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社区脑卒中高危人群检出率及与饮食习惯、生活方式的关系分析*

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摘要 目的:了解社区脑卒中高危人群患病情况并分析脑卒中高危与饮食习惯、生活方式的关系。**方法:**于2018年1月~2019年6月采取随机整群抽样的方法抽取桂林地区象山社区户籍居民796例,采用我院自制的调查问卷调查其基本资料、生活方式以及饮食习惯等信息,统计脑卒中高危人群检出率,根据高危人群检出结果将调查对象分为高危组($n=236$)和非高危组($n=555$),采用多因素 logistic 回归分析脑卒中高危的影响因素。**结果:**本研究共发放调查问卷796份,回收有效问卷791份,经脑卒中风险评估为脑卒中高危的人数为236例,检出率为29.84%。高危组中性别为男性、无职业、年龄 ≥ 60 岁、蔬菜摄入不足、吸烟、口味偏甜、缺乏体育锻炼、饮酒、口味偏油腻、肉类摄入不足的比例明显高于非高危组($P<0.05$)。多因素 logistic 回归分析结果显示,年龄 ≥ 60 岁、缺乏体育锻炼、性别为男性、肉类摄入不足、口味偏油腻、饮酒、蔬菜摄入不足均是脑卒中高危的影响因素($P<0.05$)。**结论:**桂林地区象山社区脑卒中高危人群检出率较高,且与性别、年龄、生活方式以及饮食习惯有关,临床可通过结合上述影响因素,开展针对性活动,以减少脑卒中的发生风险。

关键词:脑卒中;高危人群;检出率;饮食习惯;生活方式;影响因素

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Analysis of the Detection Rate of High-risk Population of Stroke in Community and Its Relation with Dietary Habits and Lifestyle*

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ABSTRACT Objective: To understand the prevalence of stroke in population of stroke in community and to analyze the relationship between high-risk of stroke and dietary habits and lifestyle. **Methods:** 796 household registered residents of Xiangshan community in Guilin area were selected by random cluster sampling from January 2018 to June 2019. The basic information, lifestyle and dietary habits were investigated by self-made questionnaire. The detection of high-risk population of stroke was counted. The subjects were divided into high-risk group ($n=236$) and non-high-risk group ($n=555$) according to the detection results of high-risk population. Multivariate logistic regression was used to analyze the risk factors of stroke. **Results:** 796 questionnaires were sent out, and 791 valid questionnaires were collected. 236 high-risk cases were assessed by stroke risk assessment, and the detection rate was 29.84%. The proportion of male, no occupation, age ≥ 60 years old, insufficient vegetable intake, smoking, sweet taste, lack of physical exercise, drinking, greasy taste and inadequate meat intake in high-risk group was significantly higher than that in non-high-risk group ($P<0.05$). Multivariate logistic regression analysis showed that age ≥ 60 years old, lack of physical exercise, male, inadequate meat intake, greasy taste, drinking and insufficient vegetable intake were all risk factors for stroke ($P<0.05$). **Conclusion:** The high-risk population of stroke in Xiangshan community in Guilin has a high detection rate, which is related to gender, age, lifestyle and dietary habits. In order to reduce the risk of stroke, specific activities can be carried out in combination with the above factors.

Key words: Stroke; High-risk population; Detection rate; Dietary habits; Lifestyle; Influence factor

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前言

脑卒中是指由于脑部血管突然破裂或血管阻塞,以致脑血流不畅进而引起脑细胞死亡的一种急性脑血管疾病^[1,2]。该病以

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意识障碍和局灶性神经功能缺失为主要特征,已成为当今威胁人类生命健康安全的“头号杀手”^[3,4]。脑卒中流行病学的调查研究显示^[5],发达国家由于人们逐渐提升对脑卒中的认识使其疾病发病率处于逐渐下降趋势,而发展中国家的脑卒中发病率却呈逐年递增趋势。我国脑卒中的年发病率约为 185/10 万人,且正以 8.7% 的速率增长^[6]。虽然近年来医学技术快速发展,脑卒中的存活率明显提升,但脑卒中患者约 60% 的人经治疗后可残留不同程度的残疾,给患者身心健康和生活质量带来严重影响^[7]。因此,预防脑卒中的发生具有积极的临床意义。临床中有关脑卒中的预防可针对该病的主要危险因素进行干预,以降低脑卒中发病率和死亡率。鉴于此,本研究通过调查桂林地区象山社区脑卒中高危人群检出率,分析其及与饮食习惯、生活方式的关系,以期临床脑卒中的防治提供参考,现报道如下。

