

· 临床研究 ·

内科≥90岁住院患者死亡的影响因素分析

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【摘要】目的 对≥90岁内科住院患者的特点及影响患者住院期间死亡的因素进行分析。**方法** 回顾性分析2014年1月至12月北京友谊医院医疗保健中心内科≥90岁住院患者141例,根据住院期间死亡与否分为死亡组29例和未死亡组112例,比较2组患者基本情况、入院各项生化指标和入院时日常生活活动能力(ADL)巴氏指数(BI),对影响住院死亡的因素进行分析。采用SPSS 16.0统计软件对数据进行分析。组间比较采用 t 检验、秩和检验或 χ^2 检验。多因素logistic回归分析影响患者住院期间死亡的因素。**结果** 与死亡组相比,未死亡组患者急性或陈旧性心肌梗死(AMI/OMI)、心房颤动(AF)、贫血、低白蛋白血症和肿瘤患者比例高,差异具有统计学意义($P < 0.05$)。BI分值 $[(37.93 \pm 25.27) \text{ vs } (61.92 \pm 23.64)]$ 、血红蛋白(Hb) $[(110.11 \pm 20.79) \text{ vs } (120.59 \pm 16.83) \text{ g/L}]$ 和白蛋白(ALB) $[(35.42 \pm 4.67) \text{ vs } (38.35 \pm 4.25) \text{ g/L}]$ 水平更低,白细胞(WBC) $[(8.89 \pm 4.75) \times 10^9/\text{L} \text{ vs } (6.95 \pm 2.26) \times 10^9/\text{L}]$ 和超敏C-反应蛋白(hs-CRP) $[19.44(6.99, 40.77) \text{ vs } 5.18(1.27, 23.48) \text{ mg/L}]$ 水平更高,差异具有统计学意义($P < 0.05$)。Logistic回归分析结果表明重度和极重度失能($OR = 5.055, 95\% CI 1.961 \sim 13.026, P = 0.001$)、贫血($OR = 4.796, 95\% CI 1.795 \sim 12.813, P = 0.002$)和WBC($OR = 1.233, 95\% CI 1.046 \sim 1.455, P = 0.013$)水平为住院患者死亡的危险因素。**结论** ≥90岁内科住院患者入院后应积极改善日常生活能力,并积极纠正贫血状态。

【关键词】 老年人;死亡率;日常生活活动;贫血

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Influencing factors for in-hospital mortality of over-90-year-old patients in internal medicine department

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【Abstract】 Objective To analyze the characteristics of nonagenarian inpatients in internal medicine department and investigate the influencing factors associated with the in-hospital mortality. **Methods** Medical records of 141 over-90-year-old inpatients admitted in our department from January to December 2014 were collected and then retrospectively analyzed. According to their in-hospital outcome, the patients were divided into death group ($n = 29$) and survival group ($n = 112$). The general information, results of biochemical indices at admission, Barthel index (BI) activities of daily living (ADL) were compared between the 2 groups for influencing factors associated with the in-hospital mortality. SPSS statistics 16.0 was used to analyze the data. Student's t test, Wilcoxon rank sum test or Chi-square test was employed for the comparison between groups. Multivariate logistic regression analysis was adopted to explore the factors affecting in-hospital mortality. **Results** Compared with the patients in the survival group, those from the death group had higher ratios of acute or old myocardial infarction, atrial fibrillation, anemia, hypoalbuminemia and cancer ($P < 0.05$), lower BI $[(37.93 \pm 25.27) \text{ vs } (61.92 \pm 23.64)]$, and decreased levels of hemoglobin $[(110.11 \pm 20.79) \text{ vs } (120.59 \pm 16.83) \text{ g/L}]$ and albumin $[(35.42 \pm 4.67) \text{ vs } (38.35 \pm 4.25) \text{ g/L}]$, but larger white blood cell count $[(8.89 \pm 4.75) \times 10^9/\text{L} \text{ vs } (6.95 \pm 2.26) \times 10^9/\text{L}]$ and higher level of high sensitivity C-reactive protein $[19.44(6.99, 40.77) \text{ vs } 5.18(1.27, 23.48) \text{ mg/L}]$ (all $P < 0.05$). Logistic regression analysis indicated that severe and very severe disability($OR = 5.055, 95\% CI 1.961 \sim 13.026, P = 0.001$), anemia ($OR = 4.796, 95\% CI 1.795 \sim 12.813, P = 0.002$), and white blood cell count ($OR = 1.233, 95\% CI 1.046 \sim 1.455, P = 0.013$) were risk factors for in-hospital death in the cohort. **Conclusion** The inpatients aged 90 or above should actively improve their ability of daily living after admission, and the state of anemia should be corrected initiatively.

