

吸入性损伤行气管切开患者持续气道湿化的效果观察

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摘要 目的 探讨吸入性损伤行气管切开患者持续气道湿化的效果。方法 将 60 例吸入性损伤行气管切开患者随机分为实验组 30 例,采用微量注射泵持续滴入气道湿化液。对照组 30 例,采用传统的气道内定时、间断注射器滴入湿化法,对比两种方法痰痂形成、气道粘膜出血、刺激性咳嗽及肺部感染并发症。结果 持续气道湿化患者痰痂形成、刺激性咳嗽明显低于间断气道湿化法,差异有统计学意义($P < 0.01$);气道粘膜出血、肺部感染并发症也低于间断气道湿化法,差异有统计学意义($P < 0.05$)。结论 吸入性损伤行气管切开患者持续气道湿化效果好,可以降低患者肺部感染率及相应的气道并发症。

关键词 :吸入性损伤 ;气管切开术 ;气道湿化

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Effect of Continuous Humidification on Respiratory Complication in Inhalation Injury Patients with Tracheotomy

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ABSTRACT Objective: To investigate the effect of continuous airway humidification on respiratory complication in inhalation injury patients with tracheotomy. **Methods:** 60 cases of inhalation injury patients with tracheotomy were randomly divided into the control group and the experimental group, with 30 cases in each group. The experimental group was given continuous airway humidification with infusion pump, and control group was given airway injection intermittently. Then the respiratory complication of the two groups including formation of sputum callus, irritable cough, respiratory mucosal bleeding and pulmonary infection, were compared. **Results:** The incidence of formation of sputum callus and irritable cough respiratory in the experimental group were significantly fewer than in control group ($P < 0.01$). The incidence of mucosal bleeding and pulmonary infection in the experimental group was also lower than in control group ($P < 0.05$). **Conclusion:** Continuous airway humidification significantly reduce the incidence rate of respiratory complications in the inhalation injury with tracheotomy.

Key words: Inhalation injury; Tracheotomy; Airway humidification

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前言

烧伤合并吸入性损伤病死率较高,中重度吸入性损伤应尽早行气管切开^[1]。气管切开后,使上呼吸道丧失了对吸入气体加温、加湿功能,易引起气管粘膜干燥,分泌物粘稠,形成痰栓,从而导致粘膜纤毛摆动受损,粘液分泌物潴留,严重者可发生气管梗阻,同时,细菌也易浸润气管粘膜,导致肺部感染、肺不张等^[2]。而烧伤病房温度高,使患者呼吸道水分蒸发和丢失加快,分泌物粘稠度增加,排出困难,容易造成痰液堵塞。自 2009 年我科对吸入性损伤行气管切开患者采用微量注射泵持续气道湿化,取得良好效果,现报道如下。

1 资料与方法

1.1 临床资料

本文回顾了 2009 年 6 月--2010 年 8 月我科收治的吸入性

损伤行气管切开患者 60 例,男 43 例,女 17 例。年龄 23-65 岁,平均 41.2 ± 10.6 岁。其中实验组 30 例,采用微量注射泵持续滴入气道湿化液,对照组 30 例,采用传统的气道内定时、间断注射器滴入湿化法。两组性别、年龄、病情方面差异无统计学意义($P > 0.05$)。

1.2 方法

两组病例采用的气道湿化液为 0.45 % 的氯化钠注射液 + 沐舒坦 30mg 作为湿化液。同时给予氧气雾化吸入,雾化液用 0.45 % 的氯化钠加沐舒坦 15 mg、庆大霉素 8 万 U 配制,每 4 h 一次,每次 15~20 min。其它治疗方案和护理措施无明显差异。

①实验组 采用持续气道湿化法。用 50 ml 注射器抽取湿化液连接好延长管和 5 号头皮针,减去头皮针针头的硅胶管放入气管内 2-3 cm,用胶布固定,以 9-15 ml/h 持续均匀的向气管套管内滴入湿化液持续湿化。

②对照组 采用间断气道湿化法。用 5 ml 注射器抽取湿化液 2-3 ml,脱去针头,将湿化液沿气管套管壁缓慢注入,每 30 分推注一次。也可根据患者的痰液粘稠程度调整湿化的液量和间断时间。

1.3 观察指标^[3]

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①刺激性咳嗽:在吸痰过程中发生连续性咳嗽。②痰痂形成:吸痰时吸痰管内有微小痰痂,吸痰时吸痰管壁粘有痰痂,用棉签擦拭气管套管内腔后,消毒棉签上有粘痰痂。有上述其中之一即判断痰痂形成。③气道出血:在吸痰时发现痰中带血丝或吸出血性痰。④肺部感染:经常听诊肺部是否有痰鸣音、罗音,观察痰液的性质、量、颜色及体温变化,必要时送检培养。

1.4 统计学处理

采用 SPSS 13.0 统计软件包进行数据统计和分析,计量

资料采用 t 检验,计数资料采用 χ^2 检验,以 $P<0.05$ 为差异有统计学意义。

2 结果

两组气道湿化效果的比较见表 1。结果显示实验组在刺激性咳嗽、痰痂形成、气道出血及呼吸道感染并发症明显优于对照组,差异有统计学意义。

表 1 两种气道湿化方法的并发症发生率比较(n,%)

Table 1 Incidence of respiratory complication in the control group and the experimental group

组别 Groups	例数 The number of cases	刺激性咳嗽 Irritable cough	痰痂形成 Sputum callus	气道粘膜出血 Respiratory mucosal bleeding	肺部感染 Pulmonary infection
观察组 Experimental group	30	6(20.0) [△]	2(6.7) [△]	3(10.0) ^{△△}	2(6.7) ^{△△}
对照组 Control group	30	20(66.7)	8(26.7)	11(36.7)	5(16.7)

Note: Compared with control group, [△] $P<0.01$, ^{△△} $P<0.05$.

