

doi: 10.13241/j.cnki.pmb.2019.03.011

· 临床研究 ·

年龄对于复杂性急性 Stanford B 型主动脉夹层患者预后的影响*

张晓彬 张柯基 吕利雄 朱长清 陆晓晔[△]

(上海交通大学医学院附属仁济医院急诊科 上海 200127)

摘要 目的:探讨年龄对于复杂性急性 Stanford B 型主动脉夹层(Complicated acute type B aortic dissection, cABAD)患者预后的影响。**方法:**回顾性分析 2010 年 1 月至 2017 年 6 月急诊收治入院的 156 例 cABAD 患者的住院病例资料,将其根据不同的年龄、治疗方式(药物保守治疗、血管内介入治疗、传统手术治疗)及治疗结果进行分组,并在不同的年龄组进行分析。**结果:**本研究的患者平均年龄为 52.46±11.72 岁,45% 的患者(n=70)大于 65 岁,55% 的患者(n=86)小于 65 岁。小于 65 岁的患者有 22.2% 的患者(n=19)接受药物保守治疗、19.8% 的患者(n=17)接受传统手术治疗、58% 的患者(n=50)接受血管内介入治疗,大于 65 岁的患者有 48.6% 的患者(n=34)接受药物保守治疗、11.4% 的患者(n=8)接受传统手术治疗、40% 的患者(n=28)接受血管内介入治疗。小于 65 岁与大于 65 岁患者院内死亡率分别为 12.8% 与 35.7%($P<0.001$),接受血管内治疗分别为 2% 与 28.6%($P=0.001$),常规手术治疗分别为 21% 与 37.5%($P=0.468$),药物保守治疗分别为 31.5% 与 41.7%($P=0.489$)。年龄 65 岁或以上是多因素分析中住院死亡率的预测因子(OR = 2.72; 95%CI 1.343-4.674; $P=0.012$)。**结论:**年龄 ≥ 65 岁对于 cABAD 患者的预后具有显著的影响,血管内介入治疗可有效降低院内死亡率,但死亡率随着年龄的增长而升高。

关键词:老年;复杂性主动脉夹层;院内死亡

中图分类号:R543.1 **文献标识码:**A **文章编号:**1673-6273(2019)03-449-05

Effect of Age on the Prognosis of Complicated Acute Type B Aortic Dissection*

ZHANG Xiao-bin, ZHANG Ke-ji[†], LV Li-xiong, ZHU Chang-qing, LU Xiao-ye[△]

(Department of Emergency Medicine, Renji Hospital, School of Medicine, Shanghai Jiaotong University, Shanghai, 200127, China)

ABSTRACT Objective: To investigate the impact of age on the prognosis of patients with complex acute Stanford B aortic dissection (Complicated acute type B aortic dissection, cABAD). **Methods:** The outcomes of 156 cases of patients with cABAD in our hospital from 2010 to 2017 were analyzed. All the cABAD patients were categorized according to age, treatment (drug treatment, endovascular treatment, traditional surgical treatment) and the outcomes were analyzed in different age groups. **Results:** The mean age of cohort was 52.46±11.72 years, 45% of patients (n=70) were greater than 65 years of age and 55% (n=86) were less than 65 years. Less than 65 years of age, 22.2% of patients (n=19) received drug treatment, 19.8% of patients (n=17) received traditional surgical treatment, and 58% of patients (n=50) received endovascular treatment, more than 65 years of age 48.6% of patients (n=34) received drug treatment, 11.4% of patients (n=8) received traditional surgical treatment, and 40% of patients (n=28) received endovascular treatment. The in-hospital mortality rate of less than 65 years old and older than 65 years were 12.8% and 35.7% ($P<0.001$), received endovascular treatment were 2% and 28.6% ($P=0.001$) and conventional surgical treatment were 21% and 37.5% ($P=0.468$) and drug treatment were 31.5% and 41.7% ($P=0.489$). Age 65 years or greater was a predictor of in-hospital mortality in multivariate analysis (OR = 2.72; 95%CI 1.343-4.674; $P=0.012$). **Conclusion:** Age ≥ 65 years old has significant effect on the prognosis of patients with cABAD, endovascular treatment can effectively reduce the in-hospital mortality, but the mortality rate increased with age.

