·临床研究·

# 首发急性缺血性脑卒中患者服药依从性影响因素分析

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【摘 要】 **目的** 分析首发急性缺血性脑卒中(AIS)患者服药依从性的相关影响因素。**方法** 纳入遂宁市中心医院神经内科2017年9月至2018年3月收治的首发AIS患者223例,根据Morisky服药依从性量表评分将患者分为服药依从性差组(评分<6分)107例和服药依从性好组116例(评分≥6分),比较2组患者临床特征、1年后脑卒中复发和预后。应用SPSS 20.0统计软件对数据进行分析。多因素logistic回归分析服药依从性的影响因素。**结果** 服药依从性好患者比例为50.02%(116/223)。服药依从性好组相比服药依从性差组医保报销、月收入≥1500元、城市户口、高血压、糖尿病、服用降压药和降糖药患者比例高,农民、文化程度较低、1年后脑卒中复发和改良Rankin量表<3分患者比例低,差异均有统计学意义($P$<0.05)。多因素logistic回归分析结果显示有医保报销($OR$=0.289,95%$CI$ 1.326~9.002; $P$=0.011)、服用降压药($OR$=2.451,95%$CI$ 1.064~5.646; $P$=0.035)和降糖药($OR$=9.515,95%$CI$ 1.949~46.452; $P$=0.005)是服药依从性的保护因素,而农民($OR$=0.320,95%$CI$ 0.146~0.702; $P$=0.004)、月收入<1500元($OR$=0.471,95%$CI$ 0.238~0.932; $P$=0.031)、小学及以下文化程度($OR$=0.376,95%$CI$ 0.168~0.844; $P$=0.018)是服药依从性的危险因素。**结论** 服药依从性好的患者1年后脑卒中复发率低,预后更好,应积极管理无医保报销、月收入<1500元、小学及以下文化程度、农民、未合并高血压、糖尿病及未服用降压药和降糖药患者。

【关键词】 脑卒中;服药依从性;影响因素
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# Influencing factors for medication compliance in patients after first-episode acute ischemic stroke

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【Abstract】 **Objective** To analyze the influencing factors for medication compliance in patients with first-episode acute ischemic stroke (AIS). **Methods** A total of 223 AIS patients admitted in our Neurology Department from September 2017 to March 2018 were enrolled in this study. According to Morisky medication adherence scale, they were divided into poor compliance group (score < 6 points, $n$=107) and good compliance group (score ≥ 6 points, $n$=116). The clinical features, recurrence and prognosis 1 year later were compared between the 2 groups. SPSS statistics 20.0 was used to analyze the data. Multivariate logistic regression analysis was employed to analyze the influencing factors of medication compliance. **Results** The proportion of patients with good compliance was 50.02% (116/223). Compared with the poor compliance group, the good compliance group had significantly higher proportions of medical insurance reimbursement, monthly income (>¥1500), urban household registration, hypertension, diabetes mellitus, taking antihypertensive drugs, and taking antidiabetic drugs, while obviously lower proportions of farmers, lower educational level, recurrence of stroke after 1 year and having the score of Modified rankin scale < 3 (all $P$<0.05). Multivariate logistic regression analysis showed that medical insurance reimbursement ($OR$=0.289, 95%$CI$ 1.326-9.002; $P$=0.011), taking antihypertensive drugs ($OR$=2.451, 95%$CI$ 1.064-5.646; $P$=0.035) and hypoglycemic drugs ($OR$=9.515, 95%$CI$ 1.949-46.452; $P$=0.005) were protective factors for drug compliance, while farmers ($OR$=0.320, 95%$CI$ 0.146-0.702; $P$=0.004), monthly income less than ¥1500 ($OR$=0.471, 95%$CI$ 0.238-0.932; $P$=0.031), educational level of primary school or lower ($OR$=0.376, 95%$CI$ 0.168-0.844; $P$=0.018) were risk factors for drug compliance. **Conclusion** The patients with good medication compliance have a

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lower recurrence rate and better prognosis 1 year later. Active attention should be paid to management of the patients without medical insurance reimbursement, with monthly income less than ¥1 500, with educational level of primary school or lower, farmers, without hypertension or diabetes mellitus, and having not taken antihypertensive and antidiabetic drugs.

