

老年人动态心电图心律失常特点及对阵发性房颤的诊断

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摘要 目的:分析 65 岁以上老年人十二导联动态心电图(12-Holter)心律失常的特点及其对阵发性房颤的诊断价值。方法:①采用回顾性分析的方法,随机选择 500 例 65 岁以上老年人的动态心电图进行心律失常情况的统计分析,并同时选择 500 例小于 65 岁的心电图作为对照;②另选择 500 例 65 岁以上老年人的十二导联普通心电图(ECG)作为对照,对比分析 12-Holter 与 ECG 两种方法对老年人阵发性房颤的检出率。结果:① 65 岁以上老年人动态心电图各种心律失常、ST-T 改变的发生率高。而在各类心律失常中房性早搏、室性期前收缩、房性心动过速、房颤发生率较高。② 动态心电图对于阵发性房颤的检出率显著高于普通十二导联心电图。结论:① 老年人动态心电图检查结果异常率高;② 与普通心电图比较,动态心电图诊断老年人阵发性房颤有较高的价值。

关键词 动态心电图 老年人 心律失常 阵发性房颤

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HOLTER Monitoring and Analysis of Arrhythmic Feature and Diagnostic Value of Paroxysmal Atrial Fibrillation of People Aged Over 65

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ABSTRACT Objective: To explore 12-leads HOLTER monitoring and analysis arrhythmic feature and diagnostic value of Paroxysmal Atrial fibrillation of aged people more than 65 years. **Methods:** ① Use retrospective analysis method, selected 500 cases the age over 65 years people randomly, the dynamic ECG of arrhythmia were analysed, and also select 500 cases less than 65 years of age as control. ② Randomly selected 500 cases over 65 years old people's normal twelve-lead electrocardiogram (ECG) as control, analysis the detection rate of paroxysmal atrial fibrillation and compared with the 12-Holter ECG. **Results:** ① Holter monitoring over 65 years old, the incidence of various arrhythmias, reduced heart rate variability, ST-T changes is higher. Various types of arrhythmia, the incidence of atrial premature beats, ventricular contraction, atrial tachycardia, atrial fibrillation are higher. ② The detection rate for paroxysmal atrial fibrillation, Holter monitoring was significantly higher than normal 12-lead ECG. **Conclusions:** ① High rate abnormalities were detected in Holter monitoring of aged people. ② Compared with normal ECG, Holter diagnosis of paroxysmal atrial fibrillation in the elderly have a higher value.

Key words: Dynamic electrocardiogram; Aged people; Arrhythmia; PAF

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前言

由于年龄的增长,各类型心律失常在老年人中极为常见^[1-3]。研究表明,随着人口老龄化和心血管疾病发病率的增高以及心血管病(如冠心病心肌梗死和心力衰竭等)患者生存率的提高,使得房颤(Atrial fibrillation, AF)发病率不断增高。预测结果表明在未来 50 年,AF 将成为最流行的心血管疾病之一^[4-8]。Framingham 研究表明,经年龄和心血管疾病危险因素调校后,房颤仍是死亡率增加的一个重要危险因素,即使没有其他心血管疾病,房颤仍然使死亡率增加近 1 倍^[9]。房颤最为严重的并发症是血栓栓塞,特别是脑栓塞即缺血性脑卒中,可使患者致残或致死,我国房颤患者脑卒中的患病率达 24.8%,严重影响患者的

健康并可危及其生命^[10]。除以上危害之外,房颤还可影响患者的生活质量。老年人对机体出现异常与不适的敏感性降低,对无任何症状的健康老年人或自觉脉率不齐,有心前区不适而常规心电图无改变的老年人,需行动态心电图检查以期早期发现心律失常的存在,采取相应的防治措施,对降低老年患者猝死率具有重要意义。本研究对老年人十二导联动态心电图(12-Holter)心律失常的特点及其对阵发性房颤的诊断价值进行分析。

1 资料与方法

1.1 一般临床资料

本研究的心电图资料全部来自我院 2008 年至 2011 年在我院门诊或住院的人群。500 例 65 岁以上的老年患者中,男性 283 例,女性 217 例,年龄 66~93 岁,平均年龄(76±18)岁。疾病分布:45% 有冠心病,50% 有高血压性心脏病,20% 有糖尿