Key words: Elderly patient; Complicated aortic dissection; Hospital mortality

Chinese Library Classification(CLC): R543.1 **Document code:** A

Article ID: 1673-6273(2019)03-449-05

前言

急性 Stanford B 型主动脉夹层 (acute type B aortic dissec-

tion, ABAD) 具有很高的死亡率及发病率^[1]。在没有并发症的情况下, ABAD 患者通常只需要接受药物治疗, 院内死亡率约低于 8%^[1-3]。而复杂性 Stanford B 型主动脉夹层 (Complicated acute

* 基金项目: 上海市科学技术委员会科技攻关计划项目(13142201002)

作者简介: 张晓彬(1985-), 医师, 硕士研究生, 主要研究方向: 急救危重病, E-mail: zhangxiaobin@renji.com

△ 通讯作者: 陆晓晔(1972-), 副主任医师, 主要研究方向: 急救危重病, E-mail: yellowhoho@live.com, 电话: 13564168919

(收稿日期: 2018-03-30 接受日期: 2018-04-24)

type B aortic dissection, cABAD)例如主动脉破裂、下肢血流灌注不良、急性肾功能衰竭、脏器缺血通常预后较差,其死亡率为10%至30%^[2,3]。传统手术治疗、血管内介入治疗被应用于cABAD患者中^[4,5]。

老年患者通常存在更多的合并症,高龄已被证明是胸腹主动脉术后的死亡的危险因素,包括急性A型主动脉夹层及B型主动脉夹层手术。由于急性B型主动脉夹层的发病率较低,年龄对于复杂性主动脉夹层的管理与预后的影响尚不明确。本研究通过回顾性分析2010年1月至2017年6月急诊收治入院的156例cABAD患者的住院病例资料,主要探讨了不同年龄cABAD患者药物治疗、传统手术治疗及血管内介入治疗的预后情况,以期临床选择最有效的治疗方式提供参考依据。

1 资料与方法

1.1 研究对象

收集2010年1月至2017年6月上海市交通大学附属仁济医院急诊收治入院的156例cABAD患者的住院病例资料。cABAD定义^[6]为患者有持续性或复发性疼痛,积极药物治疗仍无法控制的高血压,早期主动脉扩张,灌注不良,休克和破裂的迹象(心包积液,血性胸腔积液,主动脉旁纵隔血肿),并剔除外伤所致的主动脉夹层病例。

根据我国对老年人定义^[7]:≥65周岁的公民,本研究将患者分为<65岁的中青年组及≥65岁的老年人组,并以不同的

治疗方式(药物保守治疗、传统手术治疗、血管内介入治疗)及预后结果进行数据分析。本研究病例解剖分型均由术前影像学检查明确,以院内死亡及出院作为研究终点。

1.2 数据分析方法

数据是用标准的数据形式收集,分析内容包括患者一般情况,病史资料,临床表现,体格检查,影像学检查,治疗方式和住院死亡率。

采用SPSS 19.0统计软件进行数据分析。所有汇总的统计数据均以 $\bar{x} \pm s$ 百分率或中位数及四分位数表示。不同分类间采用卡方检验或双侧Fisher's精确检验。采用多元Logistic回归分析探讨cABAD住院死亡率的独立危险因素,将与住院死亡率相关的变量($P < 0.20$)集合在一个多变量回归模型中,计算死亡率的独立影响。以 $P < 0.05$ 被认为有统计学意义的标准。

2 结果

156例cABAD患者平均年龄为 52.46 ± 11.72 岁,82.7%为男性($n=129$),17.3%为女性($n=27$),45%的患者($n=70$)大于65岁,55%的患者($n=86$)小于65岁,住院期间死亡病例36例,存活病例120例,病死率23.1%。老年cABAD患者较中青年cABAD患者伴有更多合并症如动脉粥样硬化、主动脉瘤、高血压、糖尿病、慢性肾功能不全,而马凡综合症只出现在中青年患者中(表1)。