1 资料与方法

1.1 研究对象

于 2018 年 1 月~2019 年 6 月采取随机整群抽样的方法抽取桂林地区象山社区户籍居民 796 例,纳入标准:(1)对本次研究知情并签署同意书;(2)为本市常住人口或已在本市居住时间 ≥ 1 年;(3)无精神疾患及沟通障碍者;(4)年龄 45~80 岁。排除标准:(1)患有心力衰竭、肝硬化、肾功能不全等慢性疾病者;(2)无法完成问卷调查者;(3)常年卧病在床者。本次研究已获取我院伦理学委员会批准进行。

1.2 方法

1.2.1 调查方法 采用我院自制的调查问卷,内容包括生活方式(吸烟、工作时间、饮酒、缺乏体育锻炼)、年龄、婚姻状况、性别、职业、文化程度、饮食习惯(口味偏油腻、口味偏甜、水果摄

入不足、蔬菜摄入不足、肉类摄入不足)。由经过统一培训并测试合格的医师进行问卷调查。

1.2.2 诊断标准 脑卒中高危人群定义:脑卒中风险评估 ≥ 3 分者;既往有脑卒中或短暂性脑缺血发作病史者,风险评估包括:房颤或明显的脉搏不齐;既往有高血压病史;血脂异常或未知;吸烟;糖尿病;超重或肥胖(体质指数 $\geq 26 \text{ kg/m}^2$);较少进行体育活动;既往有卒中家族史者。上述 8 项每项各 1 分^[8]。

1.3 统计学处理

采用 Epidata3.2 软件对数据进行双录入,交叉核对无误后导入 SAS9.2 统计软件进行分析。计数资料采用率(%)描述,采用 χ^2 检验。采用($\bar{x} \pm s$)描述计量资料,采用 t 检验。脑卒中高危的影响因素采用多因素 logistic 回归分析,检验水准为 $\alpha=0.05$ 。

2 结果

2.1 脑卒中高危人群检出情况

调查问卷共发放 796 份,回收有效问卷 791 份,回收有效率为 99.37%。其中男 325 例,女 466 例;年龄 37 岁~82 岁,平均(53.94 ± 3.81)岁;经脑卒中风险评估为脑卒中高危的人数为 236 例,检出率为 29.84%。根据评估结果将研究对象分为高危组($n=236$)和非高危组($n=555$)。

2.2 高危组与非高危组的基本资料、生活方式以及饮食习惯比较

高危组中性别为男性、蔬菜摄入不足、无职业、缺乏体育锻炼、饮酒、年龄 ≥ 60 岁、口味偏油腻、吸烟、口味偏甜、肉类摄入不足的比例明显高于非高危组($P<0.05$);两组文化程度、婚姻状况、工作时间、水果摄入不足比较,差异无统计学意义($P>0.05$)。见表 1。

表 1 高危组与非高危组的基本资料、生活方式以及饮食习惯比较 [n(%)]

Table 1 Comparison of basic information, lifestyle and dietary habits between high-risk group and non-high-risk group [n(%)]

Indexes	High-risk group(n=236)	Non-high-risk group(n=555)	χ^2	P
Gender				
Male	185(78.39)	140(25.23)	19.267	0.000
Female	51(21.61)	415(74.77)		
Age (years old)				
≤ 40	32(13.56)	184(33.15)	57.368	0.000
40~60	85(36.02)	232(41.80)		
≥ 60	119(50.42)	139(25.05)		
Degree of Education				
Primary school and below	74(31.36)	182(32.79)	1.508	0.472
Junior High School and Secondary Technical School	82(34.75)	209(37.66)		
College and above	80(33.90)	164(29.55)		
Occupation				
Yes	63(26.69)	401(72.25)	20.384	0.000
No	173(73.31)	154(27.75)		
Marital status				
Married/remarried/cohabitation	149(63.14)	322(58.02)	1.880	0.180