【Key words】 aged; mortality; activity of daily living; anemia

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随着我国老龄化社会的不断进展,高龄老年人比例逐步增高,2013年国家统计局数据显示我国 ≥ 90 岁老年人比例由2003年的0.097%上升至2013年的0.166%,上升幅度达70%^[1]。而住院人群中 ≥ 90 岁人数占总住院人数的1.5%^[2]。增多的高龄老人给医疗带来了巨大压力,对高龄老人特点的研究需求也越来越迫切。为此本研究对 ≥ 90 岁内科住院患者的特点及影响患者住院期间死亡的因素进行了分析。

1 对象与方法

1.1 研究对象

回顾性分析2014年1月至12月北京友谊医院医疗保健中心内科 ≥ 90 岁住院患者141例,其中男性98例,女性43例,年龄90~102(91.7 ± 2.2)岁。根据住院期间死亡与否分为死亡组29例和未死亡组112例。纳入标准:按照时间顺序选取 ≥ 90 岁住院患者,重复住院患者仅纳入最后一次住院情况。排除标准:住院时间短于24 h即出院或死亡患者。

1.2 方法

所有入院患者均在入院时通过巴氏指数(Barthel index, BI)判断日常生活活动能力(activities of daily living, ADL),分为生活自理和轻度失能(75~100分)、中度失能(50~74分)、重度和极重度失能(0~49分)。

次日清晨空腹抽血,检测各项生化指标,包括丙氨酸氨基转移酶(alanine aminotransferase, ALT)、血肌酐(serum creatinine, SCr)、空腹血糖(fasting blood glucose, FBG)、糖化白蛋白(glycosylated albumin, GA)、白蛋白(albumin, ALB)、甘油三酯(triglyce-

rides, TG)、总胆固醇(total cholesterol, TC)、尿酸(uric acid, UA)、超敏C-反应蛋白(high sensitivity C-reactive protein, hs-CRP)、血钾(kalium, K^+)、血钠(natrium, Na^+)、白细胞(white blood cell, WBC)、血红蛋白(hemoglobin, Hb)和血小板(platelet, PLT)。按照Hb男性 < 120 g/L、女性 < 110 g/L定义贫血, ALB < 35 g/L定义低蛋白血症。记录7种内科疾病情况,包括高血压、急性或陈旧性心肌梗死(acute myocardial infarction or old myocardial infarction, AMI/OMI)、糖尿病/糖耐量异常(diabetes mellitus or impaired glucose tolerance, DM/IGT)、慢性阻塞性肺疾病(chronic obstructive pulmonary disease, COPD)、慢性肾脏病(chronic kidney disease, CKD)^[3]、心房颤动(atrial fibrillation, AF)和肿瘤,并计算上述7种疾病中共病 ≥ 3 种的人数。

1.3 统计学处理

采用SPSS 16.0统计软件对数据进行分析。计量资料用均数 $\pm$ 标准差($\bar{x} \pm s$)表示,2组比较采用 t 检验。呈偏态分布者用四分位数表示,2组比较采用秩和检验。计数资料用百分率表示,2组比较采用 χ^2 检验。多因素logistic回归分析影响患者住院期间死亡的危险因素。 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 2组患者基本情况比较

2组患者性别、感染型疾病、高血压、DM/IGT、COPD、CKD和 ≥ 3 种共病患者比例差异无统计学意义($P > 0.05$)。相比未死亡组患者,死亡组患者AMI/OMI、AF、贫血、低蛋白血症和肿瘤患者比例高,差异具有统计学意义($P < 0.05$;表1)。

表1 2组患者基本情况比较

Table 1 Comparison of clinical data between two groups

[$n(\%)$]

