年龄、APACHE-Ⅱ评分、CPIS评分:$t=1.05$、0.87、0.74,$P=0.22$、0.34、0.40)。

1.2 纳入和排除标准

1.2.1 纳入标准 (1)符合《中国成人社区获得性肺炎诊断和治疗指南(2016年版)》重症肺炎诊断标准[5];(2)符合《呼吸病学》I型呼吸衰竭诊断标准[5];(3)符合气管插管或切开机械通气指征[6];(4)年龄范围18~75岁;(5)病人或其近亲属知情同意,本研究符合《世界医学协会赫尔辛基宣言》相关要求。

1.2.2 排除标准 (1)肺部肿瘤、肺纤维化及肺结核;(2)上呼吸道梗阻;(3)气胸;(4)严重意识障碍;(5)凝血功能障碍;(6)重要脏器功能障碍;(7)临床资料不全。

1.3 治疗方法 全部病人均给予抗感染、祛痰、营养支持、纠正水电解质酸碱及酸碱平衡紊乱等对症干预;入院后立即行气管插管和有创机械通气,而NIPPV初始吸气和呼气压分别设为3 cm H_2O和5 cm H_2O,并每隔10~15 min加压1 cm H_2O,同时维持吸气和呼气压分别<5 cm H_2O、25 cm H_2O;其中控制窗组病人根据PICW确定序贯通气转换时机,判定标准为[6]:①影像学可见肺部和呼吸道阴影减轻,无融合斑片影;②痰量减少、颜色转白且黏稠度降至Ⅱ度以下;③体温降至38 ℃以下,外周血白细胞(WBC)计数在10×10^9/L或下降超过2×10^9/L;呼吸试验组病人根据SBT确定序贯通气转换时机,判定标准为[6]:①SBT期间及结束后未感不适;②呼吸相关指标稳定;③记录潮气量在5 mL/kg以上;④无严重代谢性酸中毒或低氧血症;检测过程中先进行3 min预试验,成功后再继续检测0.5~2.0 h,均无问题后拔除气管插管,无法拔管者则立行机械通气待24 h后再次试验。

1.4 观察指标 (1)治疗相关指标包括有创通气用时、机械通气总用时、ICU住院用时及住院总用时;(2)再插管发生率(再插管指征为:①pH值低于7.20;②二氧化碳分压持续升高;③氧分压<6.67 kPa;④意识障碍;⑤呼吸或心搏停止;⑥呼吸频率每分钟低于8次或超过40次[6]);(3)VAP发生率(VAP判定标准为:①上机后48 h内发生肺炎;②影像学下可见肺部阴影;③听诊可闻及肺部湿啰音;④WBC>10×10^9/L或<4×10^9/L、体温超过37.5 ℃、呼吸道分泌物增多或感染新病原体中任一项[6])。(4)院内死亡情况。

1.5 统计学方法 数据分析选择SPSS 24.0软件;统计学方法采用t检验和χ^2检验;检验水准$\alpha=0.05$。

2 结果

2.1 两组病人有创通气用时、机械通气总用时、ICU住院用时及住院总用时比较 呼吸试验组均显著短于控制窗组($P<0.05$),见表1。

表1 两组重症肺炎伴呼吸衰竭病人有创通气用时、机械通气总用时、ICU住院用时及住院总用时比较/(d,$\bar{x}\pm s$)

组别	例数	有创通气用时	机械通气总用时	ICU住院用时	住院总用时
控制窗组	50	12.93±2.04	16.33±3.17	22.14±3.60	29.47±4.64
呼吸试验组	50	7.65±1.48	10.10±2.10	14.22±2.05	20.74±3.51
t值		3.875	4.163	5.091	3.447
P值		0.000	0.000	0.000	0.000

2.2 两组病人再插管率、VAP发生率及院内死亡率比较 呼吸试验组病人再插管率和VAP发生率均显著低于控制窗组($P<0.05$),两组病人院内死亡率比较差异无统计学意义($P>0.05$)。见表2。

表2 两组重症肺炎伴呼吸衰竭病人再插管率和呼吸机相关性肺炎(VAP)发生率及院内死亡率比较/例(%)

组别	例数	再插管率	VAP发生率	院内死亡率
控制窗组	50	19(38.00)	12(24.00)	5(10.00)
呼吸试验组	50	7(14.00)	4(8.00)	4(8.00)
χ^2值		7.48	4.76	0.12
P值		0.00	0.03	0.74

3 讨论

目前临床对于重症肺炎伴呼吸衰竭病人往往需通过机械通气以缓解缺氧状态,但存在机械通气时间过长、相关并发症发生率居高不下及病人耐受性不佳等问题[7-9]。而NIPPV则属于无创通气技术,对于病人正常饮食并无影响,且能够有效预防VAP发生,但单纯应用NIPPV难以彻底清除重症肺炎伴呼吸衰竭呼吸道多量内分泌物,可能导致气道阻塞程度加重导致死亡,故近年来有创-无创序贯通气方案逐渐成为重症肺炎伴呼吸衰竭病人临床治疗首选[10]。

有创-无创序贯机械通气近是指在有创通气减轻呼吸衰竭症状后,但未达拔管标准前,以无创替代有创,从而达到减少有创通气时间和避免VAP发生的目的[11];同时有创-无创通气序贯方案应用在缩短机械通气总时间和降低死亡率远方面具有优势[12-13];但国内外对于何时改为无创通气并无明确规定,其中以PICW和SBT进行转换时机判断应用最为广泛,但在病人临床受益方面尚存在较大争议。本研究结果中呼吸试验组病人有创通气用时、机械通气总用时、ICU住院用时及住院总用时均显著短于控制窗组($P<0.05$);呼吸试验组病人再插管率和VAP发生率显著低于控制窗组($P<0.05$),证实根据SBT确定序贯通气转换时机能够减少重症肺炎伴呼吸衰竭治疗过程中机械通气和ICU住院时间,提高拔管成功率及避免VAP发生。国外学者报道显示[14-15],加快呼吸道分泌物清除、控制肺部感染及预防并发症是改善重症肺炎伴呼吸衰竭病人病情关键;PICW仅能对病人肺部感染缓解程度进行评价,而SBT则能够对病人呼吸功能改善效果进行综合评价,更为准确反映呼吸道恢复情况,更具有实际应用价值;其中SBT方案应用可有效缩短病人有创机械通气时间是形成这一优势重要原因;以上数据均支持根据SBT确定序贯通气转换时机。相关报道证实[16],机械通气时间与VAP发生率呈明显正相关;本研究中两组病人院内死亡率比较无差异($P>0.05$),与以往报道结论不符,笔者认为这可能与总病人数较少、个体差异相对明显有关。

综上所述,针对重症肺炎伴呼吸衰竭病人,根据SBT确定序贯通气转换时机,价值优于PICW。

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