Unmarried/separated/divorced/widowed	87(36.86)	233(41.98)		
Smoking				
Yes	162(68.64)	98(17.66)	29.483	0.000
No	74(31.36)	457(82.34)		
Drinking				
Yes	171(72.46)	118(21.26)	27.439	0.000
No	65(27.54)	437(78.74)		
Working hours(h)				
<6	169(71.61)	397(71.53)	0.001	0.982
≥ 6	67(28.39)	158(28.47)		
Lack of physical exercise				
Yes	152(64.41)	149(26.85)	3.959	0.047
No	84(35.59)	406(73.15)		
Greasy taste				
Yes	171(72.46)	191(34.41)	96.554	0.000
No	65(27.54)	364(65.59)		
Sweet taste				
Yes	153(64.83)	186(33.51)	66.314	0.000
No	83(35.17)	369(66.49)		
Insufficient fruit intake				
Yes	139(58.90)	317(57.12)	0.215	0.643
No	97(41.10)	238(42.88)		
Insufficient vegetable intake				
Yes	171(72.46)	152(27.39)	49.351	0.000
No	65(27.54)	403(72.61)		
Inadequate meat intake				
Yes	185(78.39)	201(36.22)	17.875	0.000
No	51(21.61)	354(63.78)		

2.3 脑卒中高危的影响因素的多因素 logistic 回归分析

以脑卒中高危发生状况为因变量,赋值发生=1,否=0。以表 1 中 $P<0.05$ 的指标为因变量,行多因素 logistic 回归分析,

结果显示,口味偏油腻、缺乏体育锻炼、蔬菜摄入不足、性别为男性、饮酒、年龄 ≥ 60 岁、肉类摄入不足均是脑卒中高危的影响因素($P<0.05$)。见表 2。

表 2 脑卒中高危的影响因素 logistic 回归分析

Table 2 Logistic regression analysis of risk factors for stroke

Factors	Assignment statement	Regression coefficient	Standard error	Wald χ^2	P	OR	95%CI
Gender	Male=1, Female=0	0.231	0.082	8.793	0.004	1.268	1.091~1.472
Age	Age ≥ 60 years old=1, <60 years old=0	0.379	0.123	10.619	0.002	1.466	1.173~1.826
Drinking	Yes=1, No=0	0.311	0.099	10.342	0.001	1.361	1.131~1.649
Lack of physical exercise	Yes=1, No=0	0.282	0.109	6.783	0.009	1.322	1.077~1.629
Greasy taste	Yes=1, No=0	0.105	0.039	6.273	0.013	1.129	1.021~1.198
Insufficient vegetable intake	Yes=1, No=0	-0.219	0.074	9.234	0.002	1.689	1.163~1.919
Inadequate meat intake	Yes=1, No=0	-0.138	0.043	10.447	0.001	1.863	1.296~1.958

3 讨论

脑卒中中具有高发病率、高病死率、高复发率、高致残率及多并发症等“四高一多”的特征^[90]。目前有关脑卒中的发病机制尚不十分明确,不少学者认为脑卒中是一种受遗传因素、环境因素等共同作用的复杂疾病,其中糖尿病、高血压、血脂异常、肥胖和吸烟、饮酒过量等已被公认为脑卒中发病的主要独立危险因素,尽管临床针对这些传统的危险因素已给予一定的防治措施,但上述传统的危险因素并不能完全解释脑卒中的发病机制^[11-13]。近年来随着对脑卒中研究的深入,有学者认为脑卒中是一种行为相关性疾病,不合理的行为与脑卒中的发生和复发具有极大关系^[14,15]。糖尿病、高血压、血脂异常、肥胖和吸烟、饮酒过量这些传统危险因素均为可控因素,而可控因素均以健康行为为基础^[16,17]。由于各地区居民生活方式、饮食习惯方面的差异,致使其危险因素也不尽相同^[18,19],而桂林地区位于岭南要冲,饮食习惯交融南北,味道以鲜香、酸甜及辣为主,因此,分析桂林地区象山社区脑卒中高危人群的危险因素对该地区脑卒中的防治具有积极的临床意义。

