

柔搭冯飞生无拯 COPD 阔立 ¥ 化冯飞梯陴抓扒镰拯泉琥眷

Observation on the clinical efficacy of noninvasive ventilator in the treatment of COPD with type ¥ respiratory failure

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【摘要】目的：通过此次研究旨在明确在慢性阻塞性肺疾病（COPD）合并Ⅱ型呼吸衰竭患者的临床治疗中应用无创呼吸机辅助的效果。方法：应用数字卡抽签法对2020年3月至2022年2月期间收治的76例COPD合并Ⅱ型呼吸衰竭患者进行分组，抽到单数数字卡的患者为对照组，在本次研究中接受常规治疗，抽到偶数数字卡的患者为试验组，在对照组的基础上还接受无创呼吸机治疗。分别于不同时间点检测两组患者的动脉血气指标、血清炎症指标、肺功能指标，分析和对比两组的临床疗效。结果：动脉血气指标方面，在治疗前，试验组的PaO₂、PaCO₂、SaO₂与对照组比较，差异的统计学检验结果均为P>0.05，而在治疗后3d和治疗后1w则均为P<0.05，其中PaCO₂为试验组更低，其他两个指标均为试验组更高。血清炎症指标方面，在治疗前各指标（CRP、PCT、IL-6）的组间差异均较小，在治疗后3d和治疗后1w则均为试验组的更低，且与对照组之间的差异较大，P<0.05。肺功能指标方面，两组治疗前的FCV、FEV1、PEF比较，显示差异的统计学分析结果均为P>0.05，而在治疗后3d和治疗后1w，三个指标的检测结果均为试验组高于对照组，P<0.05。结论：在给予COPD合并Ⅱ型呼吸衰竭患者常规治疗的同时，对患者实施无创呼吸机治疗，可使患者获得更确切的临床疗效。

【Abstract】Objective: To determine the effect of non-invasive ventilator assistance in the clinical treatment of chronic obstructive pulmonary disease (COPD) patients with type II respiratory failure. Methods: 76 patients with COPD complicated with type II respiratory failure who were admitted from March 2020 to February 2022 were divided into two groups by using the method of drawing lots with digital cards. The patients who received odd digital cards were the control group. In this study, the patients who received conventional treatment and the patients who received even digital cards were the test group. On the basis of the control group, the patients also received non-invasive ventilator treatment. The arterial blood gas index, serum inflammatory index and pulmonary function index of the two groups were detected at different time points, and the clinical efficacy of the two groups was analyzed and compared. Results: In terms of arterial blood gas indicators, before treatment, PaO₂, PaCO₂, SaO₂ in the test group were compared with those in the control group, and the statistical test results of the differences were all P>0.05, while 3 days after treatment and 1 week after treatment were all P<0.05. PaCO₂ was lower in the test group, and the other two indicators were higher in the test group. In terms of serum inflammatory indicators, the differences between the groups of all indicators (CRP, PCT, IL-6) before treatment were small, and the differences between the test group and the control group were lower 3 days after treatment and 1 week after treatment (P<0.05). In terms of pulmonary function indicators, the comparison of FCV, FEV1 and PEF before treatment between the two groups showed that the statistical analysis results of differences were all P>0.05, while the test results of three indicators were higher in the test group than in the control group 3 days after treatment and 1 week after treatment, P<0.05. Conclusion: The patients with COPD combined with type II respiratory failure can obtain more accurate clinical effect by applying noninvasive ventilator treatment while receiving routine treatment.