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病,18%有脑梗死,部分老年人合并2种或2种以上的慢性疾病。500例65岁或以下人群中,男性265例,女性235例,年龄17岁~65岁,平均年龄(47±12)岁。30%有冠心病,33%有高血压性心脏病,17%有糖尿病,10%有脑梗死,7%有心肌炎,2%有器质性心脏病,30%患者有其他如血脂异常等疾病。

1.2 仪器设备及检测方法

使用康泰公司生产的TLC4000的同步12导联动态心电图记录仪,连续监测24h心电图,将采集的心电信息输入计算机系统处理,对计算机自动分析的结果进行检查、修改、编辑,最后分析写出报告。

1.3 诊断标准

心电图的诊断标准按照陈新等主编的《黄宛临床心电图学》(第6版)的诊断标准进行。

1.4 统计分析

采用SPSS12.0进行数据录入及统计,计量资料采用($\bar{x} \pm s$)表示,各组间均数比较采用非配对t检验,计数资料的比较用 χ^2 检验,以 $P < 0.05$ 为有统计学意义。

2 结果

2.1 动态心电图对比分析老年人心律失常情况

通过整理、分析,我们发现65岁以上老年人的动态心电图中心律失常的发生率显著高于65岁以下人群(47.0% VS 34.2%),其中窦性心动过缓(8.6% VS 5.4%),房性期前收缩(56.2% VS 46.6%),房颤或房扑(9.4% VS 4.2%),室性期前收缩(51.8% VS 42.6%)的发生率有显著差异, $P < 0.05$ 或 $P < 0.01$ (见表1~2)。

Table 1 The analysis of arrhythmia in DCG in people over 65 years

Type of Arrhythmia	Cases(%)	
	>65 years	≤65 years
Sinus tachycardia	33 (6.6%)	31(6.2%)
Sinus bradycardia	43 (8.6%)	27(5.4%) [#]
Premature atrial contraction	281 (56.2%)	233(46.6%) ^{##}
Atrial fibrillation & atrial flutter	47(9.4%)	21(4.2%) ^{##}
Ventricular premature contraction	259(51.8%)	213(42.6%) ^{##}
Paroxysmal ventricular tachycardia	34 (6.8%)	21(4.2%)
Junctional premature beat	7(1.4%)	4 (0.8%)

Noet: Compared with <65 years group, [#] $P < 0.05$; ^{##} $P < 0.01$.

Table 2 The incidence of arrhythmia in People over 65 years old and less 65 years old

Groups	N	Arrhythmia (%)			Atrial fibrillation (%)		
		Male	Female	Total	Male	Female	Total
>65 years	500	101(20.2%)	134(26.8%) ^{##}	235(47.0%) ^{##}	16(3.2%)	14(2.8%)	30(6.0%) [#]
≤65 years	500	87(17.4%)	84(16.8%)	171(34.2%)	8(1.6%)	7(1.4%)	15(3.0%)

Note: Compared with <65 years group, [#] $P < 0.05$; ^{##} $P < 0.01$.

2.2 动态心电图对比分析老年人其他心电图异常情况

我们还同时分析了其他类型的心电图异常情况,如ST-T改变、束支传导阻滞、房室传导阻滞、窦房阻滞等。我们发现,65岁以上人群ST-T改变(37.4% VS 26.2%)、房室传导阻滞

(11.4% VS 6.4%)、窦房阻滞(5.2% VS 2.4%)的发生率要明显高于65岁以下人群, $P < 0.05$ 或 $P < 0.01$,但束支传导阻滞的发生率则差异不大, $P > 0.05$ (结果见表3)。

Table 3 Other types of ECG abnormalities in People over 65 years old and less 65 years old

GROUPS	N	ST-T Change	Bundle-branch block	Atrioventricular block	Sinoatrial block
>65 years	500	187(37.4%) ^{##}	67(13.4%)	57(11.4%) ^{##}	26(5.2%) [#]
≤65 years	500	131(26.2%)	63(12.6%)	32(6.4%)	12(2.4%)

Note: Compared with <65 years group, [#] $P < 0.05$; ^{##} $P < 0.01$.