本次研究中脑卒中高危的检出率为 29.84%,略低于陈德喜等^[20]报道的 2016 年上海市金山区某社区脑卒中高危人群筛查结果 31.83%,显著低于丁一等^[21]报道的乌鲁木齐市某体检中心脑卒中高危人群筛查结果 60.87%,显著高于陈伟河等^[22]报道的广东省惠东地区脑卒中高危人群筛查结果 16.43%,可见桂林地区象山社区脑卒中高危人群检出率较高,仍需加强脑卒中的进一步防治。本次研究结果还显示,脑卒中高危与性别、年龄、职业、饮食习惯及生活方式有关,进一步的多因素 logistic 回归分析结果显示,性别为男性、饮酒、蔬菜摄入不足、缺乏体育锻炼、年龄 ≥ 60 岁、肉类摄入不足、口味偏油腻均是脑卒中高危的影响因素,分析其原因,在现实社会中,相较于女性而言,男性所承受的压力更大,且更易因社交等因素而导致饮酒等不良生活方式^[23]。既往有研究结果显示^[24],经常大量饮酒可损害神经系统,出血性脑血管疾病被诱发,也无形中增加了脑卒中的发病风险。而缺乏体育锻炼的人群其身体各项素质略低于经常体育锻炼者,易诱发脑卒中^[25]。中青年人群作为社会的主要劳动人群,脑卒中发病诱因较少,但随着年龄的增长,身体各项机能下降,对糖尿病、高血压、血脂异常等传统危险因素的控制难度加大,发生脑卒中风险也相对升高^[26,27]。此外,口味偏油腻、蔬菜摄入不足人群的饮食习惯普遍为高脂肪与高热量,增加高血压、高血糖及高血脂发病风险,从而使脑卒中发病风险增加^[28,29],而肉类摄入不足会导致患者缺乏身体必需的能量,影响机体正常代谢^[30]。

综上所述,桂林地区象山社区脑卒中高危人群检出率较高,且与性别为男性、缺乏体育锻炼、蔬菜摄入不足、饮酒、年龄 ≥ 60 岁、口味偏油腻、肉类摄入不足等息息相关,临床可通过结合上述影响因素,开展针对性活动,以减少脑卒中的发生风险。

参考文献(References)

[1] Chiquete E, Gómez-Piña JJ, Ramírez-García G, et al. Enfermedad carotídea aterosclerosa y enfermedad de sustancia blanca en sujetos sin historia de infarto cerebral o isquemia cerebral transitoria [J]. Gac Med Mex, 2019, 155(4): 350-356

[2] Chang Y, Kim J, Kim YJ, et al. Inter-arm Blood Pressure Difference is Associated with Recurrent Stroke in Non-cardioembolic Stroke Patients[J]. Sci Rep, 2019, 9(1): 12758

[3] Antipova D, Eadie L, Macaden A, et al. Diagnostic accuracy of clinical tools for assessment of acute stroke: a systematic review [J]. BMC Emerg Med, 2019, 19(1): 49

[4] Griffis JC, Metcalf NV, Corbetta M, et al. Structural Disconnections Explain Brain Network Dysfunction after Stroke [J]. Cell Rep, 2019, 28(10): 2527-2540

[5] 方向华, 王淳涛, 梅利平, 等. 脑卒中流行病学研究进展 [J]. 中华流行病学杂志, 2011, 32(9): 847-853

[6] 孙海欣, 王文志. 中国脑卒中患病率、发病率和死亡率调查结果发表[J]. 中华神经科杂志, 2017, 50(5): 337-337

[7] Qu JF, Chen YK, Zhong HH, et al. Preexisting Cerebral Abnormalities and Functional Outcomes After Acute Ischemic Stroke [J]. J Geriatr Psychiatry Neurol, 2019, 32(6): 327-335