表1 cABAD患者的病因与病史

Table 1 The etiology and history of cABAD patients

Variable	Patients Aged	Patients Aged	p Value
	< 65 Years n = 86 (55%)	≥ 65 Years n = 70 (45%)	
Etiology and history			
Marfan syndrome	4(4.7%)	0(0.0%)	<0.001
Atherosclerosis	18(20.9%)	45(64.2%)	<0.001
Hypertension	66(76.7%)	61(87.1%)	0.006
Known aortic aneurysm	11(12.8%)	26(37.1%)	<0.001
Prior aortic dissection	8(9.3%)	5(7.1%)	0.247
Prior cardiac surgery	18(20.9%)	16(22.9%)	0.318
Diabetes mellitus	7(8.1%)	23(32.9%)	<0.001
Connective tissue disease	5(5.8%)	3(4.3%)	0.492
Chronic renal insufficiency	12(14%)	22(31.4%)	<0.001
Iatrogenic dissection	3(3.5%)	2(2.8%)	0.861

与老年患者(≥65岁)比较,中青年患者(<65岁)下肢灌注不良(24.4%vs8.6% $p < 0.001$)、脏器缺血(15.1%vs32.6% $p = 0.037$)发生率有显著差异。与中青年患者相比,老年患者降主动脉平均直径更大(4.5 cm vs 4.0 cm $p = 0.003$),胸腔积液(30% vs 18.6% $p = 0.014$)及主动脉周围血肿(40% vs 22.1% $p < 0.001$)在老年患者中更为常见,而腹腔血管受累较少(21.4% vs 48.9% $p < 0.001$)(表2)。

本研究156名患者中,有50.0%($n=78$)的患者选择血管内介入治疗、16.0%($n=25$)的患者选择传统手术治疗、34.0%($n=53$)的患者选择药物保守治疗。随着年龄的增加,老年患者接受血管内介入治疗的比例有所下降(40.0% vs 58.0% $p = 0.024$)而接受药物保守治疗的比例增加(48.6%vs22.2% $p < 0.001$)。本研究的总体死亡率为23.1%,其中接受血管内介入治疗的死亡率为11.5%,接受传统手术治疗的死亡率为28.0%,接受药物保守治

疗的死亡率为 37.7%，无论接受何种治疗方式住院死亡率都随着年龄的增加而增加(表 3)。

表 2 临床表现及影像学结果
Table 2 Presentation, Signs, and Imaging Results

Variable	Patients Aged	Patients Aged	p Value
	< 65 Years n =86 (55%)	≥ 65 Years n = 70 (45%)	
Clinical presentation and signs			
Abrupt onset of pain	80(93.0%)	66(94.3%)	0.749
Shock at presentation	7(8.1%)	6(8.6%)	0.304
Spinal cord ischemia	3(3.5%)	2(2.8%)	0.616
Limb ischemia	21(24.4%)	6(8.6%)	<0.001
Visceral ischemia	13(15.1%)	23(32.6%)	0.037
Acute renal failure	23(26.7%)	22(31.4%)	0.276
Recurrent pain	31(36.0%)	31(44.3%)	0.061
Refractory pain	15(17.4%)	14(20.0%)	0.317
Recurrent hypertension	13(15.1%)	16(22.9%)	0.109
Diagnostic imaging results			
Chest roentgenogram			
Mediastinal widening	45(52.3%)	39(55.7%)	0.183
Pleural effusion	16(18.6%)	21(30.0%)	0.014
Additional imaging findings			
Periaortic hematoma	19(22.1%)	28(40.0%)	<0.001
Abdominal vessel involvement	42(48.9%)	15(21.4%)	<0.001
Maximum diameter descending aorta	4.0(3.5-5.0)	4.5(3.7-6.0)	0.003

表 3 院内治疗方式及死亡率
Table 3 In-Hospital Management and Mortality

Variable	Patients Aged	Patients Aged	p Value
	< 65 Years n=86 (55%)	≥ 65 Years n=70 (45%)	
Definitive management			
Endovascular	50(58.0%)	28(40.0%)	0.024
Surgery	17(19.8%)	8(11.4%)	0.158
Medical	19(22.2%)	34(48.6%)	<0.001
Mortality	12.8%	35.7%	<0.001
Endovascular	1(2.0%)	8(28.6%)	<0.001
Surgery	4(21%)	3(37.5%)	0.468
Medical	6(31.5%)	14(41.7%)	0.489