2.3 普通心电图与动态心电图对老年人PAF的检出率分析

此外我们还比较了动态心电图、与普通十二导联心电图对于阵发性房颤的检出率,发现动态心电图对阵发性房颤的检出

率要高于普通十二导联心电图(3.4% VS 1.4%), $P < 0.05$ (结果见表4)。

Table 4 Detection rate of paroxysmal atrial fibrillation in over 65 years using 12 leads ECG or 12 leads DCG

Test facility	Cases	Detection rate		Sum Detection rate
		Male	Female	
12-ECG	500	3(0.6%)	4(0.8%)	7(1.4%)
12-Holter	500	8(1.6%)	9(1.8%)	17(3.4%)#

Note: Compared with 12-ECG group, #P<0.05; ##P<0.01.

3 讨论

动态心电图由美国物理学博士 Norman J. Holter 于 1957 年发明,故又称 Holter^[11]。目前,该技术已在国内外广泛应用。12-Holter 作为一种无创的诊断方法,能进行长达 24 h 的 12 导联心电图同步连续记录,并能应用计算机自动分析软件进行心律失常及 ST 段改变检测分析,能明确诊断 AF 并检测发现隐匿性的 PAF,并对 PAF 及 AF 的始动因素进行研究分析。

目前研究表明,导致老年人心律失常比例上升及其他心电图异常的原因主要有高血压、心脏(肌)的退行性变、慢性阻塞性肺疾病、冠心病等^[12-15],与老年人心肌有不同程度的纤维化、退行性及缺血性改变,脂肪浸润、纤维增生等可引起心脏传导系统的冲动和传导障碍,退行性病变还侵犯心脏传导系统使窦房结自律性低下,起搏细胞数目减少,功能减退及迷走神经张力增高的机制有关。临床主要表现为窦缓、窦停或慢快综合征。

心房颤动是临床常见的心律失常,其主要危害在于可引起血栓栓塞事件、诱发或加重心衰,严重影响患者的生活生存质量^[16]。房颤分为三种类型^[17,18]:阵发性房颤(paroxysmal atrial fibrillation, PAF)、持续性房颤、永久性房颤。PAF可引起心悸等不适,也可能引发血栓栓塞及心功能不全。PAF可能是持续性AF的前驱表现,随着PAF反复发作,PAF发作频率增加,持续时间延长等“房颤负荷”增大,最终可发展为持续性^[19]。发现并有效控制PAF对于防治AF的发生与危害具有重要意义。防控PAF的发作,关键在于能够发现并明确诊断PAF并深入了解PAF发作动因及机制。本组数据表明,十二导联动态心电图对于监测老年人的心律失常有重要的作用,特别是对于诊断老年人的阵发性房颤具有较高的价值,十二导联动态心电图还可发现老年人更多潜在的未被发现的心律失常,这对于临床防治老年人心脑血管事件的发生具有较高的指导意义。12-Holter还可以判断房性早搏起源部位,以深入了解PAF的触发情况及其相关的心电信息,探讨PAF的触发机制与特点,为PAF的防治提供依据。

参考文献(References)

- [1] Jones DC, Osborn GK, Kimeldorf DJ. Cardiac arrhythmia in the aging male rat [J]. Gerontologia, 1967, 13(4):211-218
- [2] De Meersman RE. Aging as a modulator of respiratory sinus arrhythmia [J]. J Gerontol, 1993, 48:B74-78
- [3] Alexander JK. Cardiac arrhythmia at high altitude: the progressive effect of aging [J]. Tex Heart Inst J, 1999, 26:258-263
- [4] Lau DH, Mackenzie L, Kelly DJ, et al. Short-term hypertension is associated with the development of atrial fibrillation substrate: a study