[8] 郑剑晖. 第四届全国老年人神经系统疾病学术会议纪要[J]. 中华老年医学杂志, 2003, 22(1): 62

[9] Cheng Y, Jiang Y, Sun Y, et al. The role of long non-coding RNA SNHG12 in neuroprotection following cerebral ischemic injury [J]. Neuroreport, 2019, 30(14): 945-952

[10] 张健, 王小雪, 耿博, 等. 强制性运动疗法在脑卒中偏瘫康复治疗中的应用效果研究[J]. 现代生物医学进展, 2018, 18(15): 2902-2905

[11] Chen L, Hu W, Li S, et al. Genetic variants of ADAMTS7 confer risk for ischaemic stroke in the Chinese population [J]. Aging (Albany NY), 2019, 11(16): 6569-6583

[12] Zhang YJ, Song JR, Zhao MJ. NR4A1 regulates cerebral ischemia-induced brain injury by regulating neuroinflammation through interaction with NF- κ B/p65 [J]. Biochem Biophys Res Commun, 2019, 518(1): 59-65

[13] Łabuz-Roszak B, Skrzypek M, Starostka-Tatar A, et al. Epidemiological analysis of hospitalisations due to recurrent stroke in the Silesian Province, Poland, between 2009 and 2015 [J]. Neurol Neurochir Pol, 2019, 53(4): 277-290

[14] Zhu S, Wei X, Yang X, et al. Plasma Lipoprotein-associated Phospholipase A2 and Superoxide Dismutase are Independent Predictors of Cognitive Impairment in Cerebral Small Vessel Disease Patients: Diagnosis and Assessment[J]. Aging Dis, 2019, 10(4): 834-846

[15] Ko SB, Park HK, Kim BM, et al. 2019 Update of the Korean Clinical Practice Guidelines of Stroke for Endovascular Recanalization Therapy in Patients with Acute Ischemic Stroke [J]. Neurointervention, 2019, 14(2): 71-81

[16] 原志芳, 柴倩文, 金奕, 等. 首发脑卒中患者医学应对方式及其影响因素调查研究[J]. 中国全科医学, 2016, 19(2): 210-215

[17] 杨静, 陈馨, 白忠良, 等. 社区老年脑卒中患者的社会网络状况及影响因素研究[J]. 中国全科医学, 2019, 22(10): 1243-1246, 1250

[18] 郝书健, 朱帆, 张敏, 等. 抗拒运动对脑卒中患者下肢运动功能、步行能力及生活质量影响的 Meta 分析 [J]. 山东医药, 2017, 57(24): 71-74

[19] Niewada M, Michel P. Lifestyle modification for stroke prevention: facts and fiction[J]. Curr Opin Neurol, 2016, 29(1): 9-13

[20] 陈德喜, 陈磊, 朱晓云, 等. 2016 年上海市金山区某社区脑卒中高危人群筛查结果分析[J]. 实用预防医学, 2018, 25(10): 1180-1183