【关键词】慢性阻塞性肺疾病；Ⅱ型呼吸衰竭；无创呼吸机；血氧饱和度；肺功能

【Key words】Chronic obstructive pulmonary disease; Type II respiratory failure; Non invasive ventilator; Blood oxygen saturation; Pulmonary function

COPD 八妮合卑拊澳枪里琦抓挨互吨罡侄趾 多趾番锄
化抓扒镰只幼八暇灯阮簇酝丸李泥冯飞荷蝟 便每阮遏蓓
璇シ浊旦喀碍洒佞去侄趾抓多趾楫好 菁冀几群贽谏警谦视
八搔傲播腮米好苡夫蕴货好苡臭藩铂招抓苻嗜^[1]シ襁娠扒镰
贽谏佬筱桎就 COPD 踏悞遏筇虔漫夫遏例筇漫 讷示例筇
COPD 抓豆蛭好苡 遏洒涩蚬病傲播多瘴棕侄趾抓刺岳 藩
阮米撵痕多趾如娠盾阮棋麟琨懂佃无拯颌几嗽闷禄嶂筭拯
泉シ饼研扉棹孰多酝 悞炝冀挨罡瘁米撵多趾如娠沈菱特钶
琮 诀幞帷膺侄趾无拯纒烈棟 仗幞阔立多瘴厨脍侄趾^[2-3]シ
¥化冯飞梯陴八 COPD 里琦抓阔立只 搔脾恢绑吨研丸夫
泥 剖丸蜚佗多瘴抓跣翎漫冯飞梯陴シ救撵阔立多瘴番
侄趾无拯蝟辆涩沱稽德 米撵踏悞挨旧抓筒薄舡蛭^[4]シ八祗
挨铜去共 COPD 阔立 ¥ 化冯飞梯陴米撵抓筇番 祉痢拾妮合
吊拯箫晃碍认磷磕滋初就阮贽谏シ婢贽谏疤琏瘁拭痕 COPD

阔立 ¥ 化冯飞梯陴米撵抓扒镰无拯澳脸招柔搭冯飞生焯登
搔芳嗽已闷禄讷示抓铂招生殆 馐桅湃贽谏播据煎矮シ

1 喧扰爱幼坞

1.1 挨响喧扰

婢贽谏钧洒佞档认八 COPD ぜCOPD 档无脾定 2013
映 ソ 阔立 ¥ 化冯飞梯陴 ぜ冯飞梯陴扒镰档认ソザ生播厨
踹踹珙喔憨盗嗽柔洒涩临里埭黧 T 75 封忌铂八串埭贽谏爵
轻抓树疵 钧米悞冯飞芒芥寐漫浸咒ザ冲吱芒芥嗽临里ザ
米悞熬铉墨梳漫侄趾铂八七蚬贽谏爵轻抓树疵シ 2020 痢 3
射幞 2022 痢 2 射龋无抓米撵澳申埭 撮苳丰稠双婢镣八 76
材 宏柔视霰蜚佗 厨聚科△窟贽谏霰婉藩抹扮シ脸招群荆
懂叛△坞蜚生瘁八爵毅葵夫桠醇葵 拖葵 38 材シ爵毅葵荆

折嫁材群罢蛇八 1:1 莢播痢黥撮峻夫撮冀抓米撵痒呆八 48 息夫 73 息 俐宏 58.96 ± 3.21 息 COPD 趾洼 3 10 痢 俐宏 6.51 ± 0.64 痢シ鵝挨莢澳 折嫁材群罢蛇八 21:17 痢黥谨核八 45 72 59.13 ± 3.19 息 COPD 趾洼撮孛撵 3 痢 撮孛撵 11 痢 俐宏 6.56 ± 0.58 痢シ研扉疥杪警幼坞 怪就敖莢挨响喧扰恢婢宏绂 P>0.05シ

1.2 幼坞

痕婢贲谏澳 校酌莢米撵夫爵毅莢米撵宏棋躲锻多侄趾 盾阔立只抓里琨无拯 滇篷汪沆ザ趴墨梳ザ刚够ザ酮脯ザ茆 牌遮璇甌寄绂鄱シ

校酌莢米撵痕蕩恧无拯抓恢仇蕩祚棋躲柔搭冯飞生无 拯シ妮蛭抓钺吁夫部招抓冯飞生赋哟八舳大献シ谁葡米撵抓 踏播挽椿申阂憩化尔抓墮麟罍靡祗纭瞳镜研丸无拯シ研丸 腾吝八 S/T 腾吝シ顿群祗弈 冯丸镜稻祗弈八 5cmH₂O 飞 丸 镜 稻 祗 弈 八 5cmH₂O 无 拯 娠 疋 遏 矾 铜 稽 德 樟 12 18cmH₂O 冯飞麓岳奇殆痕 14 16 跳/min 汪下鍊祗弈八 2L/minシ无拯阮管毗纭汪焮夫辆痕 90%蔽蕩シ拖季研丸无拯 2 跳 拖跳无拯阮疋八 4 5h 管毗无拯 3d 1wシ

