·临床研究·

缺血性脑卒中高危因素贝叶综合征的心电图表现及其与缺血性脑卒中其他危险因素的相关性

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【摘 要】 目的 探讨急性缺血性脑卒中(AIS)新危险预警指标——贝叶综合征(Bayes综合征)的心电图表现及其与AIS其他危险因素的相关性。**方法** 选择2018年10月至2019年6月甘肃省酒泉市人民医院收治的心电图为窦性心律的195例AIS患者为研究对象,其中心源性栓塞性卒中患者80例(栓塞性卒中组),非栓塞性卒中患者115例(非栓塞性卒中组),比较2组患者一般资料、AIS相关危险因素、美国国立卫生研究院卒中量表(NIHSS)评分及房间阻滞综合征(IAB)的发生情况。将存在IAB的98例患者分为不完全IAB(pIAB)组和高度IAB(aIAB)组,比较2组患者阵发性心房颤动(简称房颤)史、左心房内径及心源性栓塞性卒中发生情况。采用SPSS 22.0统计软件进行数据分析。根据数据类型分别采用t检验或χ^2检验。危险因素的判断采用多因素logistic回归分析。**结果** 栓塞性卒中组中53例(66.2%)患者常规心电图存在IAB,IAB和已知的心源性卒中危险因素高血压、阵发性房颤史、左心房扩大在2组中差异均有统计学意义(均$P<0.05$);2组NIHSSP评分比较,差异有统计学意义($P<0.05$),栓塞性卒中组卒中程度重。阵发性房颤史、左心房扩大、心源性栓塞性卒中在aIAB中有较高的检出率(均$P<0.05$)。**结论** Bayes综合征的心电图表现是AIS(尤其心源性栓塞性卒中)的新危险预测因素,心电图表现为aIAB时更有利于预测心源性栓塞性卒中的发生及提高左心房扩大、房颤等危险因素的检出率。因此,重视Bayes综合征的心电图表现对提高脑卒中筛查与防治效果有重要的临床意义。

【关键词】 缺血性卒中;贝叶综合征;危险因素;相关性研究

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A high risk factor of acute ischemic stroke — Bayes syndrome: ECG manifestation and its correlation with other risk factors of acute ischemic stroke

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【Abstract】 Objective To investigate the ECG manifestation of Bayes syndrome, a new early risk warning indicator of acute ischemic stroke(AIS), and its correlation with other risk factors of AIS. **Methods** A total of 195 AIS patients with sinus rhythm by electrocardiography (ECG) admitted to Jiuquan People's Hospital from October 2018 to June 2019 were enrolled in this study, including 80 patients in cardiogenic embolic stroke group and 115 patients in non-embolic stroke group. The general information, AIS-related risk factors, National Institutes of Health stroke scale (NIHSS) score, and interatrial block (IAB) differences were compared between the two groups. Ninety-eight patients with IAB were further assigned into partial IAB (pIAB) and advanced IAB (aIAB) subgroups, and history of paroxysmal atrial fibrillation, left atrial diameter, and incidence of cardiogenic embolic stroke were analyzed between the two subgroups. SPSS statistics 22.0 was used to perform the statistical analysis. Student's t test or *Chi*-square test was employed for different data types. Multivariate logistic regression analysis was adopted to analyze the influencing factors of cardioembolic stroke. **Results** In the embolic stroke group, 53 patients (66.2%) had IAB on routine ECG, and IAB was significantly different between the two groups ($P<0.05$), as were known risk factors for cardiogenic stroke, hypertension, paroxysmal atrial fibrillation, left atrial enlargement. There was statistical difference in NIHSS score between the two groups ($P<0.05$), and the embolic stroke group experienced severer stroke. History of paroxysmal atrial fibrillation, left atrial enlargement, and cardiogenic embolic stroke were more common in the aIAB subgroup ($P<0.05$). **Conclusion** The ECG manifestation of Bayes syndrome is a new risk predictor for AIS, especially for cardiogenic embolic stroke. The manifestation of aIAB on electrocardiogram is more conducive to predict the occurrence of cardiogenic embolic stroke and improve the detection rate of risk factors such as left atrial enlargement and atrial fibrillation. So, attention to ECG manifestation of Bayes syndrome can improve stroke screening and prevention, and has important clinical significance.