Item	Death group ($n=29$)	Survival group ($n=112$)	χ^2	P value
Male	23(79.3)	75(67.0)	1.657	0.198
Infectious disease	10(34.5)	44(39.3)	0.225	0.635
Hypertension	22(75.9)	89(79.5)	0.178	0.673
AMI or OMI	14(48.3)	10(8.9)	25.250	0.000
AF	14(48.3)	24(21.4)	8.434	0.002
DM or IGT	9(31.0)	45(40.2)	0.815	0.367
COPD	6(20.7)	30(26.8)	0.450	0.502
CKD	10(34.5)	22(19.6)	2.891	0.089
Anemia	20(69.0)	38(33.9)	11.678	0.001
Hypoalbuminemia	13(44.8)	22(19.6)	7.830	0.005
Cancer	13(44.8)	18(16.1)	11.106	0.001
≥ 3 diseases	9(31.0)	18(16.1)	3.331	0.068

AMI: acute myocardial infarction; OMI: old myocardial infarction; AF: atrial fibrillation; DM: diabetes mellitus; IGT: impaired glucose tolerance; COPD: chronic obstructive pulmonary disease; CKD: chronic kidney disease

2.2 2组患者入院ADL和各项生化指标比较

相比未死亡组患者,死亡组患者入院时ADL分值、Hb和ALB水平更低,WBC和hs-CRP水平更高,差异具有统计学意义($P < 0.05$;表2)。

2.3 Logistic回归分析影响住院死亡的因素

以住院死亡与否为因变量,以失能等级、WBC、hs-CRP、贫血和低蛋白血症为自变量,进行logistic回归分析,结果表明重度和极重度失能、贫血和WBC水平为住院患者死亡的危险因素。

3 讨论

本研究表明 ≥ 90 岁内科住院患者死亡率为20.6% (29/141),同既往多项针对 ≥ 90 岁内科住院患者的研究结果相似,它们得出的住院死亡率为20.2% ~ 27.7%^[2,4-6]。根据《中国心血管病报告2016》数据,心血管疾病和肿瘤是我国城乡居民死亡构成比的前两位,每5例死亡患者就有3例死于心血管疾病或肿瘤^[7]。本研究表明相比未死亡组患者,死亡组患者AMI/OMI、AF、贫血、低白蛋白血症和肿瘤患者比例高,差异具有统计学意义($P < 0.05$)。

Zafirir等^[4]通过研究表明 > 90 岁内科住院患者中,心房颤动及肿瘤病史为住院死亡率的主要预测因子。Barba等^[5]的研究也表明肿瘤病史影响 > 90 岁内科住院患者的死亡率。既往曾认为心房颤动为一种良性的心律失常,但越来越多的研究表明心房颤动患者相较于窦性心律患者,死亡率明显增高^[8]。

住院死亡同多种因素相关,包括疾病种类、严重程度、入院时各项因素以及住院期间发生的情况等。我们针对有可能改善的入院指标进行了相关分析,结果表明日常生活能力重度和极重度失能、贫血和WBC水平为住院患者死亡的危险因素。日常生活能力是指一个人为了满足日常生活需要每天所进行的必要活动,包括大小便、进食、梳妆、洗澡、如厕、穿衣、活动、转移和上下楼梯等,反映人们活动的最基本能力。既往基于 ≥ 90 岁社区人群的研究结果表明日常生活能力同死亡率之间的关系并不肯定。Formiga等^[9]对 ≥ 90 岁社区老人进行随访,发现2年死亡率同ADL下降、认知状态和多重共病相关,但进一步随访却发现5年死亡率同日常生活能力无关,仅同认知功能状态和共病情况相关^[10]。