在多元 Logistic 回归分析中,年龄 ≥ 65 岁是 cABAD 患者院内死亡的危险因素 (OR=2.72;95%CI 1.343-4.674;P=0.012), 2.546-13.867;P<0.001)、急性肾功能衰竭 (OR=1.78;95%CI 1.231-3.748;P=0.044)、降主动脉直径 ≥ 5.5 cm(OR=2.84;95%CI 1.396-5.778;P=0.004)、下肢灌注不良 (OR=3.133;95%CI 1.689-9.078;P=0.001)、内脏缺血 (OR=5.78;95% CI 1.083-9.054;P=0.035)(表 4)。

表 3 院内治疗方式及死亡率
Table 3 In-Hospital Management and Mortality

Variable	Patients Aged		p Value
	< 65 Years n=86 (55%)	≥ 65 Years n=70 (45%)	
Definitive management			
Endovascular	50(58.0%)	28(40.0%)	0.024
Surgery	17(19.8%)	8(11.4%)	0.158
Medical	19(22.2%)	34(48.6%)	<0.001
Mortality			
	12.8%	35.7%	<0.001
Endovascular	1(2.0%)	8(28.6%)	<0.001
Surgery	4(21%)	3(37.5%)	0.468
Medical	6(31.5%)	14(41.7%)	0.489

表 4 cABAD 患者院内死亡的独立危险因素
Table 4 Independent Predictors of In-Hospital Mortality of cABAD patients

Variable	OR	95% CI	p Value
Aged ≥ 65 Years	2.72	1.343-4.674	0.012
Sex	1.41	0.463-4.083	0.528
Hypotension/shock	4.51	1.689-9.078	0.001
Visceral ischemia	5.78	2.546-13.867	<0.001
Acute renal failure	1.78	1.231-3.748	0.044
Descending aortic diameter ≥ 5.5 cm	2.84	1.396-5.778	0.004
Limb ischemia	3.133	1.083-9.054	0.035
Periaortic hematoma	1.95	0.982-4.105	0.063

3 讨论

急性主动脉综合征有较高的发病率及死亡率,随着年龄的增加手术风险也同时增加,高龄是腹主动脉瘤破裂^[8-11]、胸主动脉瘤破裂^[12,13]、外伤性胸主动脉损伤^[14]和急性 A 型、B 型主动脉夹层患者^[10]死亡的预测因素。本研究显示随着年龄的增长选择手术治疗及血管内介入治疗的患者逐渐减少,选择药物保守治疗的患者逐渐增加,而年龄增加对于 cABAD 患者的管理及预后有着很大的影响。在 cABAD 患者中,年龄大于 65 岁是死亡的独立危险因素,大于 65 岁的 cABAD 患者无论接受何种治疗方式(传统外科、血管内介入治疗、药物保守治疗),死亡率随着年龄的增长而显著增加。之前有研究显示^[9]无论采取哪种治疗措施,cABAD 患者的院内死亡率约为 20%。老年患者存在更多的合并症,如动脉粥样硬化、主动脉瘤、高血压、糖尿病、慢性肾功能不全,这些情况增加了患者不良预后的风险及手术的风险。老年患者的主动脉瘤发生几率较高,动脉粥样硬化的程度与心血管疾病死亡率增加相关^[15,16]。此外,主动脉周围水肿可能是主动脉破裂的迹象,这种情况在中老年患者中也比较多见^[17]。院内死亡的其他危险因素有低血压休克、内脏缺血、急性肾功能衰竭、降主动脉直径 ≥ 5.5 cm、下肢灌注不良。有报道认为^[18]低血压休克及内脏缺血可能造成器官功能衰竭,从而增加患