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脑卒中已超过心血管疾病成为我国第一死亡原因,急性缺血性脑卒中(acute ischemic stroke, AIS)是最主要的脑卒中形式,占我国脑卒中的69.6%~70.8%[1,2],而心源性栓塞性卒中占AIS的17.0%~36.0%[3]。此外,临床仍有30%的隐源性脑卒中,即应用各种方法评价后难以确定脑卒中发生原因的患者[4],因此我们必须重视和认识脑卒中的危险因素。近年来,贝叶综合征(Bayes综合征)被认为是AIS新的危险因素。同其他心电图综合征一样,Bayes综合征是一种心电图表现为房间阻滞综合征(interatrial block, IAB),并由此引发的快速性室上性心律失常[特别是心房颤动(简称房颤)]、左心房功能减退、栓塞性卒中等临床表现的综合征[5]。依据体表心电图的表现,IAB有二分法和三分法,目前大多数研究者应用二分法,将IAB分为不完全IAB(partial interatrial block, pIAB)和高度IAB(advanced interatrial block, aIAB)[6]。

Bachman于1941年报道了第1例IAB,Bayes de Luna等[7]精确分析了与IAB相关的室上性心律失常的患病率、病理关联性和特征,但直到2014年Bayes综合征才正式命名。目前,Bayes综合征及其相关的危害性仍未能得到广大临床医师的足够认识,因此本研究旨在探讨Bayes综合征的心电图表现及其对AIS(特别是心源性栓塞性卒中)的危险性预警和AIS危险因素之间的关系,以期指导临床对脑卒中的防治。

1 对象与方法

1.1 研究对象

选择2018年10月至2019年6月甘肃省酒泉市人民医院诊治的心电图为窦性心律的195例AIS患者为研究对象,所有患者均符合中国AIS诊治指南2018的诊断标准[8]。详细记录患者的临床资料,年龄、性别、高血压病史、糖尿病史、高脂血症病史、房颤史、IAB、吸烟史、饮酒史及入院时美国国立卫生研究院卒中量表(National Institutes of Health stroke scale, NIHSS)评分。所有患者住院期间均行头颅电子计算机断层扫描(computed tomography, CT)或磁共振成像(magnetic resonance imaging, MRI);心脏超声检查测量左心房内径确定左心房大小;常规12导联心电图检查,测量标准Ⅱ导联P波起止时间,再用同步十二导联校正,使用最大P波持续时间。排除标准:经颅脑MRI和(或)CT证实为出血性卒中;其他严重全身疾病导致的弥漫脑功能障碍;严重心、肝、肾、肺部疾病;甲减、甲亢性心脏病或资料不全。

1.2 方法

按急性脑卒中治疗中的审判(Trial of Org 10172 in Acute Stroke Treatment, TOAST)分型。195例患者中80例心源性栓塞型患者分为栓塞性卒中组;115例动脉粥样硬化型、小动脉闭塞型患者分为非栓塞性卒中组。比较2组一般资料、缺血性脑卒中相关危险因素及入院时NIHSS评分。195例患者中98例存在IAB,依据二分法将患者分为pIAB组(52例)和aIAB组(46例),分析左心房扩大、房颤史、心源性栓塞性脑卒中在2组间的差异。

1.3 统计学处理

采用SPSS 22.0统计软件进行数据分析。计量资料以均数±标准差($\bar{x}\pm s$)表示,组间比较采用t检验;计数资料以例数(百分率)表示,组间比较采用χ^2检验;危险因素的判断采用多因素logistic回归分析。$P<0.05$为差异有统计学意义。

2 结 果

2.1 2组临床资料比较

2组高血压史、房颤史、IAB、左心房扩大、入院时NIHSS评分比较,差异均有统计学意义(均$P<0.05$;表1)。

表1 栓塞性卒中组和非栓塞卒中组临床资料比较

Table 1 Comparison of clinical data between embolic stroke group and non-embolic stroke group

