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Letters to the Editor

Comparison of chronic type A aortic dissection with acute type A dissection of short-term and long-term survival rate ☆

Qinghua Yuan, Hui Yu, Ujit Karmacharya, Xue Bai, Huipin Sun, Ying Huang, Yi-tong Ma *[,1], Xiang Ma *[,1]

Department of Cardiology, First Affiliated Hospital of Xinjiang Medical University, Urumqi, Xinjiang, China

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Aortic dissection has extremely poor natural outcome, however, there are rare reports about early and long term survival of chronic TA-AD who received treatment either medically or surgically [1,2]. In this study, we assessed the clinical characteristics, in-hospital mortality and two-year survival rate of 131 TA-AD patients retrospectively.

The diagnosis of TA-AD was made according to confirmatory imaging such as spiral computed tomography (CT) angiogram and/or magnetic resonance imaging (MRI) or intraoperative visualization. Dissections are considered acute for the first 14 days following the intimal entry tear and chronic after 14 days, with important implications for management and survival [3].

All 131 patients who were treated for TA-AD which 37 were chronic and 94 acute in our hospital from Jan 1, 2005 to Mar 31, 2011. All acute and chronic type B dissections were excluded. Information regarding follow-up was obtained via the attending cardiologist or phone calls with general physicians, patients and/or relatives of patients. The mean follow-up duration was 26.79 ± 25.53 months.

Patients who refused open surgery were treated medically. Major general medical therapy was antihypertensives to control blood pressure and heart rate for stable hemodynamics, and the rest who met the indications were treated surgically. All surgeries were performed on an emergent basis once the diagnosis had been ascertained.

The general clinical characteristics of the patients were shown in Table 1. Compared to the chronic group, the acute group had a greater percentage of hemopericardium (10.6% vs 0%, $P = 0.04$), but with better left ventricular end-diastolic dimension (LVEDD) (54.86 ± 10.36 vs 61.74 ± 12.03, $P < 0.01$) and left ventricular ejection fraction (LVEF 61.94 ± 8.60 vs 56.85 ± 10.51, $P = 0.02$). The chronic group had higher percentage of diabetics (4/37 vs 1/94, $P = 0.02$) and longer length of hospital stay (16.57 ± 13.03 vs 9.96 ± 10.84 days, $P < 0.01$). Chronic group and acute group had same percentage of aortic insufficiency. Concerning other clinical variables, including the average length of ICU stay, as well as postoperative complications, there were no significant differences (Table 2).

Early outcomes and causes of in-hospital death are shown in Table 3. Overall in-hospital mortality was 34.4% (44/131), while it was 42.6% (40/94) in the acute group and 13.5% (5/37) in the chronic group ($P < 0.01$). Both medical and surgical therapies have an obvious influence over short- and long-term outcomes in patients of chronic type A aortic dissection (Fig. 1). Univariate predictors of mortality were length of hospital stay and treatment plan.

Eight patients were lost in follow-up at second year. There were 16 cases of late deaths at two years follow-up, of which 6 died of aortic dissection related to complications and the other 10 died of unknown cause. Overall one-year and two-year survival rates were 56.7% and 51.2% respectively (Fig. 2). In our study, 8 out of 87 patients (9.2%) discharged after the initial repair of aortic dissection required reoperation on the prehistoric aorta. The acute group had higher mortality in two years survival compared to the chronic group (45.5% vs 34.3%, $P = 0.04$) (Fig. 3). The use of ACEI, beta blocker, and CCB were associated with improved survival in all patients, though actual long time survival was similar in both groups (36.4% vs 48.6%) (Fig. 4). The leading cause of death was ruptured aorta in both groups.

In our study, chronic type A aortic dissection has higher in-hospital mortality even though it is not an independent factor. The interval between initial repair and reoperation are usually reported as being from 5 to 6 years [4]. In acute phase, the mortality of type A aortic dissection is as high as 22.7% to 68% [5]. When it is chronic, the mortality comes to 31% to 66% [6]. Concistrè et al. [7] overestimates the time to occurrence as an indication for reoperation. However, these studies have proved to be non-representative because a considerable proportion of patients with acute aortic dissection die prior to admission and data on prehospital deaths are not available [8].

We found that reoperation often occurred after two years. One reason was that the aorta yet again created secondary aortic dissection along with historic aorta. Extension of proximal and distal aortic resection was associated with increased reoperation. We applied nearly the same patient selection criteria to our study with the IRAD

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* Corresponding authors.
E-mail addresses: myt-xj@163.com (Y. Ma), maxiangxj@163.com (X. Ma).

[1] The two authors make an equal contribution.

