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· 论 著 ·

急性脑卒中后发生肺炎的危险因素分析

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摘 要: **目的** 分析急性脑卒中后并发肺炎的危险因素。**方法** 分析 340 例急性脑卒中患者的临床资料, 评估脑卒中后发生肺炎的危险因素, 包括人口学因素、高血压病史、糖尿病史、吸烟史、入院时的体温和血压、空腹血糖、C-反应蛋白、神经功能缺损程度评分(NIHSS)、吞咽功能和辅助机械通气(MV)等情况, 分析肺炎评分与肺炎的关系。**结果** 340 例患者中并发肺炎 63 例(18.5%)。多变量Logistic回归分析提示年龄、性别、入院时 NIHSS、MV 和吞咽困难是急性脑卒中后发生肺炎的独立危险因素($P < 0.05$)。肺炎的发生率随肺炎评分的增加而逐渐增高。**结论** 脑卒中后肺炎的发生与老年、男性、吞咽困难、MV 和 NIHSS 有关, 肺炎评分可以用来评估脑卒中后肺炎发生的风险性。

关键词: 急性脑卒中; 肺炎; 危险因素; 神经功能缺损程度评分; 肺炎评分

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Risk factors for pneumonia in patients with acute stroke

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Abstract: **Objective** To assess the risk factors for pneumonia in patients with acute stroke. **Methods** Three hundred and forty patients with acute stroke were studied, and risk factors for pneumonia such as demographics, history of hypertension, diabetes and smoking, initial blood pressure, body temperature, fasting plasma glucose level, C-reactive protein, National Institutes of Health Stroke Scale (NIHSS) scores, degree of dysphagia and mechanical ventilation were evaluated. Besides, the correlation between incidence of pneumonia and pneumonia scores in patients with acute stroke was studied. **Results** Pneumonia was developed in 63 patients (18.5%). Logistic regression analysis revealed that age, gender, initial NIHSS scores, dysphagia and mechanical ventilation were independent predictors for pneumonia ($P < 0.05$). The incidence of pneumonia gradually increased with the pneumonia scores. **Conclusion** The occurrence of pneumonia after acute stroke is associated with older age, male gender, high NIHSS scores, dysphagia and mechanical ventilation. The pneumonia scores can be adopted to identify the risks of pneumonia after acute stroke.

Key words: acute stroke; pneumonia; risk factor; NIHSS; pneumonia score

约 13% 的脑卒中患者在住院期间发生肺炎, 而 35% 的急性脑卒中患者的死亡原因是肺炎, 并发肺炎的脑卒中存活者的病死率是无肺炎者的 3 倍^[1]。一项研究^[2]发现, 肺炎增加脑卒中 30 d 的死亡风险。因此, 对脑卒中患者的肺炎风险进行评估是十分必要的, 但目前国内却缺少相关研究, 特别是缺乏可靠的评价标准。Kwon 等^[2]制定了早期评估脑卒中后肺炎发生风险的肺炎评分量表, 并经临床验证有良好的指导意义。本研究前瞻性观察了急性脑卒中患者, 评价脑卒中后肺炎发生的危险因素, 并验证肺炎评分的可行性。

1 资料与方法

1.1 临床资料 收集 2008 年 1 月—2008 年 10 月在上海交通大学医学院附属仁济医院神经内科住院的 340 例急性脑卒中患者资料, 包括脑出血和脑梗死。排除短暂性脑缺血性发作、蛛网膜下腔出血、入院前有肺部感染、发病时间和入院时间相差 > 7 d 的患者。肺炎的诊断标准: ①肺部听诊呼吸音粗或有啰音, 并且体温 ≥ 37.7 °C; ②肺部摄片有阳性发现; ③痰培养有阳性发现。以上三项中有一项符合即考虑肺炎的诊断^[3]。

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1.2 观察内容 观察并记录患者的有关脑卒中危险因素,包括年龄、性别、高血压病史、糖尿病史、吸烟史(戒烟标准为入院前至少戒烟 ≥ 5 年)、入院时血压和体温、空腹血糖、C-反应蛋白(C-reaction protein,CRP)和入院时脑卒中的严重程度。脑卒中的严重程度采用神经功能缺损程度评分(NIHSS),按病情严重程度分为轻-中度(NIHSS为1~10)和重度(NIHSS ≥ 11)。通过饮水试验评估患者的吞咽功能,并记录住院期间是否使用过辅助机械通气(mechanical ventilation,MV)。观察所有患者入院后肺炎的发生情况,随访至患者出院。