Item	Embolic stroke group (n=80)	Non-embolic stroke group (n=115)	P value
Age(years, $\bar{x}\pm s$)	70.1±11.2	69.7±11.0	0.674
Gender[n(%)]			0.682
Male	46(57.5)	63(54.8)	
Female	34(42.5)	52(45.2)	
Diabetes mellitus[n(%)]	25(31.2)	34(29.6)	0.408
Hypertension[n(%)]	54(67.5)	42(36.5)	0.002
Hyperlipidemia[n(%)]	27(33.8)	36(31.3)	0.473
Past AF[n(%)]	29(36.2)	20(17.4)	0.018
IAB[n(%)]	53(66.2)	45(39.1)	0.006
LAE[n(%)]	45(56.2)	21(18.3)	0.001
NIHSS score(points, $\bar{x}\pm s$)	17.3±10.3	7.0±6.5	0.023
Smoking history[n(%)]	27(33.8)	37(32.2)	0.637
Drinking history [n(%)]	22(27.5)	30(26.1)	0.582

AF: atrial fibrillation; IAB: interatrial block; LAE: left atrial enlargement; NIHSS: National Institutes of Health stroke scale.

2.2 栓塞性卒中组危险因素的多因素 logistic 回归分析

以栓塞性卒中是否发生为因变量,以房颤史、高血压、左心房扩大、IAB 为自变量进行 logistic 回归分析。结果显示房颤史、高血压、左心房扩大、IAB 是栓塞性卒中组患者的危险因素(表 2)。

2.3 pIAB 组与 aIAB 组患者临床资料比较

98 例 IAB 患者中,aIAB 组房颤史、心源性脑卒中检出率高于 pIAB 组;左心房内径明显大于 pIAB 组;左心房扩大比例大于 pIAB 组,差异均有统计学意义(均 $P<0.05$;表 3)。

3 讨 论

心房颤动、左心房肥大是心源性栓塞性脑卒中的强预测因素,大量研究发现 IAB 是室上性心律失常特别是房颤的重要基质,是左心房扩大及功能障碍的强预测因素,亦与缺血性脑卒中风险增加独立相关[5,9]。IAB 主因是巴赫曼(Bachman)束传导障碍导致左心房激动延迟和逆行激动使左心房电机械功能失调,左心房收缩力差使血流速度减慢、左心房压力升高和左心房扩大,从而诱发各种快速房性心律失常特别是房颤的发生,进而导致左心耳血栓形成,其是栓塞性脑卒中发生的基础[10,11]。Ariyarajah 等[12]报道一组表现为窦性心律的心源性栓塞患者,61%常规心电图存在 IAB,提示 IAB 是栓塞性卒中的一个新的危险因素。本研究中发现 IAB 在心源性栓塞性卒中的检出较高,与以上结论一致。需要强调的是大约 30%的缺血性卒中是隐源性的,一个解释是 IAB 可能对一些无法解释的缺血性脑卒中负责[13,14]。Cotter 等[15]报道了隐源性脑卒中患者 IAB 的发病率增加,此外,一项研究指出,卒中风险评分($CHADS_2$)可预测无心房纤颤的 IAB 患者发生缺血性卒中的风险[9,15],均提示 IAB 可能是不明原因缺血性卒中的原因,其原因为 IAB 时左心房辅助泵的作用完全消失或严重受损使心房内血流速度减慢,在未发生左心房扩大、房颤之前血栓已经形成,导致隐源性栓塞性卒中发生。此外,NIHSS 评分已被普遍用于脑卒中患者神经功能缺损程度的评估,0~5 分为轻度脑卒中,6~15 分为中度脑卒中,>15 分为重度脑卒中[16]。本研究中,栓塞性卒中组比非栓塞性卒中组患者入院时 NIHSS 评分明显增高,因此心源性栓塞性卒中组临床后果更严峻。

长期高血压及随着年龄增长而发生的心肌顺应性下降,使心室舒张功能不全,心脏结构重塑,血流储备发生变化,导致左心房血流动力异常、左心房扩大及血流慢,从而促进房颤及血栓形成。Sun 等[17]研究表明,中国人群中高血压与 IAB 独立并显著相关,增加了栓塞性卒中的发生。