【Key words】 stroke; medication compliance; influencing factors

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脑卒中是一种急性脑血管疾病,发病率、复发率、致残率和死亡率都高,分为急性缺血性脑卒中(acute ischemic stroke,AIS)和出血性脑卒中,其中AIS最常见,约占全部脑卒中的70%~80%[1]。既往研究显示我国首发AIS患者1年复发率达17.1%[2]。因此,为减少复发,AIS首发后应开始二级预防[3]。二级预防中药物治疗发挥着重要作用[4,5],良好的服药依从性是药物治疗成功的关键。然而我国AIS患者服药依从性并不乐观[6,7],相关研究也较少,既往研究也主要针对复发性AIS。为此,本研究分析了223例首发AIS患者服药依从性的影响因素,以期减少脑卒中复发,改善预后。

## 1 对象与方法

### 1.1 研究对象

纳入遂宁市中心医院神经内科2017年9月至2018年3月收治的首发AIS患者223例,根据Morisky服药依从性量表评分结果,将患者分为服药依从性差组(评分<6分)107例和服药依从性好组116例(评分≥6分)。纳入标准:(1)符合《AIS诊治指南2014》的诊断标准[8];(2)发病时间≤7 d;(3)年龄≥18岁;(4)首次发病。排除标准:(1)意识障碍、失语无法完成量表评估;(2)抗栓及他汀类药物使用禁忌;(3)吞咽功能障碍需安置胃管;(4)既往精神障碍史;(5)既往痴呆史;(6)药物、酒精滥用史;(7)严重肝肾功能不全及肿瘤。本研究患者均签署知情同意书。

### 1.2 方法

1.2.1 服药依从性量表 Morisky服药依从性量表灵敏度为0.93,特异度为0.53[9]。该量表有8个条目,分值0~8分,得分<6分为依从性差,≥6分为依从性好。

1.2.2 调查及评估 由本院经过培训的专科医师在患者出院后3、6个月和1年电话随访,获取服药及预后情况,包括以下内容。(1)姓名、性别、年龄、体质量、身高、住院天数、户口类型、职业、婚姻状况、文化程度、有无医保、月收入水平;(2)高血压、糖尿病、冠心病、心房颤动、血脂异常病史,有无服用抗栓药、他汀类药、降压药和降糖药等,有无吸烟、饮酒,有无神经功能缺损,脑卒中病因分型,有无脑卒中复发,出院1年后神经功能情况。

1.2.3 评估指标标准 (1)脑卒中复发:随访中出现新的神经功能缺损症状或体征。(2)脑卒中结局:采用改良Rankin量表(modified Rankin scale,MRS)评分。MRS评分值3分为脑卒中患者是否有残疾分界点。得分<3分为预后良好,≥3分为预后不好[10]。(3)神经功能缺损评定标准:采用美国国立卫生研究院脑卒中量表(National Institute of Health stroke scale,NIHSS)评分,评分越高表明神经功能缺损越严重[11]。(4)脑卒中病因分型标准:采用急性缺血性脑卒中治疗Org10172试验(Trial of Org 10172 in Acute Stroke Treatment Criteria,TOAST)分型标准[12]。分为大动脉粥样硬化性脑卒中、心源性脑栓塞、小动脉闭塞性脑卒中或腔隙性脑卒中、其他原因所致脑卒中、不明原因AIS共5个类型。(5)吸烟:每天吸烟或平均每周吸烟≥5 d。(6)饮酒:饮高度白酒1次/周,酒精量≥40 g/次,且连续>6个月[13]。(7)高血压诊断标准:非同一天3次测量血压,收缩压≥140 mmHg(1 mmHg=0.133 kPa)和(或)舒张压≥90 mmHg诊断为高血压,或患者既往已诊断为高血压,目前正在服用降压药[14]。(8)糖尿病诊断标准:空腹血糖≥7.0 mmol/L;餐后2 h血糖≥11.1 mmol/L;糖尿病症状;任意时间血糖≥11.1 mmol/L。满足以上任意一项即可诊断糖尿病[15]。或患者既往已诊断为糖尿病,目前正在服用降糖药。(9)高脂血症诊断标准:总胆固醇(total cholesterol,TC)>6.2 mmol/L,甘油三酯(triglycerides,TG)>2.3 mmol/L,高密度脂蛋白胆固醇(high-density lipoprotein cholesterol,HDL-C)<1.0 mmol/L,低密度脂蛋白胆固醇(low-density lipoprotein cholesterol,LDL-C)>4.1 mmol/L。以上任何一项异常诊断为高脂血症[16]。