1.3 肺炎评分 参照2006年Kwon等^[2]设计制定的肺炎评分量表,来评估脑卒中患者肺炎发生与肺炎评分的关系。总分0~5分,将NIHSS ≥ 11 、年龄 ≥ 65 岁、男性、使用MV及有吞咽困难者分别设定为1分,而NIHSS < 10 、年龄 < 65 岁、女性、未用MV及无吞咽困难者分别设定为0分(表1)。

表1 肺炎评分量表

Tab 1 Pneumonia score scales

Item	Score
NIHSS	
≥ 11	1
0-10	0
Age	
≥ 65 years	1
< 65 years	0
Gender	
Male	1
Female	0
MV	
Yes	1
No	0
Dysphagia	
Yes	1
No	0
Total	0-5

1.4 统计学方法 采用SPSS 13.0统计软件进行分析,连续变量用 t 检验,分类资料用 χ^2 检验。用单因素和多因素Logistic回归分析肺炎的危险因素,相对危险度用95%的可信区间统计。 $P < 0.05$ 表示差异有统计学意义。

2 结果

2.1 脑卒中危险因素的分析 340例患者平均年龄(68.8 ± 11.5)岁,平均发病时间(2.1 ± 1.7)d,平均住院日(15.6 ± 7.2)d;其中脑梗死239例(70.3%)、脑出血101例(29.7%)。住院期间63例(18.5%)

患者并发肺炎,其中脑梗死患者44例(18.4%)、脑出血患者19例(18.8%),两组间差异无统计学意义($P > 0.05$)(表2)。

表2 340例伴或不伴肺炎脑卒中患者的危险因素比较

Tab 2 Risk factors between patients with pneumonia and without pneumonia in 340 patients with stroke

Item	Without pneumonia (n = 277)	Pneumonia (n = 63)
Age (years)	67.7 ± 11.2	75.5 ± 9.1
Male (%)	159 (57.4%)	49 (77.8%)
Hypertension (%)	218 (78.7%)	53 (84.1%)
Diabetes (%)	110 (39.7%)	24 (38.1%)
Smoking (%)	94 (33.9%)	20 (31.7%)
NIHSS	5.0 ± 4.2	12.7 ± 5.3
Systolic blood pressure (mmHg)	151 ± 24	148 ± 21
Diastolic blood pressure (mmHg)	86 ± 14	87 ± 13
Temperature (°C)	36.8 ± 0.4	36.9 ± 0.4
Glucose (mmol/L)	6.5 ± 2.3	6.6 ± 2.2
CRP (mg/L)	8.9 ± 15.8	23.8 ± 27.8
MV (%)	3 (1.1%)	21 (33.3%)
Dysphagia (%)	11 (4.0%)	32 (50.8%)
Hospital stay (d)	14.4 ± 5.8	21.1 ± 10

以上危险因素通过单变量统计分析显示,患者年龄、男性、入院时NIHSS评分、CRP、MV和吞咽困难6个因素是发生肺炎的危险因素($P < 0.05$)。用此6个危险因素作多变量Logistic回归分析发现,年龄、男性、入院NIHSS评分、MV和吞咽困难是急性脑卒中后发生肺炎的独立危险因素(表3)。

表3 脑卒中后伴发肺炎的危险因素分析

Tab 3 Risk factor analysis of pneumonia after stroke

Item	Univariate analysis		Multivariate analysis		
	P	95% CI	P	OR	95% CI
Age (years)	0.000	3.63-9.75	0.003	1.06	1.02-1.10
Male	0.003	1.37-4.93	0.010	3.39	1.34-8.54
Hypertension	0.22	0.69-2.99			
Diabetes	0.47	0.53-1.64			
Smoking	0.43	0.50-1.62			
NIHSS	0.000	6.51-8.95	0.000	1.23	1.14-1.33
SBP	0.47	-8.80-4.07			
DBP	0.66	-3.02-4.67			
Temperature	0.67	-0.08-0.13			
Glucose	0.86	-0.56-0.67			
CRP	0.000	9.90-20.10	0.130	1.01	0.99-1.03
MV	0.000	13.05-159.80	0.043	5.22	1.05-25.87
Dysphagia	0.000	11.45-54.43	0.007	4.23	1.49-11.99