尽管IAB(尤其是aIAB)可提高左心房扩大的检出率,但左心房扩大和IAB却是两个平行的独立体[18]。资料表明[19,20],aIAB伴有左心房扩大的房性心律失常的发生率显著高于仅有左心房扩大或左心房扩大合并不完全性IAB,且IAB时限每增加1 ms,房颤发生率增加7%;P波越宽,阵发性房颤发展为慢性房颤的概率越大,同时对进行射频消融术

表 2 栓塞性卒中组危险因素的多因素 logistic 回归分析

Table 2 Multivariate logistic regression analysis on risk factors in embolic stroke group

Factor	*B*	*SE*	*Walds*	*P* value	*OR*	95%*CI*
Past AF	−1.264	0.549	4.342	<0.05	1.283	1.097−1.914
Hypertension	0.146	0.031	24.175	<0.01	1.136	1.083−1.234
LAE	0.154	0.029	21.393	<0.01	1.158	1.074−1.396
IAB	0.254	0.023	21.256	<0.01	1.161	1.081−1.572

AF: atrial fibrillation; LAE: left atrial enlargement; IAB: interatrial block.

表 3 pIAB 组与 aIAB 组临床资料比较

Table3 Comparison of clinical data between pIAB group and aIAB group

Item	*n*	Past AF[*n*(%)]	Left atrial size(mm, $\bar{x}\pm s$)	Cardiogenic embolic stroke[*n*(%)]	LAE[*n*(%)]
pIAB group	52	8(15.4)	32.4±9.3	9(17.3)	14(26.9)
aIAB group	46	20(43.5)	44.0±16.2	30(65.2)	38(82.6)
P value		<0.05	<0.05	<0.05	<0.05

pIAB: patial interatrial block; aIAB : advanced interatrial block; AF: atrial fibrillation; LAE: left atrial enlargement.

的房颤患者随访发现,aIAB患者房颤的复发率高于非IAB和pIAB。另一项研究对存在aIAB与pIAB的患者平均随访22年发现,存在aIAB的患者脑卒中发生率显著高于pIAB和非IAB患者,表明aIAB是缺血性脑卒中发生的独立危险因素[21],且aIAB对临床造成的危害更显著。本研究结果显示,aIAB组中左心房扩大、房颤、栓塞性卒中的检出率高于非栓塞性卒中组,与上述观点一致。

IAB随年龄增长而增加,其次心房肌纤维化、糖尿病、高血压心房重构、动脉粥样硬化、窦房结动脉痉挛、缺血均可致Bachman束传导中断或延缓进而引发IAB[5]。一项针对1 000例窦性心律患者的调查显示,60岁以上患者IAB的发生率达59%[22]。Martínez-Sellés等[23]对社区老人的研究报告指出,IAB在百岁老人中的发生率高于70岁老人。本研究入组患者平均年龄较大,是IAB在对照组发生率并不低的原因。

综上,Bayes综合征是一种新的缺血性脑卒中(包括隐源性卒中)的危险因素,IAB(尤其是aIAB)与缺血性脑卒中相关危险因素高血压、左心房扩大、阵发房颤等独立相关。对确诊IAB(尤其是aIAB)的患者应密切随访、及早干预,降低脑卒中的发生率、再发率、致死率和致残率。此外,Bayes综合征心电图是一种普遍存在的心电现象,是临床医师,乃至心电图医师都容易忽视的诊断。因此我们呼吁广大心电图室医师和临床医师重视Bayes综合征与缺血性脑卒中之间的关系。

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致"一带一路"沿线国家和地区医学机构

《中华老年多器官疾病杂志》是由中国工程院院士、老年心脏学专家王士雯教授于 2002 年创办的全世界惟一一本以老年心脏病和老年心脏病合并其他器官疾病为主要内容的杂志,月刊,由中国人民解放军总医院老年心血管病研究所主办。杂志已被"中国科技论文统计源期刊"(中国科技核心期刊)收录。本杂志的摘要、图表和参考文献,均为中、英文双语对照,方便国外读者顺利阅读。为促进中国与"一带一路"沿线国家和地区的医学及文化交流,本刊将免费刊登其来稿,并赠送当期杂志。欢迎"一带一路"沿线国家和地区的老年心脏病和老年病学医生、学者踊跃投稿。

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