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Quality of Life in Patients with Chronic Type B Aortic Dissection

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Objective. *To study functioning and well-being among patients with conservatively treated acute type B aortic dissection.*
Design. *Cross-sectional survey.*
Methods. *Patients referred with acute type B dissection between January 1990 and November 2000 were prospectively followed after conservative initial management. In October 2002, we sent the SWED-QUAL questionnaire to all patients who were alive and had not undergone surgery of the dissected aorta. Fifty-three of 55 patients responded, 39 males and 14 females. Patient scores for the 12 aspects of health-related quality of life included in the SWED-QUAL were compared to a normative Swedish population, controlled for age and gender differences.*
Results. *There were only minor differences in functioning and well-being between patients and the normative population. Patients reported similar emotional well-being, cognitive functioning, quality of sleep, overall general health and quality of social relations as their normative counterparts. However, patients' perception of their current health, prior health, perceived resistance to illness and health concern was worse than in the normative population. Female patients also reported worse physical functioning and a lower satisfaction with their physical functioning than male patients or female counterparts in the normative population. We did not find any significant association between length of follow-up and quality of life scores.*
Conclusions. *In terms of functioning and well-being, patients with uncomplicated acute type B aortic dissection, who are initially managed conservatively, differ little from a normative Swedish population. Our study supports conservative management of this group of patients.*

Keywords: Quality of life; Type B aortic dissection; Cross-sectional; Conservative treatment.

Introduction

Patients with Stanford type B aortic dissection, i.e. dissection confined to the aorta distal to the left subclavian artery, are conventionally managed with intensive antihypertensive treatment.[1] Surgery in the acute phase is usually not undertaken in the absence of complications such as impending rupture, uncontrollable hypertension, or serious organ malperfusion.[2,3] Retrospective studies have reported poor long-term prognosis for patients with chronic type B aortic dissection.[4,5] The diameter of the dissected aorta tends to increase over time, and some patients live with fear of aneurysm formation and rupture. This fear may affect their quality of life.

The aim of our study was to investigate functioning and well-being during the late chronic phase in survivors of acute type B aortic dissection.

Materials and Methods

Patients referred to Karolinska Hospital with acute type B dissection between January 1990 and November 2000 were candidates for a prospective follow-up study (Winnerkvist *et al.*, to be published separately) after conservative initial management. All patients deemed to be in need of acute surgical repair were excluded from prospective follow-up. Patients referred with chronic dissection and patients for whom the date of acute dissection was not known were excluded. In October 2002, 55 patients were alive and had not undergone surgery of the dissected aorta and all of them were included in this quality of life survey. The study was approved by the Ethics

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Committee at the Karolinska Hospital. Patients characteristics are given in Table 1.

All patients had during the acute episode received intensive i.v. treatment to reduce their blood pressure and for control of pain. Patients had been advised to live a 'normal' life, to keep their blood pressure within normal limits and to avoid strenuous exercise. Blood pressure control was maintained with oral antihypertensive medication including beta-adrenergic antagonists when tolerated. During prospective follow-up the patients were seen in our outpatient clinic and a CT-scan or MRI was done after 3, 6 months and yearly thereafter. New morbidity during the follow-up period is reported in Table 1. One patient who fulfilled operative criteria refused surgical treatment and two patients were under workup for surgery. At the time of our survey all patients were without major symptoms that could be related to their aortic dissection.

Study protocol

The patients were sent the SWED-QUAL survey and an explanatory letter by mail. The SWED-QUAL quality of life instrument[6] was developed from items in the US Medical outcomes Study[7] applied to a random cross sectional sample of the adult Swedish population. This was drawn in 1995 from the Swedish general population address registry kept by Statistics Sweden. The age and gender matched normative population for our study consisted of 1200 individuals. The SWED-QUAL survey includes 12 aspects of health-related quality of life (Table 2). All questions are asked using a 'during the past week' or 'currently' time frame. Both positive and negative health states are tapped. Items are all scored so that a higher score indicates better health. Scale scores are constructed by summing items measuring the same construct into a single scale score. These are linearly transformed to a 0–100 possible range. Thus, 0 and 100 are assigned to the lowest and highest possible scores, respectively.

Statistical analysis

Internal consistency for each multi-item scale was estimated using Cronbach's alpha[8] which measures the reliability in terms of the ratio of true score variance to observed score variance. For population studies it is expected to exceed 0.70 for results to be judged reliable. Univariate general linear models were used for comparisons of functioning and well-being. As factors we included population (patient or population sample) and gender. Age (1-year classes) was included as a covariate. All tests were two tailed.

All statistics were calculated by one of the authors (B.B.) using the SPSS 11.5 (SPSS Inc., Chicago, Illinois) computer program.