### 1.3 统计学处理

应用SPSS 20.0统计软件对数据进行分析。计量资料用均数±标准差($\bar{x}\pm s$)表示,组间比较采用$t$检验。计数资料用例数(百分率)表示,组间比较用

$\chi^2$ 检验。多因素 logistic 回归分析服药依从性的影响因素。$P<0.05$ 为差异有统计学意义。

## 2 结 果

### 2.1 2 组患者基线资料比较

服药依从性好患者比例为 50.02%(116/223)。2 组患者年龄、性别、体质量指数(body mass index, BMI)、住院天数和婚姻状况等差异无统计学意义($P>0.05$)。相比服药依从性差组患者,服药依从性好组患者医保报销、月收入≥1 500 元和城市户口患者比例高,农民和文化程度较低患者比例低,差异均有统计学意义($P<0.05$;表 1)。

### 2.2 2 组患者评估指标比较

2 组患者冠心病、心房颤动、高脂血症、吸烟、饮酒、NIHSS 和 TOAST 等比例差异无统计学意义($P>0.05$)。相比服药依从性差组,服药依从性好组患者高血压、糖尿病、服用降压药和降糖药比例高,1 年后脑卒中复发和 MRS<3 分比例低,差异均有统计学意义($P<0.05$;表 2)。

### 2.3 多因素 logistic 回归分析服药依从性的影响因素

以服药依从性为因变量,以医保状况、职业状况、月收入、户口、文化程度、合并高血压、合并糖尿病、服用降压药和降糖药为自变量进行多因素 logistic 回归分析。结果显示有医保报销、服用降压药和降糖药是服药依从性的保护因素;而农民、月收入<1 500 元、小学及以下文化程度是服药依从性的危险因素($P<0.05$;表 3)。

## 3 讨 论

脑卒中发病后除了急性期治疗,二级预防复发的作用也至关重要。黄林欢等[17]回顾性研究了急性动脉粥样硬化脑梗死患者,结果表明第 12 个月服药依从性为 58%。国外研究结果表明脑卒中患者服药依从性为 60%~70%[18,19]。本研究分析了我院 223 例首发 AIS 患者,服药依从性好者比例为 50.02%(116/223),相对于国内外结果较差,其可能与遂宁属地级市,就诊患者中农村人口较多、月平均收入及文化程度相对较低等因素相关。