SBP: systolic blood pressure; DBP: diastolic blood pressure

2.2 肺炎评分观察 从表4中发现,肺炎评分0分的患者无一例合并肺炎,随着肺炎评分的增加,肺炎

的发生率逐渐增高,评分5分的患者仅1例无合并肺炎。

表4 340例卒中患者肺炎发生与肺炎评分的关系(n,%)

Tab 4 Pneumonia score and incidence of pneumonia in 340 patients with stroke(n,%)

Pneumonia score	No pneumonia (N=277)	Pneumonia (N=63)
0	28(10.1)	0(0)
1	152(54.9)	4(6.3)
2	78(28.2)	16(25.4)
3	16(5.8)	16(25.4)
4	2(0.7)	15(23.8)
5	1(0.4)	12(19.0)

3 讨论

脑卒中后肺炎是急性脑卒中患者最常见的并发症之一,肺炎的发生率约在2%~27%^[4-6],严重地影响了患者的预后。对日本156家医院16 922例缺血性脑卒中或短暂性脑缺血发作(TIA)患者的研究^[7]发现,1年累积病死率为6.8%,死因中肺炎占22.6%,仅次于脑血管病本身(24.1%)。美国1991—1997年29家医院11 286例住院脑卒中患者中,发生肺炎635例(5.6%),脑卒中后合并肺炎者人均住院费用21 043美元,而未合并肺炎者仅为6 206美元,因脑卒中后肺炎每年需多花费4.59亿美元^[8]。因此,为了降低脑卒中的病死率、改善预后和减轻医疗负担,加强脑卒中后肺炎的研究和探索意义重大。

脑卒中后引起肺炎的原因很多,许多研究^[2,5,9-10]表明,NIHSS评分、吞咽困难、MV等因素可能是危险因素。本研究观察了年龄、性别、高血压病史、糖尿病史、吸烟史、入院时血压和体温、空腹血糖、CRP、NIHSS评分、吞咽功能、MV等因素与肺炎的关系,结果发现,年龄、男性、入院时NIHSS评分、MV和吞咽困难是急性脑卒中后发生肺炎的独立危险因素。用肺炎评分评估,发现肺炎的发生率随着肺炎评分的增加而逐渐增高。

年龄是脑卒中后肺炎的独立危险因素,体现在以下两方面:如果脑卒中部位和大小相同,老年患者较年轻患者的神经系统损伤会更严重;老年患者的全身状况不及年轻患者^[11]。男性作为脑卒中后肺炎的独立危险因素原因很多,较多的观察报道男性在外伤或手术后更易并发感染,而年轻女性的预后较好,可能与雌激素和孕激素的机体保护作用有关^[12-13]。另外,男性吸烟的比例远高于女性也是原

因之一。

脑卒中后吞咽困难会增加肺炎发生率、延长住院时间和影响预后。吞咽困难除造成误吸外,还会影响营养和水分的摄入,增加并发症的风险。以往的研究^[10,14]发现,气管内插管、长期MV都是脑卒中后肺炎的危险因素,本研究进一步证实此观点。

NIHSS作为肺炎发生的独立危险因素不难理解。本研究发现,NIHSS评分高的患者发生肺炎的概率更高,原因是NIHSS评分高者的病情重、意识障碍程度严重,加上长期卧床容易造成胃食管反流,从而促进了肺炎的发生。

简明的肺炎评估量表对疾病的临床评估有很重要的意义,但目前国内尚缺乏急性脑卒中后肺炎发生风险的评估量表。本研究通过多因素分析,发现年龄、男性、入院时NIHSS、MV和吞咽困难是急性脑卒中后发生肺炎的独立危险因素,并参照国外的肺炎评分方法来评估脑卒中后并发肺炎的危险性,从而认为肺炎评分表能简单、快速地评估急性脑卒中后肺炎发生的危险度,对临床医师早期判断脑卒中患者的预后具有重要价值和意义,值得进一步临床验证和推广。

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