Table 1. Patient characteristics

	No. (%)	Mean	Range
Gender			
Male	39 (74)		
Female	14 (26)		
Age at acute dissection (y)		62	33–80
Age at time of study (y)		67	36–84
Mean duration of follow-up after the acute event (y)		5.4	1.9–12.7
Medical history before acute dissection:			
Hypertension	32 (72)		
Smoking	28 (53)		
Known descending aortic-aneurysm	1		
Known iliac artery aneurysm	1		
Abdominal aortic aneurysm repair	2		
Stroke	4		
Myocardial infarction	2		
Angina pectoris	3		
Coronary artery bypass surgery	2		
Renal failure	1		
Diabetes mellitus	2		
Peripheral vascular disease	1		
New morbidity during follow-up:			
Onset of angina pectoris	3		
Onset of claudication	2		
Onset of diabetes mellitus	2		
Paraplegia	1		

Table 2. Results of the SWED-QUAL survey in 39 male and 14 female patients with chronic type B aortic dissection, compared to their normative counterparts in a general population sample

Aspect	Patients: mean score (±SEM)	Normative population: mean score (±SEM)	*P* value	Mean difference	Standardized mean difference*
Physical functioning					
Male	78.1 (3.6)	82.9 (0.9)	0.190	−4.8	−0.21
Female	58.5 (5.6)	80.2 (0.8)	<0.001	−21.8	−0.98
Satisfaction w. physical functioning					
Male	55.1 (4.9)	64.2 (1.2)	0.073	−9.1	−0.3
Female	36.3 (7.9)	64.5 (1.2)	<0.001	−28.2	−0.96
Pain					
Male	80.9 (4.0)	79.9 (1.0)	0.821	1.0	0.04
Female	64.4 (7.0)	75.2 (1.1)	0.132	−10.8	−0.41
Role functioning, physical					
Male	59.9 (5.5)	61.7 (1.4)	0.744	−1.8	−0.05
Female	43.8 (8.6)	59.4 (1.3)	0.074	−15.6	−0.47
Role functioning, emotional					
Male	69.5 (5.6)	69.0 (1.4)	0.939	0.5	0.05
Female	42.6 (8.3)	66.9 (1.3)	0.004	−24.3	−0.76
Emotional well-being					
Male	76.8 (3.8)	71.9 (0.9)	0.210	4.9	0.21
Female	63.9 (6.3)	70.0 (1.0)	0.339	−6.1	−0.25
Cognitive functioning					
Male	75.7 (4.5)	68.3 (1.1)	0.117	7.4	0.26
Female	54.4 (8.3)	67.8 (1.2)	0.113	−13.4	−0.45
Sleep problems					
Male	68.4 (4.4)	70.3 (1.1)	0.666	1.9	0.07
Female	51.7 (7.4)	63.9 (1.1)	0.103	−12.2	−0.44
General health perception (overall)					
Male	67.7 (4.0)	70.6 (1.0)	0.480	−2.9	−0.12
Female	56.1 (6.4)	69.4 (1.0)	0.039	−13.3	−0.55
General health (indexed†)					
Male	60.6 (4.0)	73.5 (1.0)	0.002	−12.9	−0.52
Female	54.7 (6.7)	72.7 (1.0)	0.008	−18.0	−0.71
Satisfaction with home life (overall)					
Male	84.7 (3.9)	83.3 (1.0)	0.715	1.4	0.06
Female	75.5 (6.0)	82.0 (0.9)	0.284	−6.5	−0.28
Quality of relationship w. partner					
Male	79.9 (3.6)	80.5 (0.9)	0.879	−0.60	−0.03
Female	82.1 (7.6)	78.7 (1.1)	0.660	3.4	0.13
Sexual functioning					
Male	58.3 (5.8)	63.2 (1.6)	0.402	−4.9	−0.12
Female	68.9 (13.4)	57.4 (1.9)	0.398	11.5	0.24

* The standardized mean difference is the difference between two means divided by an estimate of the within-group standard deviation. Identical concepts measured by different methods across studies can be compared if they are expressed in a common unit like the standard deviation.

† Indexed general health taps the patients' own ratings of their current health, prior health, perceived resistance to illness and health concern.

Results

Fifty-three out of 55 patients (96%) responded to the questionnaire. There were 39 men (74%) and 14 women. The mean duration of prospective follow-up after the acute dissection was 65 months (range 23–153 months). Mean age at the time of study was 67 years (range 36–84). There was no difference in age between men and women.

Inspecting the results for individual health-related quality of life components (Table 2), we found that both male and female patients reported similar emotional well-being, cognitive functioning and quality of sleep as the normative population. Concerning the quality of social relations (satisfaction with home life, relationship with partner and sexual functioning) they also reported a similar degree of satisfaction as their normative counterparts. Both male and female patients reported similar overall general health. There was a significant difference, however, in indexed general health, i.e. current health, prior health, perceived resistance to illness and health concern compared to the normative population (Table 2).