Table 1
Patient characteristic per study group.

Items	Acute group (n = 94)	Chronic group (n = 37)	Total (n = 131)	*P*
Characteristic				
Age (years)	48.52 ± 13.48	50.89 ± 14.31	49.19 ± 13.71	0.375
Weight	73.83 ± 13.18	71.35 ± 12.15	73.04 ± 12.86	0.362
Gender				
- Male	73 (77.7%)	26 (70.2%)	99 (75.6%)	NS
- Female	21 (22.3%)	11 (29.7%)	32 (24.4%)	NS
Hypertension	48 (51.1%)	17 (45.9%)	65 (41.6%)	0.699
Hydropericardium	10 (10.6%)	0 (0%)	10 (7.7%)	0.04
Diabetes	1 (1.1%)	4 (10.8%)	5 (3.8%)	0.02
Current smoke	40 (42.6%)	14 (37.8%)	54 (41.2%)	NS
Marfan's syndrome (medical history or newly diagnosed)	4 (4.3%)	1 (2.7%)	5 (3.8%)	NS
-Atherosclerosis	6 (6.4%)	1 (2.7%)	7 (5.3%)	0.672
-Myocardial infarction	2 (2.1%)	0 (0%)	2 (0.8%)	NS
-Ischaemic heart disease	2 (2.1%)	0 (0%)	2 (0.8%)	NS
Aortic valve insufficiency	22 (23.4%)	10 (27.0%)	32 (24.4%)	0.69
Aortoclasia	44 (46.8%)	0 (0%)	44 (33.5%)	0.00
Cerebrovascular accident	4 (4.3%)	1 (2.7%)	5 (3.8)	NS

Table 2
Clinical characteristics and medications per study group.

	Acute group (n = 94)	Chronic group (n = 37)	Total (n = 131)	*P*
Clinical characteristics				
Chest pain	42 (32.1%)	8 (6.1%)	50 (38.2%)	NS
Chest pain and back pain	31 (23.7%)	6 (4.6%)	37 (28.2%)	NS
Abdominal pain	3 (2.3%)	0 (0%)	3 (2.3%)	NS
Not a typical pain	17 (18.1%)	22 (59.5%)	39 (29.8%)	<0.01
SBP on admission	134.06 ± 25.96	130.89 ± 17.96	133.17 ± 23.949	0.43
DBP on admission	75.80 ± 17.80	76.38 ± 15.60	75.96 ± 17.245	0.86
HR	84.15 ± 14.99	84.73 ± 14.23	84.31 ± 14.731	0.84
The sinus of Valsalva	43.41 ± 11.23	46.16 ± 11.70	44.21 ± 11.378	0.27
Aortic ring department	23.51 ± 4.78	24.23 ± 5.08	23.72 ± 4.856	0.51
LVEDD	54.86 ± 10.36	61.74 ± 12.03	56.83 ± 11.254	<0.01
FS	33.79 ± 6.30	31.95 ± 7.37	33.26 ± 6.638	0.23
EF	61.94 ± 8.60	56.85 ± 10.51	60.48 ± 9.427	0.02
Medications				
Beta-blocker	64 (68.1%)	24 (64.9%)	88 (67.2%)	0.837
ACEI	52 (55.3%)	28 (75.7%)	80 (61.1%)	0.046
Venous blood pressure drugs	33 (35.1%)	12 (32.4%)	45 (34.4%)	0.84
CCB	41 (43.6%)	14 (37.8%)	55 (42.0%)	0.563

study. Therefore, we believe that our findings have strong implications in terms of perioperative management and long-term follow-up for chronic aortic dissection patients.

Considering lack of new data on chronic TA-AD survival, there is a need to reassess the therapy protocol for TA-AD and evaluation following discharge. Further investigations are required in the future, which we are optimistic about.

Table 3
Early outcomes and causes of in-hospital death per study group.

	Acute group (n = 94)	Chronic group (n = 37)	*P*
In hospital mortality	40/94 (42.6%)	5/37 (13.5%)	<0.01
Length of ICU stay, days	3.41 ± 4.12	4.57 ± 5.52	NS
Length of hospital stay, days	9.96 ± 10.84	16.57 ± 13.03	<0.01
Cause of death within 30 days	n = 44	n = 0	
Cardiac failure	3/94 (3.2%)	0	NS
Rupture of aorta	39/94 (41.5%)	0	<0.01
Multiple organ failure	1/94 (1.1%)	0	NS
Brain damage	1/94 (1.1%)	0	NS

