·临床研究·

老年慢性心力衰竭认知功能情况分析

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【摘 要】 **目的** 了解老年慢性心力衰竭(CHF)患者认知功能障碍的发病情况,分析合并认知功能障碍的老年CHF患者的临床特点。**方法** 回顾性分析2015年1月1日至2016年3月1日在北京友谊医院医疗保健中心住院的180例老年CHF患者。根据蒙特利尔认知评估量表评分将180例老年CHF患者分成3组:认知功能正常组($n=44$)、轻度认知功能障碍(MCI)组($n=75$)和重度认知功能障碍(SMI)组($n=61$)。比较3组患者临床特点。采用SPSS 17.0软件进行数据处理。根据数据类型,组间比较采用F检验或χ^2检验。对单因素分析有统计学意义的指标进行多因素logistic回归分析,筛选出独立的危险因素。**结果** 老年CHF患者中认知功能障碍的患病率为75.6%(136/180)。与正常组相比,MCI组和SMI组中纽约心脏病学会(NYHA)Ⅲ级者显著增加(21.33% *vs* 47.54% *vs* 13.64%,$P<0.05$),SMI组中女性患者(38.64% *vs* 55.74%)、高中以下学历者(13.64% *vs* 36.07%)及血糖值[(5.10±0.74) *vs* (5.88±2.38) mmol/L]显著增加($P<0.05$),而血红蛋白值显著降低[(131.50±15.89) *vs* (122.80±15.61) g/L,$P<0.05$]。与MCI组相比,SMI组中NYHA Ⅲ级者(21.33% *vs* 47.54%)、女性患者(32.00% *vs* 55.74%)及高中以下学历者(17.33% *vs* 36.07%)显著增多($P<0.05$)。SMI组患者的左室射血分数(LVEF)显著低于正常组和MCI组[(61.72±7.81)% *vs* (64.89±6.58)% *vs* (64.07±5.88)%,$P<0.05$]。多因素logistic回归分析,结果发现NYHA Ⅲ级(95% *CI*:1.21~13.61)和血红蛋白值低下(95% *CI*:0.94~0.99)是MCI的独立危险因素($P<0.05$),NYHA Ⅲ级(95% *CI*:1.73~21.98)、血红蛋白值低下(95% *CI*:0.93~0.99)、女性(95% *CI*:0.15~0.96)、高中以下学历(95% *CI*:1.36~13.76)和低LVEF(95% *CI*:1.00~1.15)是SMI的独立危险因素($P<0.05$)。**结论** 老年CHF患者存在认知功能下降。合并认知功能障碍的CHF患者主要临床特点为女性较多、受教育年限较短、心功能分级差、血糖偏高、血红蛋白值及LVEF偏低。

【关键词】 老年人;心力衰竭;认知功能障碍
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Cognitive function in the elderly with chronic heart failure

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【**Abstract**】 **Objective** To investigate the incidence of cognitive impairment in the elderly patients with chronic heart failure (CHF), and to analyze the clinical characteristics of those suffering from CHF accompanied with cognitive impairment. **Methods** A retrospective study was carried out on 180 elderly CHF patients who were hospitalized in our health care center from January 1, 2015 to March 1, 2016. According to Montreal cognitive assessment, they were divided into 3 groups: normal group ($n=44$), mild cognitive impairment group (MCI, $n=75$) and severe cognitive impairment group (SMI, $n=61$). The clinical characteristics were compared among the 3 groups. SPSS statistics 17.0 was used for data processing. The comparison between the groups was performed by F test or by Chi-square test. Multivariate logistic regression analysis was carried out for single factor analysis with statistical significance, and then independent risk factors were screened out. **Results** The incidence rate of cognitive impairment was 75.6% (136/180) in the subjected elderly CHF patients. Compared with the normal group, the ratio of those at New York Heart Association (NYHA) Ⅲ was significantly larger in the MCI and SMI groups (47.54% *vs* 21.33% *vs* 13.64%, $P<0.05$). The SMI group had obviously more female patients (55.74% *vs* 38.64%), higher percentage of patients with education level lower than high school (36.07% *vs* 13.64%), and higher blood glucose level [(5.88±2.38) *vs* (5.10±0.74) mmol/L, all $P<0.05$], but notably lower hemoglobin