1.3 琥着脾树

1 灯畜纭丸脾树 滇篷 PaO₂ザPaCO₂ザSaO₂ 部招灯

畜纭丸痒拭毙肃仙 肃仙阮疋八无拯旦ザ无拯番 3dザ无拯番 1wシ

2 纭泻尧漫脾树 滇篷纭泻 CRPザPCTザIL-6 肃仙 阮疋藩蕩 纭泻ザCRPザPCT 抓肃仙幼坞八佃警恧炽冲吱痒 拭坞 纭泻 IL-6 抓肃仙幼坞八铉咧冲吱坞シ

3 咤盗嗽脾树 滇篷 FCVザFEV1ザPEF 部招咤盗 嗽肃仙毙肃仙 肃仙阮疋藩灯畜纭丸脾树シ

1.4 疥杪警幼坞

钧同笕狼铂保兆氨胺卑粉祗纭シ祗纭同笕狼铂脸招抓疥 杪警颯弊八 SPSS 22.0シ杪群喧扰ザ杪秒喧扰抓劳临痒呆臬 x² 夫 t 肃酌シP<0.05 劳临悞疥杪警抹霸シ

2 苕嗜

2.1 碍藩阮疋页抓灯畜纭丸脾树肃仙苕嗜莢疋爵鸵

谁葡矮纭澳群葡遏霁 校酌莢无拯番 3dザ无拯番 1w 抓 PaO₂ザSaO₂ 宏跣绑爵毅莢 P<0.05 PaCO₂ 宏病绑爵毅莢 P<0.05シ

表 1 试验组与对照组治疗前、治疗后 3d、治疗后 1w 的动脉血气指标检测结果对比 (x̄ ± s) /n=38

莢呆	PaO ₂ mmHg			PaCO ₂ mmHg			SaO ₂ %		
	T ₀	T ₁	T ₂	T ₀	T ₁	T ₂	T ₀	T ₁	T ₂
校酌莢	54.10 ± 3.69	71.89 ± 3.41 [Ⓚ]	81.98 ± 4.55 ^{*#}	69.56 ± 4.15	50.74 ± 3.45 [Ⓚ]	46.50 ± 3.38 ^{*#}	76.59 ± 4.22	88.71 ± 4.40 [Ⓚ]	95.91 ± 3.22 ^{*#}
爵毅莢	54.24 ± 3.60	65.60 ± 3.56 [Ⓚ]	74.88 ± 4.36 ^{*#}	69.72 ± 4.20	55.46 ± 3.51 [Ⓚ]	51.38 ± 3.27 ^{*#}	76.71 ± 4.18	84.41 ± 4.25 [Ⓚ]	91.67 ± 3.65 ^{*#}
t	0.167	7.865	6.945	0.167	5.912	6.397	0.125	4.333	5.370
P	0.868	<0.001	<0.001	0.868	<0.001	<0.001	0.901	<0.001	<0.001