者的院内死亡率。本研究老年组出现内脏缺血的 cABAD 患者显著高于中青年组,内脏缺血可能是增加老年 cABAD 患者不良预后的因素之一。

在 AAD 国际注册研究 (international registry of acute aortic dissection, IRAD) 中,cABAD 患者的院内死亡率约为 20%,在其他报道中通常死亡率在 10%-30%^[3,7,8,19,20]。我们发现与传统手术(28.0%)和药物保守治疗(37.7%)相比,血管内介入治疗(11.5%)有更低的院内死亡率,类似于近期的报道^[18,21,22]。血管内介入治疗已被作为治疗 cABAD 的主要选择^[3],但我们发现虽然在中青年患者组血管内介入治疗有着显著优势,而随着年龄的增长血管内介入治疗的死亡率也显著增加,在老年患者组无论采用何种治疗方式院内死亡率差异不大。主动脉直径 ≥ 5.5 cm 是院内死亡的危险因素,大于 65 岁的老年患者中,平均主动脉直径更大,使血管内介入治疗支架较难附着于血管内,这可能增加了老年患者血管内介入治疗的院内死亡率。另外也有报道认为老年患者增加了血管内介入治疗的技术相关并发症^[23,24]。

综上所述,年龄 ≥ 65 岁对于 cABAD 患者的预后具有显著的影响,血管内介入治疗可有效降低院内死亡率,但死亡率随着年龄的增长而升高。

参考文献(References)

