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Clinical, neurohormonal and psychological predictors of survival in patients with congenital heart disease.

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Introduction:

The growing cohort of patients with congenital heart disease (CHD) has to face problems regarding its medical condition per se, but also psychosocial challenges and concerns. Aim of this study is to assess the value of established depression scores Beck Depression Inventory (BDI) and Zung self-rating depression scale (Zung SDS), along with B-type natriuretic peptide and exercise parameters in predicting adverse clinical events. Methods: Sixty ambulatory patients with various forms of CHD, mean age 28.911.4 years old, 53% male, were recruited from a tertiary center. Patients' neurohormonal and psychological status and exercise capacity were assessed through plasma B-type brain natriuretic peptide (BNP) measurement, Beck depression inventory and Zung depression scale questionnaires and cardiopulmonary exercise test. Patients were followed for 5.11.1 years for major cardiovascular events (MACE), including death or hospitalization. Results: Scores on Zung scale ranged from 20 to 63 and on BDI from 0 to 36. Seventeen patients (28.3%) had positive both scores and were therefore characterized as having depression. Patients with depressive symptoms had diminished exercise capacity, as expressed with peak VO₂ (p=0.019) and VE/VCO₂ (p=0.028), and higher levels of BNP (p=0.03), compared to non-depressed patients (Table). During the follow-up period 22 patients (36.6%) experienced a MACE. Among them, eleven (50%) patients were depressed. The univariate Cox proportional hazard ratio analysis revealed that all parameters examined (VO₂ peak, VE/VCO₂, BNP, depression) were significant predictors of MACE. Depressed patients had 2.428 times higher ratio of MACE or death, compared to non-depressed ones (95% CI: 1.630 to 3.616, p<0.05). Conclusions: Patients with CHD with depressive symptoms have impaired physical activity, associated with excessive neurohormonal activation. BNP levels, cardiopulmonary exercise parameters and the presence of depression strongly predicted MACE. The identification of prognostic parameters maybe helpful in managing patients with CHD. Table: Differences in clinical and functional variables between patients with depressive and those without depressive symptoms

VARIABLES	Depressed(n= 17)	Non-depressed(n=43)	p-value
Age (years)	22.710.2	28.311.6	0.298
Gender: Male/Female(%)	8/9 (13/15)	24/19(40/32)	n.a.
Peak VO ₂ (ml/Kg/min)	13.83.2	24.29.3	0.019*
VE/VCO ₂	58.511.7	3514.4	0.028*
BNP (pg/ml)	332.22157.5	207.9225.6	0.030*

*significant at level p<0.05