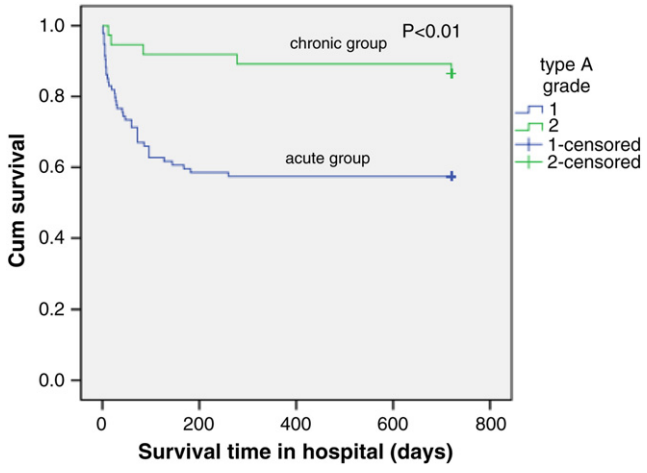

Fig. 1. Kaplan–Meier curves. Actuarial survival in chronic and acute group patients with type AAD (including in-hospital deaths).

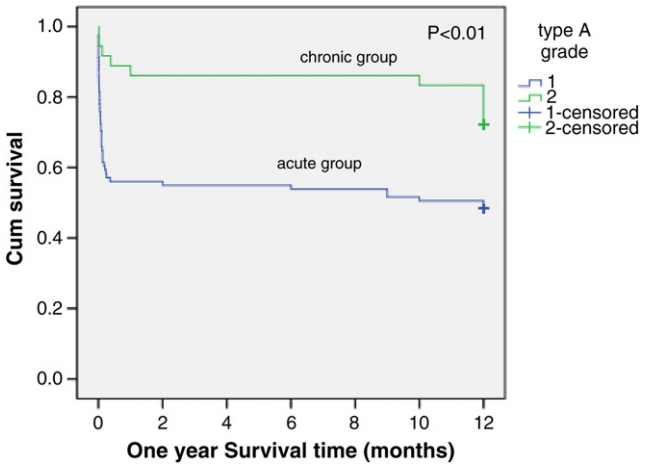

Fig. 2. Kaplan–Meier curves. Actuarial one year survival in chronic and acute group patients with type AAD (including in-hospital deaths).

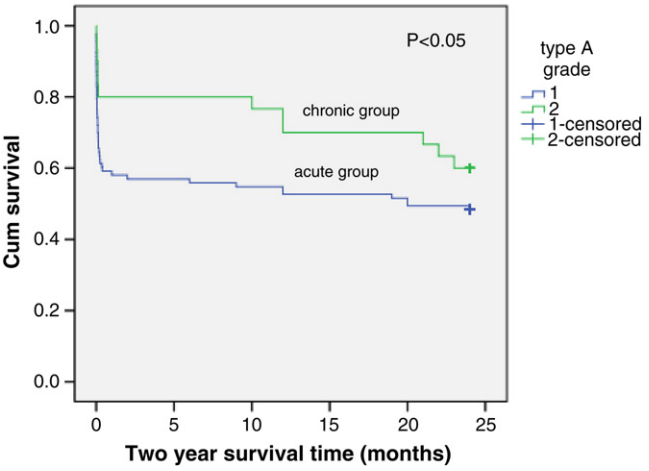

Fig. 3. Kaplan–Meier curves. Actuarial two year survival in chronic and acute group patients with type AAD (including in-hospital deaths).

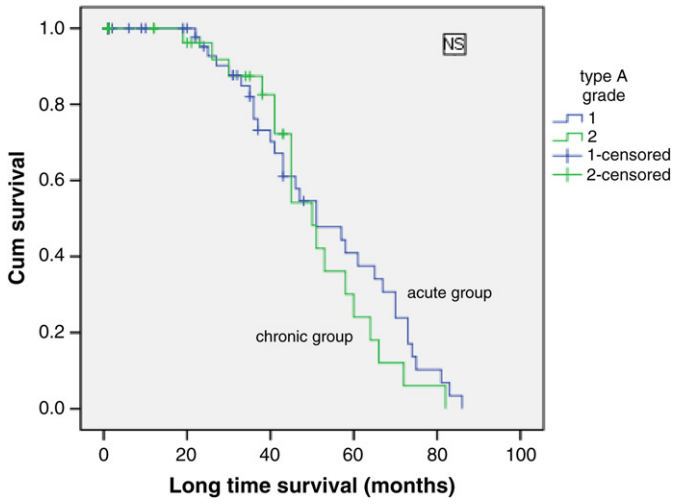

Fig. 4. Kaplan–Meier curves. Actuarial long time survival in chronic and acute group patients with type AAD (including in-hospital deaths).

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