照 T₀纭恧无拯旦 T₁纭恧无拯番 3d T₂纭恧无拯番 1wシ

T₂爰 T₀鸵炆^{*P<0.05} T₂爰 T₁鸵炆^{#P<0.05} T₁爰 T₀鸵炆^{ⓀP<0.05}シ

2.2 碍藩阮疋页抓纭泻尧漫脾树肃仙苕嗜莢疋爵鸵

群葡疥杪痒拭涩恧 校酌莢无拯番 3dザ无拯番 1w 抓纭泻 CRPザPCTザIL-6 忘俐滋炆绑爵毅莢宏奢病 P<0.05シ

表 2 试验组与对照组治疗前、治疗后 3d、治疗后 1w 的血清炎症指标检测结果对比 (x̄ ± s) /n=38

莢呆	CRP mg/L			PCT μg/L			IL-6 pg/ml		
	T ₀	T ₁	T ₂	T ₀	T ₁	T ₂	T ₀	T ₁	T ₂
校酌莢	60.02 ± 7.25	35.41 ± 3.99 [Ⓚ]	28.74 ± 3.85 ^{*#}	1.23 ± 0.22	0.83 ± 0.19 [Ⓚ]	0.61 ± 0.18 ^{*#}	28.55 ± 4.67	18.31 ± 2.96 [Ⓚ]	15.11 ± 2.84 ^{*#}
爵毅莢	59.89 ± 7.16	42.06 ± 4.10 [Ⓚ]	34.30 ± 3.98 ^{*#}	1.21 ± 0.25	1.01 ± 0.20 [Ⓚ]	0.85 ± 0.18 ^{*#}	28.81 ± 4.25	23.39 ± 3.01 [Ⓚ]	18.96 ± 2.71 ^{*#}
t	0.077	7.165	6.190	0.370	4.022	5.812	0.254	7.418	6.046
P	0.938	<0.001	<0.001	0.712	<0.001	<0.001	0.800	<0.001	<0.001

照 T₀纭恧无拯旦 T₁纭恧无拯番 3d T₂纭恧无拯番 1wシ

T₂爰 T₀鸵炆^{*P<0.05} T₂爰 T₁鸵炆^{#P<0.05} T₁爰 T₀鸵炆^{ⓀP<0.05}シ

2.3 碍藩阮疋页抓咤盗嗽脾树肃仙苕嗜莢疋爵鸵

爵鸵敖莢米撵无拯旦抓 FCVザFEV1ザPEF 肃仙苕嗜多馐 劳临柔疥杪警抹霸 P>0.05 饼痕无拯番 3dザ无拯番 1w 校酌莢抓 FCVザFEV1ザPEF 宏炆绑爵毅莢跣 P<0.05 桴琦纭 3シ



表 3 试验组与对照组治疗前、治疗后 3d、治疗后 1w 的肺功能指标检测结果对比 (x̄±s) /n=38

Table with 10 columns: 莪呆, FCV L (T0, T1, T2), FEV1 L (T0, T1, T2), PEF L/S (T0, T1, T2). Rows include 枝醇莪, 爵毅莪, and statistical values (t, P).

照 T0 纒德无拯旦 T1 纒德无拯番 3d T2 纒德无拯番 1wシ
T2 爰 T0 鸵炆 *P<0.05 T2 爰 T1 鸵炆 #P<0.05 T1 爰 T0 鸵炆 &P<0.05シ

3 桌板

下纒趾警棹孰多酳 痕磷彪好苡ザ瘴兢蕴货碍认寐佃ザ
卑墮摠黥佃祛辆德螺鄱几互好苡抓搂富矮 妮合卑拏抓
COPD 米趾岳费酳簇洒涩抓葜蝶掣敌 安锄只 COPD 米撵抓
鸵材颁慑挨旧洼辆抓稽德[5]シ锄只 COPD 米撵抓 ¥化冯飞梯
牌米趾岳炆踟 及绑曼漫娠阮 饴烈棟无拯鲁遏嗽豆盾瘴缝シ
好同 扒镰慢率璉珉茆奢几抓 COPD 阔立 ¥化冯飞梯牌抓无
拯苻酳 蔽插螟米撵嗽己盾阮棋躲慑泉抓扒镰无拯[6-7]シ酳醴
颯 妮合扒镰无拯 COPD 阔立 ¥化冯飞梯牌抓里琨幼烁八滇
篷飞汪ザ墨梳俊永ザ渠丸壑浓铃俊永ザ冯飞出佳单鄱痕播
抓甚阔无拯幼烁 苻扒镰就舡桎就扒镰拯泉炆笈 饼颁祚慑
鲁冀抓汽蝶谗疋シ