3 讨论

3.1 吸入性损伤患者气管切开后加强气道湿化的意义

正常时鼻、咽腔、呼吸道对吸入气体有加温和湿化作用,气管切开后,吸入气体未经上呼吸道湿化而直接进入下呼吸道,导致呼吸道黏膜干燥,发生率可高达 30%~66%^[4],可造成:①粘液纤毛系统损伤,使其清除异物的能力大大减低;②引起呼吸道炎症,可使呼吸道粘膜糜烂、溃疡,导致细菌感染^[5]。肺部感染率随气道湿化程度的降低而升高,呼吸道湿化是保证气道通畅的重要环节^[6]。烧伤患者由于创面治疗的特殊性,创面需要在持续的烧伤辐射治疗仪的作用下保持一个干燥温暖的环境。烧伤患者气管切开后,每天经呼吸道丢失的水分远大于非烧伤气管切开的患者,气管粘膜干燥加重,极易形成套管内环形痰痂。有资料表明,持续吸入干燥空气 3~5 h 后,气道可被粘稠的分泌物堵塞易产生局限性肺萎缩或肺不张,导致肺部感染^[7]。

3.2 湿化液的选择

我们采用的气道湿化液为 0.45% 的氯化钠注射液 + 沐舒坦 30mg 作为湿化液。国外有研究表明,作为等渗的生理盐水不能与分泌物混合,对稀释、溶解痰液是无效的,气道滴注生理盐水还会引起患者呛咳,同时盐水有可能到达肺部引起肺部感染^[8-10]。因此不主张应用等渗盐水进行气道湿化,建议使用 0.45% 的氯化钠注射液作为湿化液^[11]。盐酸氨溴索为粘液溶解剂^[12],能增加呼吸道粘膜浆液腺的分泌,减少粘液腺分泌,从而降低痰液粘度。还可促进肺表面活性物质的分泌,增加支气管纤毛运动,使痰液易于咳出^[13]。

3.3 持续气道湿化与间断气道湿化的比较

本研究结果与文献报道的持续气道湿化可以减少肺部感染、痰痂、气道粘膜出血和刺激性咳嗽的发生,其气道湿化效果优于间断气道湿化法一致^[14-15]。李娟^[16]报道,在持续气道湿化组刺激性咳嗽发生率为 0,为吸痰和湿化创造了条件,有利于痰

液稀释和排除。胡艳宁等^[17]临床研究表明持续微泵推注湿化液减低了气管的局部刺激作用和痰液粘稠度,使痰液更易吸出,减少了反复吸引对气管黏膜的损伤,分泌物引流通畅,减少了下呼吸道感染的机会。在烧伤 ICU 病房,护士由于繁忙的护理工作而容易疏忽对患者气道湿化效果的动态评估,湿化达不到效果而造成痰痂堵塞气管套管时有发生。间断气道湿化一次气道滴药量大,易引起患者刺激性咳嗽、心率加快、血氧饱和度下降等,且刺激性咳嗽时将湿化液咳出会影响湿化效果,不仅给患者增加痛苦,同时也增加了护士工作量。而微量注射泵持续湿化准确度高,能够持续稳定保持气道湿润,使痰液粘稠度降低,痰液稀薄,不易形成痰痂,痰液容易吸出,缩短每次吸痰的时间,减轻了吸痰对呼吸道的刺激和呼吸道粘膜损伤,减少因反复滴注或推注湿化液而引起的污染^[18]。采用微量泵控制气道湿化液对气道刺激性小,在使用过程中患者无不适感,同时也减轻了护士工作量。

3.4 加强气道湿化的观察与护理

在气道湿化的过程中,护士应密切观察患者的生命体征变化,护士可以根据观察患者痰液性质、血氧饱和度及呼吸情况来判断湿化效果。观察痰液的情况,如痰液稀薄能否顺利吸出,则湿化效果满意;如痰液过度稀薄,需不断吸引,则湿化过度,要及时调慢滴速;如痰液黏稠,不易吸出或咳出,则湿化不足,需加大湿化量^[19]。这样湿化更准确,更安全。开始持续湿化时要先调好滴速,再把软管放入气管套内,防止滴速突然加快,大量湿化液进入气管内引起刺激性咳嗽导致窒息。对心、肺、肾功能不全、水钠潴留患者及婴幼儿,应严格控制湿化量,以防肺水肿或水中毒的发生^[20]。

综上所述,吸入性损伤行气管切开的患者利用微量泵持续滴入持续气道湿化的方法较间断气道湿化效果好,能有效地减少气管切开后相关并发症,提高了护理质量,值得在临床推广应用。

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