[1] Myrmet T, Larsen M, Bartnes K. The international registry of acute

- aortic dissections (IRAD)-experiences from the first 20 years [J]. Scandinavian Cardiovascular Journal, 2016, 50(5-6): 329-333
- [2] Trimarchi S, Tolenaar JL, Tsai TT, et al. Influence of clinical presentation on the outcome of acute B aortic dissection: evidences from IRAD[J]. J Cardiovasc Surg (Torino), 2012, 53(2): 161-168
- [3] Fattori R, Tsai TT, Myrmel T, et al. Complicated acute type B dissection: is surgery still the best option? A report from the International Registry of Acute Aortic Dissection [J]. J Am Coll Cardiol Intv, 2008, 1(4): 395-402
- [4] Trimarchi S, Eagle KA, Nienaber CA, et al. Role of age in acute type A aortic dissection outcome: report from the International Registry of Acute Aortic Dissection (IRAD)[J]. J Thorac Cardiovasc Surg, 2010, 140: 784-789
- [5] Eggebrecht H, Lonn L, Herold U, et al. Endovascular stentgraft placement for complications of acute type B aortic dissection[J]. Curr Opin Cardiol, 2005, 20: 477-483
- [6] Raimund Erbel, Victor Aboyans, Catherine Boileau, et al. 2014 ESC Guidelines on the diagnosis and treatment of aortic diseases [J]. European Heart Journal, 2014, 35: 2873-2926
- [7] 2010 年人口普查数据, 重大国情国力资讯[J]. 中国统计, 2012, (11): 2
- [8] McPhee J, Eslami MH, Arous EJ, et al. Endovascular treatment of ruptured abdominal aortic aneurysms in the United States (2001-2006): a significant survival benefit over open repair is independently associated with increased institutional volume [J]. J Vasc Surg, 2009, 49: 817-826
- [9] Egorova N, Giacobelli J, Greco G, et al. National outcomes for the treatment of ruptured abdominal aortic aneurysm: comparison of open versus endovascular repairs[J]. J Vasc Surg, 2008, 48: 1092-1000
- [10] Giles KA, Hamdan AD, Pomposelli FB, et al. Population-based outcomes following endovascular and open repair of ruptured abdominal aortic aneurysms[J]. J Endovasc Ther, 2009, 16: 554-564
- [11] Wanhainen A, Bylund N, Björck M. Outcome after abdominal aortic aneurysm repair in Sweden 1994-2005 [J]. Br J Surg, 2008, 95: 564-570
- [12] Schermerhorn ML, Giles KA, Hamdan AD, et al. Population-based outcomes of open descending thoracic aortic aneurysm repair [J]. J VascSurg, 2008, 48: 821-827
- [13] Olsson C, Thelin S, Ståhle E, et al. Thoracic aortic aneurysm and dissection: increasing prevalence and improved outcomes reported in a nationwide population based study of more than 14,000 cases from 1987 to 2002[J]. Circulation, 2006, 114: 2611-2618
- [14] Arthurs ZM, Starnes BW, Sohn VY, et al. Functional and survival outcomes in traumatic blunt thoracic aortic injuries: an analysis of the National Trauma Databank[J]. J Vasc Surg, 2009, 49: 988-994
- [15] Newman AB, Arnold AM, Burke GL, et al. Cardiovascular disease and mortality in older adults with small abdominal aortic aneurysms detected by ultrasonography: the Cardiovascular Health Study [J]. Ann Intern Med, 2001, 134: 182-190
- [16] Freiberg MS, Arnold AM, Newman AB, et al. Abdominal aortic aneurysms, increasing infrarenal aortic diameter, and risk of total mortality and incident cardiovascular disease events: 10-year follow-up data from the Cardiovascular Health Study [J]. Circulation, 2008, 117: 1010-1017
- [17] Mukherjee D, Evangelista A, Nienaber CA, et al. Implications of periaortic hematoma in patients with acute aortic dissection (from the International Registry of Acute Aortic Dissection)[J]. Am J Cardiol, 2005, 96: 1734-1738
- [18] Cambria RP, Conrad MF, Matsumoto AH, et al. Multicenter clinical trial of the conformable stent graft for the treatment of acute, complicated type B dissection[J]. J Vasc Surg, 2015, 62(2): 271-278
- [19] Umana JP, Lai DT, Mitchell RS, et al. Is medical therapy still the optimal treatment strategy for patients with acute type B aortic dissections?[J]. J Thorac Cardiovasc Surg, 2002, 124: 896-910
- [20] Estrera AL, Miller CC, Goodrick J, et al. Update on outcomes of acute type B aortic dissection [J]. Ann Thorac Surg, 2007, 83(Suppl): 842-845
- [21] Heijmen RH, Thompson MM, Fattori R, et al. Valiant thoracic stent-graft deployed with the new captivia delivery system: procedural and 30-day results of the Valiant Captivia registry [J]. J Endovasc Ther, 2012, 19(2): 213-225
- [22] Grabenwoger M, Alfonso F, Bachet J, et al. Thoracic Endovascular Aortic Repair (TEVAR) for the treatment of aortic diseases: a position statement from the European Association for Cardio-Thoracic Surgery (EACTS) and the European Society of Cardiology (ESC), in collaboration with the European Association of Percutaneous Cardiovascular Interventions (EAPCI)[J]. Eur Heart J, 2012, 33(13): 1558-1563
- [23] Kische S, D'Ancona G, Belu IC, et al. Perioperative and mid-term results of endovascular management of complicated type B aortic dissection using a proximal thoracic endoprosthesis and selective distal bare stenting[J]. Eur J Cardiothorac Surg, 2015, 48(4): e77-84
- [24] Brunkwall J, Lammer J, Verhoeven E, et al. ADSORB: a study on the efficacy of endovascular grafting in uncomplicated acute dissection of the descending aorta[J]. Eur J Vasc Endovasc Surg, 2012, 44(1): 31-36

(上接第 444 页)

- [28] Hu M, Guo G, Huang Q, et al. The harsh microenvironment in infarcted heart accelerates transplanted bone marrow mesenchymal stem cells injury: the role of injured cardiomyocytes-derived exosomes[J]. Cell Death Dis, 2018, 9(3): 357
- [29] Ziller M. Janus-Faced Myeloid-Derived Suppressor Cell Exosomes for the Good and the Bad in Cancer and Autoimmune Disease[J]. Front Immunol, 2018, 9: 137
- [30] Chen T, Xie MY, Sun JJ, et al. Porcine milk-derived exosomes promote proliferation of intestinal epithelial cells[J]. Sci Rep, 2016, 6: 33862
- [31] Yu G, Jung H, Kang YY, et al. Comparative evaluation of cell- and serum-derived exosomes to deliver immune stimulators to lymph nodes[J]. Biomaterials, 2018, 162: 71-81
- [32] Gheinani AH, Vögeli M, Baumgartner U, et al. Improved isolation strategies to increase the yield and purity of human urinary exosomes for biomarker discovery[J]. Sci Rep, 2018, 8(1): 3945