In contrast to male patients, female patients reported significantly worse physical functioning and a lower satisfaction with their physical functioning than the normative population. Female patients also scored significantly lower than their normative counterparts regarding emotional role functioning but had similar scores in physical role functioning. For the same aspects

(physical functioning, satisfaction with physical functioning, and emotional role functioning) we also found that the female patients had significantly lower scores than the male patients in the study.

To study if length of time since the acute dissection had any influence on quality of life, we performed regression analysis of all SWED-QUAL scales and follow-up time in all patients. We did not find any significant associations between length of follow-up and quality of life scores.

Discussion

Acute type B aortic dissection is a life threatening event of sudden onset. In many cases it afflicts a previously healthy person. Those who survive the acute phase of the dissection are typically discharged home after 10–14 days in the acute care ward. The patient is then left with the advice to live a 'normal' life with blood pressure control and to avoid strenuous exercise. The long-term prognosis for people with a dissected aorta varies. Sometimes the aorta will stay unchanged; in other cases it will enlarge, rupture or suffer new dissections that may potentially cause sudden death. Clearly, the sudden change from being a 'healthy' individual to becoming a patient with a life-threatening disease may come as a shock. With this in mind our study was undertaken to evaluate the patients' quality of life in the late chronic phase. We feel this to be important, particularly as new treatment modalities such as endovascular stent grafting are becoming widely available.

The main strength of our study is that it was performed on patients followed prospectively after the acute event. Fifty-three of the 55 patients responded to the survey, giving a response rate of 96%. Cronbach's alpha for internal consistency ranged from 0.79 to 0.95 in the patient sample and from 0.79 to 0.89 in the general population sample. We judged this sufficient for general conclusions and discussion of differences in relation to the normative population. A limitation of the study is that we know nothing about the patients' quality of life before the event. The acute dissection comes unannounced and the patient group cannot be identified before the episode.

Patients have different length of follow-up after the acute dissection and we have not performed repeated evaluations to study differences in quality of life over time. However, we found no significant association between the aspects studied and the length of follow-up. Although a complete quality of life study should include a socio-economic evaluation of each patient's situation, we decided it would be of limited interest in this well-defined group of patients where the quality of life was assessed using the SWED-QUAL instrument with a Swedish normative population.

For the male patients, who also constituted the majority, there were no differences compared to their normative counterparts in 11 out of 12 aspects. They scored lower only in the index that assessed general health, i.e. current health, prior health, perceived resistance to illness and concern about health. Female patients also scored lower on this index, but in contrast to male patients the female patient group differed from their normative counterparts in more than one aspect. In particular, they reported a lower physical functioning. The female patient group (mean age 68 years) reported physical functioning on par with women of age 75–84 in the normative population. However, it is difficult to draw any conclusions from their reported lower physical functioning since the female group was small (14 patients).

Altogether, we found only small differences in functioning, well-being and health related quality of life between patients with chronic type B aortic dissection and a normative Swedish population. No significant association was found between the aspects studied and the length of follow-up. From the quality of life standpoint our study supports continued conservative management of this patient group.

References

1 Wheat Jr MW, Palmer RF, Bartley TD, Seelman RC. Treatment of dissecting aneurysms of the aorta without surgery. *J Thorac Cardiovasc Surg* 1965;**50**:364–371.

2 Elefteriades JA, Hartleroad J, Gusberg RJ, Salazar AM, Black HR, Kopf GS *et al*. Long term experience with descending aortic dissection: the complication-specific approach. *Ann Thorac Surg* 1992;**53**:11–21.

3 Schor JS, Yerlioglu ME, Galla JD, Lansman SL, Ergin MA, Griepp RB. Selective management of acute type B aortic dissection: long term follow-up. *Ann Thorac Surg* 1996; **61**:1339–1341.

4 Fann JI, Smith JA, Miller DC, Mitchell RS, Moore KA, Grunkemeier G *et al*. Surgical management of aortic dissection during a 30-year period. *Circulation* 1995;**92**:113–121.

5 Umana JP, Lai DT, Mitchell RS. Is medical therapy still the optimal treatment strategy for patients with acute type B aortic dissections? *J Thorac Cardiovasc Surg* 2002;**124**:896–910.

6 Brorsson B, Ifver J, Hays RD. The Swedish health-related quality of life survey (SWED-QUAL). *Qual Life Res* 1993;**2**:33–45.

7 Stewart AL, Greenfield S, Hays RD, Wells K, Rogers WH, Berry SD *et al*. *Measuring functioning and well-being: the medical outcomes study approach*. Durham, NC, Duke University Press, 1992.

8 Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika* 1951;**22**:293–296.

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