**表 1 2 组患者基线资料比较**

Table 1 Comparison of baseline data between two groups

| Item | Poor compliance group ($n$=107) | Good compliance group ($n$=116) | $t/\chi^2$ | $P$ value |
|---|---|---|---|---|
| Age(years, $\bar{x}\pm s$) | 68.0±11.5 | 66.6±11.2 | 0.974 | 0.331 |
| Gender(male/female, $n$) | 63/44 | 72/44 | 0.237 | 0.626 |
| Medical insurance[$n$(%)] | | | 14.733 | <0.001 |
| Yes | 78(72.9) | 107(92.2) | | |
| No | 29(27.1) | 9(7.8) | | |
| BMI[$n$(%)] | | | 2.529 | 0.112 |
| <24 kg/m$^2$ | 78(72.9) | 73(62.9) | | |
| ≥24 kg/m$^2$ | 29(27.1) | 43(37.1) | | |
| Profession[$n$(%)] | | | 26.916 | <0.001 |
| Farmer | 93(86.9) | 64(55.2) | | |
| Retired staff | 14(13.1) | 52(44.8) | | |
| Monthly income[$n$(%)] | | | 27.679 | <0.001 |
| ≥ ¥1 500 | 39(36.4) | 83(71.6) | | |
| < ¥1 500 | 68(63.6) | 33(28.4) | | |
| Length of hospitalization[$n$(%)] | | | 0.238 | 0.626 |
| <10 d | 26(24.3) | 25(21.6) | | |
| ≥10 d | 81(75.7) | 91(78.4) | | |
| Registered permanent residence[$n$(%)] | | | 7.811 | 0.005 |
| Urban | 12(11.2) | 30(25.9) | | |
| Rural | 95(88.8) | 86(74.1) | | |
| Marital status[$n$(%)] | | | 1.474 | 0.225 |
| Married | 106(99.1) | 116(100.0) | | |
| Single/Divorced/Widowed | 1(0.9) | 0(0.0) | | |
| Level of education[$n$(%)] | | | 25.109 | <0.001 |
| Primary and below | 94(87.9) | 67(57.8) | | |
| Secondary school and above | 13(12.1) | 49(42.2) | | |

BMI: body mass index.

**表2 2组患者评估指标比较**

Table 2 Comparison of evaluation indicators between two groups [n(%)]

| Item | Poor compliance group (n=107) | Good compliance group (n=116) | $\chi^2$ | P value |
|---|---|---|---|---|
| Hypertension | 58(54.21) | 82(70.69) | 6.472 | 0.011 |
| Diabetes mellitus | 18(16.82) | 39(33.62) | 8.255 | 0.004 |
| CHD | 2(1.87) | 4(3.45) | 0.099 | 0.754 |
| AF | 13(12.15) | 22(18.97) | 1.954 | 0.162 |
| Hyperlipidemia | 32(29.91) | 30(25.86) | 0.454 | 0.501 |
| Smoking | 27(25.23) | 34(29.31) | 0.465 | 0.495 |
| Drinking | 26(24.30) | 30(25.86) | 0.072 | 0.788 |
| Score of NIHSS | | | 5.799 | 0.215 |
| 0-1 | 20(18.70) | 27(23.28) | | |
| 2-4 | 43(40.19) | 42(36.21) | | |
| 5-15 | 37(34.58) | 40(34.82) | | |
| 16-20 | 4(3.74) | 7(6.03) | | |
| 21-42 | 3(2.80) | 0(0.0) | | |
| TOAST classification | | | 9.303 | 0.054 |
| SAO | 49(45.79) | 65(56.03) | | |
| LAA | 37(34.58) | 26(22.41) | | |
| CE | 14(13.08) | 20(17.24) | | |
| SOE | 0(0.00) | 2(1.72) | | |
| SUE | 7(6.54) | 3(2.59) | | |
| Taking antihypertensive drugs | 18(16.82) | 49(42.24) | 17.110 | <0.001 |
| Taking hypoglycemic agents | 10(9.35) | 37(31.90) | 17.016 | <0.001 |
| Stroke recurrence 1 year later | 20(18.70) | 4(3.45) | 13.466 | <0.001 |
| MRS 1 year later <3 score | 77(71.96) | 108(93.10) | 17.597 | <0.001 |

CHD: coronary heart disease; AF: atrial fibrillation; NIHSS: National Institute of Health Stroke Scale; TOAST: Trial of Org 10 172 in Acute Stroke Treatment Criteria; SAO: small-artery occlusion; LAA: large-artery atherosclerosis; CE: cardioembolism; SOE: stroke of other determined etiology; SUE: stroke of undetermined etiology; MRS: Modified Rankin Scale.