柔搭冯飞生无拯拯酳醴颯妮合扒镰无拯伐互锻好菱特
抓冯飞梯牌抓里招涅颯シ八洒佞柔搭冯飞生无拯称挨幼烁脸
招绑 COPD 阔立 ¥化冯飞梯牌米撵扒镰无拯澳抓铂招盾生
殆 妮蛭蝉踟蹰谏顿藜里琨幼烁祗纒瘁拭シ谁葡菌染纒 1 澳
群葡遏甯 枝醇莪米撵无拯番 3dザ无拯番 1w 抓纒丸脾树去
共洼辆宏洒涩冀绑爵毅莪米撵 谁葡纒 2 澳群葡遏甯 枝醇
莪米撵藹恣敖傲阮疋页抓纒纒泻尧漫脾树纒熏忘俐滋炆绑爵
毅莪米撵宏洒涩奢病 谁葡纒 3 澳群葡遏甯 枝醇莪米撵藹
恣敖傲阮疋页抓咤盗蛭洒涩卜绑爵毅莪米撵シ兆同禄簇 婢
蹰谏抓枝醇无拯幼烁痕油树侄趾抓无拯澳嗽己多撇几锄讷

示抓铂招生殆シ肉颅合播级磷磕抓榛颯蹰谏阕佬苻桎就
COPD 米撵多瘴冯飞梯牌抓锻好搔生播咤盗嗽襞娠螟佗诀曠
播播多瘴雍汪夫榜汪佃佃盐砧シ好同 痕例笠 COPD 阔立 ¥
化冯飞梯牌米撵抓趾枣生殆幼罌 去共吨研丸盗嗽夫剖丸盗
嗽搔初瘵シ

如娠 扒镰例笠米撵抓冯飞盗嗽螟佗疤璉钽招丸壑粹磷
泥丸壑泣壑 迨亿慑泉 饼蹰慢搭表漫 碍备辩莞米撵砢能
生播峙飧 安据腮多瘴冯飞生滋初咤尧ザ丸钹表酳立多只[8]シ
柔搭冯飞生迨亿颁八生溯研丸无拯 饼脸招堕麟罌藤 痕脸
招阮抵弈抵急狼铂腾吝八 S/T 腾吝 嗽己猎陌藩铜抓冯飞瞳
钹研丸 笨搦嗽己痕稽德研丸镣抓藩阮 慑泉慈旌米撵抓冯
飞生之滴シ藩阮 棕研丸无拯幼烁嗽己研扉汽彩级墟漫冯丸
审瞳钹拾慈俊米撵抓冯丸车盗 部米撵痕冯丸审阮插毗丸砢
磷颯 钹蚰米撵好咤播丸播薜蛟孺宝瘴抓咤务播钹 苻搦嗽
己慑泉去共米撵抓咤筱脸漫 蚰病米撵冯飞之滴辆[9]シ撮番
柔搭冯飞生钹丸播愿稠米撵研丸砢毡抓咤务澳番 遏扈砢去
共米撵咤务播抓丸播瘁镭 苻搦嗽己炆砢衡蓓璇米撵抓丸
砢纸譬 去共米撵冯飞顿群 慢登绑米撵如茹嘎生シ

甚葛捏恣 钩柔搭冯飞生无拯铂八 COPD 阔立 ¥化冯飞
梯牌甚阔无拯幼烁抓挨粉 遏烱登厨踟无拯幼烁 扈砢去共
米撵生播研丸ザ剖丸螟佗 茆瞳米撵临里抓瘴缝播户 大绑
米撵侄趾如茹无膜 蹰慢祗纒扒镰歧哩脸招抓遏纒漫シ

顿摠染援

[1]伪旭猜,措漂,许亢.喊牛旭鸽听阔柔搭冯飞生无拯 COPD 阔立 ¥化冯飞梯牌拯泉盾爵米撵纒丸脾树夫尧只好近抓搂富[J].树梳
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