表2 2组患者ADL和生化指标比较

Table 2 Comparison of ADL and biochemical indices between two groups

Item	Death group (n=29)	Survival group (n=112)	$t/\chi^2/Z$	P value
BI(score, $\bar{x} \pm s$)	37.93 $\pm$ 25.27	61.92 $\pm$ 23.64	-4.803	0.000
WBC($\times 10^9/L$, $\bar{x} \pm s$)	8.89 $\pm$ 4.75	6.95 $\pm$ 2.26	-2.144	0.040
Hb(g/L, $\bar{x} \pm s$)	110.11 $\pm$ 20.79	120.59 $\pm$ 16.83	2.840	0.005
PLT($\times 10^9/L$, $\bar{x} \pm s$)	190.28 $\pm$ 68.86	185.47 $\pm$ 49.82	-0.352	0.727
ALT[U/L, $M(Q_1, Q_3)$]	10.00(7.00,18.50)	13.00(9.00,17.00)	-1.361	0.173
eGFR[ml/(min $\cdot$ 1.73 m ²), $\bar{x} \pm s$]	56.41 $\pm$ 20.82	61.74 $\pm$ 17.27	1.417	0.159
ALB(g/L, $\bar{x} \pm s$)	35.42 $\pm$ 4.67	38.35 $\pm$ 4.25	-3.233	0.002
UA(μ mol/L, $\bar{x} \pm s$)	347.01 $\pm$ 152.08	334.45 $\pm$ 93.33	-0.425	0.674
FBG[mmol/L, $M(Q_1, Q_3)$]	5.18(4.61,6.00)	5.09(4.63,5.85)	-0.324	0.746
GA(% , $\bar{x} \pm s$)	14.38 $\pm$ 2.04	15.46 $\pm$ 2.96	1.822	0.071
TC(mmol/L, $\bar{x} \pm s$)	3.82 $\pm$ 0.85	4.14 $\pm$ 0.99	1.592	0.114
TG(mmol/L, $\bar{x} \pm s$)	1.11 $\pm$ 0.46	1.09 $\pm$ 0.50	-0.213	0.832
K ⁺ (mmol/L, $\bar{x} \pm s$)	3.97 $\pm$ 0.44	4.03 $\pm$ 0.45	0.603	0.548
Na ⁺ [mmol/L, $M(Q_1, Q_3)$]	139.00(135.50,142.00)	141.00(138.00,143.75)	-1.904	0.057
hs-CRP[mg/L, $M(Q_1, Q_3)$]	19.44(6.99,40.77)	5.18(1.27,23.48)	-3.099	0.002

BI: Barthel index; WBC: white blood cell; Hb: hemoglobin; PLT: platelet; ALT: alanine aminotransferase; eGFR: estimated glomerular filtration rate; hs-CRP: high sensitivity C-reactive protein; ALB: albumin; UA: uric acid; FBG: fasting blood glucose; GA: glycosylated albumin; TC: total cholesterol; TG: triglycerides; K⁺: kalium; Na⁺: natrium

表3 Logistic回归分析影响住院死亡的危险因素

Table 3 Logistic regression analysis of risk factors of influencing in-hospital mortality

Factor	β	SE	Wald χ^2	OR(95% CI)	P value
Severe and very severe disability	1.62	0.483	11.254	5.055(1.961-13.026)	0.001
Anemia	1.568	0.501	9.776	4.796(1.795-12.813)	0.002
WBC	0.210	0.084	6.214	1.233(1.046-1.455)	0.013

WBC: white blood cell

Conde-Martel 等^[6]对 124 例 ≥ 90 岁内科住院患者进行 5 年的随访,发现入院时 ADL 评分和共病指数同 5 年死亡率独立相关。因此维持正常生活状态,保证独立处置自我事务的能力,对于 ≥ 90 岁患者来说非常重要。同时治疗不同程度失能患者疾病的同时应给予有针对性的康复措施,以期减少住院死亡率,改善预后。

研究表明贫血也是患者住院死亡的危险因素,贫血在老年人中患病率相当高,社区 ≥ 65 岁人群中超过 10% 患有贫血, > 85 岁人群有超过 20% 的老年人患有贫血,养老院的这一比例更高^[11]。本研究表明 41% (58/141) 患者患有贫血,死亡组患者贫血比例高达 69% (20/29)。贫血可增加老年人失能^[12]、痴呆^[13]、跌倒^[14]和衰弱^[15]风险,从而使死亡率及住院率增高,为不良临床预后的明确预测因子^[16]。老年人贫血由多种原因造成,如营养不良、消化吸收功能障碍、骨髓造血老化和慢性炎症状态等,因此监测 Hb 水平、针对不同原因给予相应地纠正对患者非常重要。

本研究仅仅分析了住院时各项因素对 ≥ 90 岁内科住院患者死亡的影响,目的在于提示临床医师在入院初期即加强对患者失能和贫血的重视,并未考虑住院期间各项因素对住院死亡的影响,是本研究的不足。同时本研究样本量偏小,后期可进一步扩大样本量进行分析以减少偏倚。

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