**表3 多因素logistic回归分析服药依从性的影响因素**

Table 3 Multivariate logistic regression analysis of influencing factors on medication compliance

| Factor | *B* | *SE* | *Wald* | *P* value | OR(95%*CI*) |
|---|---|---|---|---|---|
| Medical insurance | -1.240 | 0.489 | 6.440 | 0.011 | 0.289(1.326-9.002) |
| Farmer | 1.138 | 0.400 | 8.085 | 0.004 | 0.320(0.146-0.702) |
| Monthly income<￥1 500 | 0.754 | 0.348 | 4.678 | 0.031 | 0.471(0.238-0.932) |
| Registered permanent residence | 0.292 | 0.489 | 0.357 | 0.550 | 0.746(0.286-1.974) |
| Primary and below | 0.978 | 0.412 | 5.626 | 0.018 | 0.376(0.168-0.844) |
| Hypertension | -0.293 | 0.381 | 0.588 | 0.433 | 1.340(0.634-2.830) |
| Diabetes mellitus | -1.043 | 0.737 | 2.002 | 0.157 | 2.837(0.669-12.026) |
| Taking antihypertensive drugs | -0.896 | 0.426 | 4.430 | 0.035 | 2.451(1.064-5.646) |
| Taking hypoglycemic agents | -2.253 | 0.809 | 7.756 | 0.005 | 9.515(1.949-46.452) |

本结果显示有医保报销、服用降压药和降糖药是服药依从性的保护因素;而农民、月收入<1 500元、小学及以下文化程度是服药依从性的危险因素,这与我们前期研究结论保持基本一致[20]。分析其原因可能是:(1)脑卒中二级预防药物需长期规律服用,费用较高,经济负担增加,因此无医保报销者、月收入较少者可能迫于经济压力而中断服药,导致服药依从性差;(2)服药依从性具有地区差异,城市患者接受脑卒中发生、发展及预后相关知识的渠道多,对疾病重视和认知的程度更高,因此能遵医嘱服药;(3)农民患者及文化程度较低者除了负担药物费用有困难之外,也不能充分理解二级预防对脑卒中复发及改善预后的重要性,不能主动或被动学习脑卒中二级预防的相关知识,正确理解药物的副作用,药物认知性差,因此服药依从性差。

本研究发现,相对于服药依从性差组,服药依从性好组患者高血压、糖尿病、服用降压药和降糖药比例高[20]。高血压及糖尿病是常见病、多发病,重视自身健康的患者均需长期自行或到医疗场所监测血压及血糖,因此有可能反复接受医务人员对疾病的

健康宣教,理解慢性疾病长期用药的重要性,并牢固树立长期服药意识。因此,当合并高血压、糖尿病患者首发脑卒中后,能更准确和及时地认识脑卒中的危险性,长期规律服药的可能性大,因此药物依从性好。另外,真正能坚持长期服用降压及降糖药的患者也必然能坚持服用抗栓药及降脂药。国内外研究提示糖尿病和高血压是导致脑梗死复发及预后的危险因素,合并高血压和糖尿病首发 AIS 患者的服药依从性也好[21-23]。本研究结果也表明服药依从性好组 1 年后脑卒中复发和 MRS<3 分比例低,充分表明服药依从性好可降低 AIS 复发,改善预后。

本研究结果表明 2 组患者冠心病和心房颤动比例差异无统计学意义,但服药依从性好组的比例相对较高。Ji 等[6] 研究显示心房颤动史是脑卒中后 3 个月持续服药的决定因素。说明大部分患者对心脑血管疾病的危险性有比较深入的认知,能遵医嘱服药。2 组患者的 NIHSS 评分及 TOAST 病因分型差异无统计学意义,提示患者服药依从性可能与其神经功能和脑卒中病因无关。另外,由于时间和人力原因,本研究纳入病例相对较少,而且是单中心研究,可能存在一定的选择偏倚。

综上,遂宁市首发 AIS 患者二级预防服药依从性较差。提高患者的服药依从性需门诊、社区、医务人员及家庭成员积极参与,重点针对无医保报销、月收入<1 500 元、小学及以下文化程度、农民、未合并高血压、糖尿病及未服用降压药和降糖药患者,应积极管理其可控因素。

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