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level [(131.50 ± 15.89) *vs* (122.80 ± 15.61) g/L, $P < 0.05$] when compared with the normal group. The ratios of NYHA Ⅲ (47.54% *vs* 21.33%), female patients (55.74% *vs* 32.00%) and lower educational level than high school (36.07% *vs* 17.33%) were significantly larger in the SMI group than in the MCI group ($P < 0.05$). Left ventricular ejection fraction (LVEF) in the SMI group was significantly lower than those of the normal group and MCI group [(61.72 ± 7.81)% *vs* (64.89 ± 6.58)% *vs* (64.07 ± 5.88)%, $P < 0.05$]. Multivariate logistic regression analysis showed that NYHA Ⅲ level (95% *CI*: 1.21 – 13.61), and low hemoglobin level (95% *CI*: 0.94 – 0.99) were independent risk factors for MCI ($P < 0.05$), while NYHA Ⅲ level (95% *CI*: 1.73 – 21.98), low hemoglobin level (95% *CI*: 0.93 – 0.99), female (95% *CI*: 0.15 – 0.96), lower educational level than high school (95% *CI*: 1.36 – 13.76) and low LVEF (95% *CI*: 1.00 – 1.15) were independent risk factors for SMI ($P < 0.05$). **Conclusion** The elderly CHF patients commonly suffer declined cognitive function. Those patients with cognitive impairment are characterized by female, low educational level, poor heart function classification, high blood glucose, low hemoglobin level and LVEF.

【Key words】 aged; heart failure; cognitive impairment

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目前,心血管病已成为我国老年人的首要死因,慢性心力衰竭(chronic heart failure,CHF)是各种心脏疾病的终末阶段[1]。老年痴呆是继心血管疾病、肿瘤和卒中之后威胁老年人生命的第四大疾病[2]。CHF和认知功能障碍有以下相同特点:(1)发病人群相同,以老年人为主;(2)患者生活质量明显下降;(3)残疾率及病死率均高;(4)给社会和家庭带来沉重的经济负担。本研究希望了解老年CHF患者的认知情况以及临床特点。

1 对象与方法

1.1 研究对象

回顾性收集2015年1月1日至2016年3月1日在北京友谊医院医疗保健中心住院的180例老年(≥65岁)CHF患者。入组标准:(1)符合CHF诊断标准[3];(2)纽约心脏病学会(New York Heart Association,NYHA)心功能Ⅱ~Ⅲ级。排除标准:(1)近半年新发脑梗死或脑出血;(2)癫痫、帕金森氏病、多发性硬化等神经系统疾病;(3)恶性肿瘤及乙醇等物质依赖者;(4)严重心、肝、肾功能不全患者。

1.2 方法

1.1.1 认知功能的评估 由经过培训的专业人员采用蒙特利尔认知评估量表(Montreal cognitive assessment,MoCA)进行评估,总分30分。患者受教育年限≤12年,所得分数加1分以修正文化程度引起的偏倚。<26分为认知功能障碍,其中:17分<MoCA<26分为轻度认知功能障碍(mild cognitive impairment,MCI);≤17分为重度认知功能障碍(severe cognitive impairment,SMI)。

1.1.2 一般资料收集 包括患者基本情况、基础疾病、化验指标、超声心动图指标。

1.1.3 分组 根据MoCA评分将180例老年CHF患者分成3组:认知功能正常组($n = 44$)、MCI组($n = 75$)和SMI组($n = 61$)。比较3组患者临床特点。

1.3 统计学处理

采用SPSS 17.0统计软件进行数据处理。计量资料以均数±标准差($\bar{x} \pm s$)表示,组间比较采用F检验。计数资料以百分率表示,组间比较采用χ^2检验。对单因素分析有统计学意义的指标进行多因素logistic回归分析,筛选出独立的危险因素。以$P < 0.05$为差异有统计学意义。

2 结 果

2.1 3组患者基线资料比较

180例CHF患者年龄65~96(83.9±5.4)岁,MoCA评估为(19.68±6.63)分。认知功能障碍在老年CHF患者中的患病率为75.6%(136/180)。与正常组相比,MCI组和SMI组中NYHA Ⅲ级者显著增加($P < 0.05$),SMI组中女性患者及高中以下学历者显著增多($P < 0.05$)。与MCI组相比,SMI组中NYHA Ⅲ级者、女性患者及高中以下学历者显著增多($P < 0.05$)。3组间在合并基础疾病方面差异无统计学意义($P > 0.05$;表1)。

2.2 3组患者实验室指标比较

与正常组相比,SMI组患者的血红蛋白值显著降低,而血糖值显著增高,差异均具有统计学意义($P < 0.05$;表2)。

2.3 3组患者超声心动图指标比较

SMI组患者的左室射血分数(left ventricular ejection fraction,LVEF)显著低于正常组和MCI组,差异均具有统计学意义($P < 0.05$;表3)。