- [20] Adkins, S. Molecular basis for the polymorphic forms of human serum paraoxonase/arylesterase: glutamine or arginine at position 191, for the respective A or B allozymes [J]. *Am J Hum Genet*, 2016, 52(3): 598-608
- [21] Bawadi HA, Khader YS, Haroun TF, et al. The association between-periodontal disease, physical activity and healthy diet among adults in Jordan[J]. *J Periodontal Res*, 2011, 46(1): 74
- [22] Tiwari, A.K. Oxidative stress pathway genes and chronic renal insufficiency in Asian Indians with type 2 diabetes [J]. *Diabetes Complications*, 2018, 23(2): 102-118
- [23] Araki E, Onishi Y, Asano M, et al. Efficacy and safety of dapagliflozin in addition to insulin therapy in Japanese patients with type 2 diabetes: Results of the interim analysis of 16-week double-blind treatment period [J]. *J Diabetes Investig*, 2016, 7(4): 555-564
- [24] Yang W, Han P, Min KW, et al. Efficacy and safety of dapagliflozin in Asian patients with type 2 diabetes after metformin failure: A randomized controlled trial [J]. *J Diabetes*, 2016, 8(6): 796-808
- [25] van Himbergen TM, van Tits LJ, Roest M, et al. The story of PON1: how an organophosphate-hydrolysing enzyme is becoming a player in cardiovascular medicine[J]. *Neth J Med*, 2006, 64(2): 34-38
- [26] Tiwari AK, Prasad P, B K T, Kumar KM. Oxidative stress pathway genes and chronic renal insufficiency in Asian Indians with Type 2 diabetes[J]. *J Diabetes Complications*, 2009, 23(2): 102-111
- [27] Jennifer LW, Fink. FDA Launches Oncology Center of Excellence C[J]. *Cancer*, 2018, 12(22): 3421-3422
- [28] Altuner D, Suzen SH, Ates I, Koc GV, et al. Are PON1 Q/R 192 and M/L 55 polymorphisms risk factors for diabetes complications in Turkish population? [J]. *Clin Biochem*, 2011, 44(5-6): 372-376
- [29] Goldberg KB, Blumenthal GM, McKee AE, et al. The FDA oncology center of excellence and precision medicine C [J]. *Exp Biol Med*, 2018, 243(3): 308-312
- [30] Singh H, Beaver JA, Kim G, et al. Enrollment of older adults on oncology trials: an FDA perspective [J]. *Geriatr Oncol*, 2017, 8(3): 149-150

(上接第 2571 页)

- [21] 丁一, 王育珊, 江艳, 等. 乌鲁木齐市某体检中心脑卒中高危人群生活方式及膳食习惯分析 [J]. *新疆医科大学学报*, 2017, 40(7): 967-970
- [22] 陈伟河, 邢治刚, 钟王杰, 等. 广东省惠东地区脑卒中高危人群筛查情况分析[J]. *广东医学*, 2016, 37(16): 2480-2482
- [23] van der Veen DJ, Döpp CME, Siemonsma PC, et al. Factors influencing the implementation of Home-Based Stroke Rehabilitation: Professionals' perspective[J]. *PLoS One*, 2019, 14(7): e0220226
- [24] Han J, Lee HI, Shin YI, et al. Factors influencing return to work after stroke: the Korean Stroke Cohort for Functioning and Rehabilitation (KOSCO) Study[J]. *BMJ Open*, 2019, 9(7): e028673
- [25] 曹承兰, 余年, 林兴建, 等. 脑卒中高危人群的相关危险因素[J]. *临床神经病学杂志*, 2014, 27(5): 335-337
- [26] Ndubuisi CA, Okhueigbe MO, Mbadugha TN, et al. Factors influencing the outcome of spontaneous intracerebral haematoma in a Neurosurgical Hospital in South-East Nigeria[J]. *Niger Postgrad Med J*, 2019, 26(2): 113-117
- [27] Jiang B, Ball RL, Michel P, et al. Factors influencing infarct growth including collateral status assessed using computed tomography in acute stroke patients with large artery occlusion [J]. *Int J Stroke*, 2019, 14(6): 603-612
- [28] Wilmskoetter J, Bonilha L, Martin-Harris B, et al. Factors Influencing Oral Intake Improvement and Feeding Tube Dependency in Patients with Poststroke Dysphagia[J]. *J Stroke Cerebrovasc Dis*, 2019, 28(6): 1421-1430
- [29] Chiba R, Tominaga S, Mikami K, et al. Factors Influencing Quality of Life in Stroke Patients: Focus on Eating Habits [J]. *J Stroke Cerebrovasc Dis*, 2019, 28(6): 1623-1628
- [30] Abete I, Zulet MA, Goyenechea E, et al. Association of lifestyle, inflammatory factors, and dietary patterns with the risk of suffering a stroke: A case-control study[J]. *Nutr Neurosci*, 2018, 21(1): 70-78