- in an ovine hypertensive model [J]. Heart Rhythm, 2010,7(3):396-404
- [5] Drozdov DD, Nazarenko VR. Atrial fibrillation in a patient with hypertension following discontinuation of dopegit [J]. Vrach Delo, 1972, 10:50-51
- [6] Von Ukena C, Neuberger HR, Bohm M. Atrial fibrillation--a complication in hypertension [J]. MMW Fortschr Med, 2011, 153:47-48
- [7] Go AS, Hylek EM, Phillips KA, et al. Prevalence of Diagnosed Atrial Fibrillation in Adults National Implications for Rhythm Management and Stroke Prevalence: the Anticoagulation and Risk Factors in Atrial Fibrillation (ATRIA) Study [J]. JAMA, 2001,285:2370-2375
- [8] 周自强, 胡大一, 陈捷, 等. 中国心房颤动现状的流行病学研究[J]. 中华内科杂志, 2004,43: 491-494
Zhou Zi-qiang, Hu Da-yi, Chen Jie, et al. China the status of epidemiological studies of atrial fibrillation [J]. Chinese Journal of Internal Medicine, 2004,43: 491-494
- [9] Kannel WB, Abbot D, Savage DD, et al. Coronary heart disease and atrial fibrillation: the Framingham study [J]. Am Heart J, 1983, 106(2):389-396
- [10] Hao Zhen. The progress of treatment of paroxysmal atrial fibrillation in elderly people [J]. Jilin Medical Journal, 2011,32(22):4661-4663
- [11] Hinkle LE, Jr., Meyer J, Stevens M, Carver ST. Tape recordings of the ECG of active men. Limitations and advantages of the Holter-Avionics instruments [J]. Circulation, 1967, 36:752-765
- [12] Masi CM, Hawkey LC, Rickett EM, Cacioppo JT. Respiratory sinus arrhythmia and diseases of aging: obesity, diabetes mellitus, and hypertension [J]. Biol Psychol, 2007, 74:212-223
- [13] Bakeeva LE, Barskov IV, Egorov MV, et al. Mitochondria-targeted plastoquinone derivatives as tools to interrupt execution of the aging program. 2. Treatment of some ROS- and age-related diseases (heart arrhythmia, heart infarctions, kidney ischemia, and stroke) [J]. Biochemistry (Mosc), 2008, 73:1288-1299
- [14] Luthi M, Roach DE, Beaudin AE, et al. Effects of ovarian hormones and aging on respiratory sinus arrhythmia and breathing patterns in women[J]. Clin Auton Res, 2008, 18:134-144
- [15] Masi CM, Hawkey LC, Rickett EM, et al. Respiratory sinus arrhythmia and diseases of aging: obesity, diabetes mellitus, and hypertension[J]. Biol Psychol, 2007, 74:212-223
- [16] Dorian P, Jung W, Newman D, et al. The impairment of life in patients with intermittent of atrial fibrillation health-related quality: implications for the assessment of investigational therapy [J]. J AM Coll Cardiol, 2000, 36:1303-1309

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参考文献(References)