2.4 多因素logistic回归分析

分别以CHF患者出现MCI、SMI作为因变量,以

表 1 3 组患者基本情况比较

Table 1 Comparison of baseline data among three groups

Item	Normal group (n = 44)	MCI group (n = 75)	SMI group (n = 61)
Age(years, $\bar{x} \pm s$)	82.7 ± 5.9	83.6 ± 5.2	85.1 ± 5.2
Female[n(%)]	17(38.64)	24(32.00)	34(55.74) *#
Education level lower than high school[n(%)]	6(13.64)	13(17.33)	22(36.07) *#
NYHA Ⅲ[n(%)]	6(13.64)#	16(21.33) *	29(47.54) *#
Coronary heart disease[n(%)]	39(88.6)	65(86.7)	53(86.9)
Hypertension[n(%)]	43(97.7)	66(88.0)	56(91.8)
Arrhythmia[n(%)]	8(18.2)	11(14.7)	9(14.8)
Valvular heart disease[n(%)]	0(0.00)	1(0.01)	3(0.05)
Type 2 diabetes[n(%)]	20(45.5)	32(42.7)	25(41.0)
Chronic kidney disease[n(%)]	12(27.3)	31(41.3)	26(42.6)

MCI: mild cognitive impairment; SMI: severe cognitive impairment; NYHA: New York Heart Association. Compared with normal group, * $P < 0.05$; compared with MCI group, # $P < 0.05$

表 2 3 组患者实验室指标比较

Table 2 Comparison of laboratory indices among three groups ($\bar{x} \pm s$)

Item	Normal group (n = 44)	MCI group (n = 75)	SMI group (n = 61)
White blood cell($\times 10^9$/L)	6.73 ± 1.71	6.50 ± 1.43	6.56 ± 1.38
Hemoglobin(g/L)	131.50 ± 15.89	125.20 ± 14.48	122.80 ± 15.61 *
Neutrophil granulocyte(%)	64.97 ± 7.64	64.16 ± 7.46	62.86 ± 8.70
Platelet($\times 10^9$/L)	185.70 ± 46.05	180.60 ± 49.09	184.70 ± 54.22
Aspartate aminotransferase(U/L)	17.43 ± 5.03	17.87 ± 6.71	16.89 ± 6.45
Glucose(mmol/L)	5.10 ± 0.74	5.26 ± 1.00	5.88 ± 2.38 *
Total cholesterol(mmol/L)	3.81 ± 0.71	3.80 ± 0.92	4.05 ± 0.80
LDL-C(mmol/L)	2.13 ± 0.72	2.14 ± 0.66	2.28 ± 0.65
Albumin(g/L)	40.39 ± 3.87	39.89 ± 4.16	39.31 ± 3.86
BUN(mmol/L)	6.84 ± 6.82	7.34 ± 5.75	7.13 ± 3.83
Creatinine(μmol/L)	84.33 ± 30.63	96.84 ± 51.56	98.86 ± 65.06
Myoglobin(μg/L)	49.58 ± 17.00	58.47 ± 33.52	62.79 ± 32.61
cTnI(μg/L)	0.007 ± 0.008	0.015 ± 0.024	0.015 ± 0.023
D-dimer(mg/L)	0.88 ± 0.42	1.45 ± 1.26	1.32 ± 0.92

MCI: mild cognitive impairment; SMI: severe cognitive impairment; LDL-C: low-density lipoprotein cholesterol; BUN: blood urea nitrogen; cTnI: cardiac troponin I. Compared with normal group, * $P < 0.05$; compared with MCI group, # $P < 0.05$

表 3 3 组患者超声心动图指标比较

Table 3 Comparison of echocardiogram indices among three groups ($\bar{x} \pm s$)

Item	Normal group (n = 44)	MCI group (n = 75)	SMI group (n = 61)
LA(mm)	37.95 ± 7.25	38.01 ± 4.73	39.54 ± 5.92
LVIDd(mm)	49.66 ± 5.05	48.76 ± 4.45	49.03 ± 5.24
LVIDs(mm)	32.86 ± 5.04	31.59 ± 4.59	32.90 ± 5.54
E(cm/s)	68.07 ± 21.21	72.35 ± 21.21	73.39 ± 24.91
A(cm/s)	87.18 ± 16.37	89.70 ± 24.26	93.94 ± 18.21
E/A	0.74 ± 0.23	0.87 ± 0.57	0.69 ± 0.17
LVEF(%)	64.89 ± 6.58	64.07 ± 5.88	61.72 ± 7.81 *#

MCI: mild cognitive impairment; SMI: severe cognitive impairment; LA: internal diameter of left atrium; LVIDd: left ventricular diastolic volume; LVIDs: left ventricular systolic volume; E: peak early mitral flow velocity; A: peak late mitral flow velocity; LVEF: left ventricular ejection fraction. Compared with normal group, * $P < 0.05$; compared with MCI group, # $P < 0.05$

单因素分析显示差异有统计学意义的影响因素作为自变量,进行多因素 logistic 回归分析,结果发现,NYHA Ⅲ级和血红蛋白值低下是 MCI 的独立危险因素($P < 0.05$),NYHA Ⅲ级、血红蛋白值低下、女性、高中以下学历和低 LVEF 是 SMI 的独立危险因素($P < 0.05$;表 4)。

表4 MCI和SMI风险因素的logistic回归分析

Table 4 Logistic regression analysis of the risk factors of MCI and SMI

Factor	*B* value		*P* value		Exp(B)		95% *CI*	
	MCI	SMI	MCI	SMI	MCI	SMI	MCI	SMI
Female	-0.034	-0.960	0.938	0.042	0.967	0.383	0.41-2.26	0.15-0.96
Education level lower than high school	0.510	1.466	0.381	0.013	1.666	4.330	0.53-5.22	1.36-13.76
NYHA Ⅲ	1.402	1.819	0.023	0.005	4.064	6.168	1.21-13.61	1.73-21.98
Hemoglobin	-0.032	-0.042	0.017	0.006	0.968	0.959	0.94-0.99	0.93-0.99
Glucose	0.106	0.250	0.613	0.224	1.112	1.284	0.74-1.68	0.15-0.96
LVEF	0.024	0.072	0.513	0.043	1.025	1.074	0.95-1.10	1.00-1.15

MCI: mild cognitive impairment; SMI: severe cognitive impairment; NYHA: New York Heart Association; LVEF: left ventricular ejection fraction

3 讨 论

老年CHF患者往往伴有情绪调节能力、社会适应能力的受损,导致心力衰竭病情的变化,需要反复住院治疗。认知功能是由多个认知域组成,包括记忆、计算、时空间定向、结构能力、执行能力、语言理解和表达及应用等方面。认知功能障碍时大脑在上述高级智能加工过程出现异常,从而影响个体的日常或社会生活能力。近年来国内外研究显示[4-6],CHF患者认知功能障碍的发病率在40%~80%,且影响其预后。本研究显示,认知功能障碍在老年CHF中的患病率为75.6%(136/180),与近年来报道基本一致。

本研究发现,与认知功能正常的CHF患者相比,MCI及SMI的CHF患者女性偏多、教育程度偏低、心功能分级差、LVEF值低、血红蛋白值低、血糖偏高。大量流行病学调查研究显示,性别及教育水平低下均是导致认知功能障碍的主要危险因素[7]。随着心功能分级增加,心力衰竭加重,舒张功能障碍可能先于心力衰竭伴左室收缩功能受损[8]。有研究指出,舒张指数对认知功能影响较大的原因可能是血流动力学受损,导致脑小血管损害[9,10]。LVEF也是影响CHF患者认知功能的重要因素,这一论点与目前多数研究一致。CHF患者因左室收缩功能下降,导致心输出量不同程度地下降,从而引起脑灌注不足、脑血流下降,造成神经元及神经胶质细胞缺血缺氧,引起认知功能下降。贫血与CHF严重程度密切相关[11]。老年贫血患者认知损害患病率显著升高[12],多数学者认为血红蛋白可以影响脑氧饱和度,低血红蛋白的患者脑氧饱和度较低,导致脑部供氧不足,慢性脑组织缺血缺氧。提示临床医师应尤其关注合并贫血的心力衰竭患者的认知功能。除了贫血,近些年国内外研究发现[13],对于没有糖尿病的高血糖患者,认知功能障碍的风险也会增加,这可能是因为较高的血糖水平对大脑具有记忆功能及记忆相关的脑结构(如海马)有影响。

综上所述,老年CHF患者存在认知功能下降。女性、受教育年限短、心功能分级差、血红蛋白低、血糖高、LVEF低均是认知功能障碍CHF患者的临床特点。临床工作中可根据上述特点及早发现、识别老年CHF患者的认知功能障碍,要特别重视对高危人群的筛查,做到个性化预防及治疗,有利于提高CHF患者的生活质量,延缓病情加重。

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·消 息·

《中华老年多器官疾病杂志》调整文末参考文献著录格式

自2017年1月起,我刊调整录用稿件的文末参考文献著录格式:(1)中文参考文献采用中英文双语著录,中文在前,英文在后;(2)参考文献如有“数字对象唯一标识符(DOI)”编码,应著录,列于末尾。

示例:

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