- [1] Chan SH, Liu PY, Lin LJ, et al. Predictors of in 2 hospital mortality in patients with acute aortic dissection[J]. Int J Cardiol, 2005,105(3):267
- [2] 汪曾炜,刘维永,张宝仁.心脏外科学[M].北京:人民军医出版社, 2003:1534-1545
Wang Zeng-wei, Liu Wei-yong, Zhang Bao-ren. Cardiac surgery[M]. Beijing: People's Medical Publishing House, 2003:1534-1545
- [3] 孙永辉,邹承伟,李德才,等.Stanford A 型主动脉夹层的外科治疗[J]. 山东大学学报(医学版),2011,49(1):71-74
Zhang Yong-hui, Zou Ceng-wei, Li De-cai, et al. Surgical treatment of Stanford type A aortic dissection[J]. Journal of Shandong University (Health Sciences), 2011,49(1):71-74
- [4] Hoefer D, Ruttman E, Riha M, et al. Factors influencing intensive care unit length of stay after surgery for acute aortic dissection type A [J]. Ann Thorac Surg, 2002 ,73(3):714-718
- [5] Hagan PG, Nienaber CA, Isselbacher EM, et al. The International Registry of Acute Aortic Dissection (IRAD): new insights into an old disease[J]. JAMA, 2000,283(7): 897-903
- [6] 蒙伟,张尔永,杨建,等.主动脉夹层的外科治疗[J].中国胸心血管外科临床杂志,2009,16(1):40-42
Meng-wei, Zhang Er-yong, Yang Jian, et al. Surgical Treatment of Aortic Dissection [J]. Chin J Clin Thorac Cardio vasc Surg, 2009,16 (1):40-42
- [7] Rasmussen LM,Hansen PR, Ledet T. Homocysteine and the production of collagens, proliferation and apoptosis in human arterial smooth muscle cells[J]. APM IS, 2004,112:598-604
- [8] Tan ME, Dossche KM, M orshuis WJ, et al. Operative risk factors of type A aort ic dissection:analysis of 252 consecutive patients[J]. Cardio vasc Surg, 2003,11(4):277
- [9] 李军,邱阳,杨康,等.Stanford A 型主动脉夹层的外科诊治[J].重庆医学,2008,37(4):340-344
Li Jun, Qiu Yang, Yang Kang, et al. Surgical treatment of type Stanford A aortic dissection[J]. Chongqing Medicine, 2008,37(4):340-344
- [10] Ashley EA, Powers J, Chen M, et al. The endogenous peptide apelin potently improves cardiac contractility and reduces cardiac loading in vivo[J]. Cardiovasc Res, 2005,65(1):73-82
- [11] Nagura Issei, Fujioka Hiroyuki, Kokubu Takesh, et al. Extensor pollicis longus tendon rupture after intramedullary nail fixation of a fracture of the radius[J]. J Hand Surg, 2009,34(5):695-698
- [12] 杨康,廖克龙,王明荣,等.胸主动脉瘤和急性主动脉夹层的外科治疗[J].第三军医大学学报,2005,27(24):2428
Yang Kang, Liao Ke-long, Wang Ming-rong, et al. Surgical treatment of aortic aneurysms and aortic dissections[J]. Acta Academiae Medicinae Militaris Tertiae, 2005,27(24):2428
- [13] Westaby S, Saito S, Katsumata T. Acute type A dissection:conservative methods provide consistently low mortality[J]. Ann Thorac Surg, 2002,73:707-713
- [14] 马胜军,冯致余,马增山,等.外科治疗 DeBakey III 型主动脉夹层动脉瘤 17 例[J].中华胸心血管外科杂志,2006,22(1):55
Ma Sheng-jun, Feng Zhi-yu, Ma Zeng-shan, et al. Surgical treatment of 17 cases of DeBakey type III aortic dissection [J]. Chin J Thorac Cardiovasc Surg, 2006,22(1):55
- [15] Griepp RB. Cerebral protection during aortic arch surgery[J].J Thorac Cardiovasc Surg, 2001,121(3):425-427
- [16] Narayan P, Rogers CA, Davies I, et al. Type A aortic dissection: has surgical outcome improved with time [J]. J Thorac Cardiovasc Surg, 2008,136(5):1172-1177
- [17] Azizzadeh A, Estrera AL, Porat EE, et al. The hybrid elephant trunk procedure:a single-stage repair of an ascending, arch and descending thoracic aortic aneurysm [J]. J Vasc Surg, 2006,44(2):404-407

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- [17] Fuster V, Rydn LE, Asinger RW, et al. ACC/AHA/ESC guidelines for the management of patients with atrial fibrillation: executive summary: a report of American college of cardiology/American Heart fibrillation Task Force on Practice Guidelines (Committee to Develop Guidelines for the Management of Patients with atrial fibrillation) developed in collaboration with the North American Society of Pacing and Electrophysiology [J]. Circulation, 2001, 104(17):2118-2150
- [18] Bakeeva LE, Barskov IV, Egorov MV, et al. Treatment of some ROS- and age-related diseases (heart arrhythmia, heart infarctions, kidney ischemia, and stroke[J]). Biochemistry (Mosc), 2008, 73:1288-1299
- [19] BAI Huaishan, HOU Yanfeng, LI Yi, et al. Using Dynamic electrocardiogram to analyze the Electrocardiograph Triggering of Paroxysmal atrial fibrillation [J].Chinese Journal of Cardiovascular Medicine, 2006,11(6): 454-456