

# Psychosocial Characteristics and Two-Year Outcomes in Patients with Ventricular Assist Devices

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## Background

- Comprehensive medical and psychosocial evaluation is required for working up patients for durable left ventricular assist devices (LVAD)
- Evaluating a patient's ability to understand and comply with post-implant care is an important aspect of the evaluation

## Objective

- Evaluate the patient psychosocial risk profile and its impact on 2-year outcomes after VAD implantation

## Methods

- Evaluated 237 patients who underwent durable LVAD implantation between 2015-2017
- Evaluation included psychiatric history, education, social support, cognitive function, and depression/anxiety screening
- Based on these criteria:
  - Low Risk: low/low-moderate risk identifiers
  - High Risk: moderate/moderate-high/high identifiers

## Results

**Table 1: Primary and Secondary Outcomes by Psychosocial Risk Stratification in VAD Recipients (n=237)**

	Low Risk N=138	High Risk N=99	P-value
<b>Age</b>	<b>61 (53-70)</b>	<b>58 (46-65)</b>	<b>&lt;0.05</b>
Male	105 (76.1%)	72 (72.7%)	0.56
Device:			
HeartMate 2	67 (48.6%)	51 (51.5%)	0.29
HeartMate 3	16 (11.6%)	5 (5.1%)	
HeartWare	54 (39.1%)	41 (41.4%)	
Hx of Psychiatric Diagnosis	32 (23.2%)	27 (27.3%)	0.47
Pre-VAD Employed	128 (92.8%)	83 (83.8%)	0.07
<b>Presence of Social Support</b>	<b>133 (96.4%)</b>	<b>85 (85.9%)</b>	<b>&lt;0.05</b>
Education:			
≤High School	104 (75.4%)	83 (83.8%)	0.11
≥Bachelor's Degree	34 (24.6%)	16 (16.2%)	
<b>Montreal Cognitive Assessment (MOCA)</b>	<b>24 (22-26)</b>	<b>21 (17-24)</b>	<b>&lt;0.05</b>
<b>Patient Health Questionnaire (PHQ-9)</b>	<b>6 (3-9)</b>	<b>9 (5-15)</b>	<b>&lt;0.05</b>
<b>Generalized Anxiety Disorder (GAD-7)</b>	<b>2 (0-5)</b>	<b>7 (3-12)</b>	<b>&lt;0.05</b>
<b>Transplant Evaluating Rating Scale (TERS)</b>	<b>31 (29-34)</b>	<b>38 (34-44)</b>	<b>&lt;0.05</b>
<b>Alcohol Use</b>	<b>111 (81%)</b>	<b>77 (78.6%)</b>	<b>&lt;0.05</b>
Tobacco Use	92 (67.2%)	69 (70.4%)	0.60
<b>Illicit Drug Use</b>	<b>25 (18.3%)</b>	<b>42 (42.9%)</b>	<b>&lt;0.05</b>
2-Year Survival	110 (80.3%)	76 (77.6%)	0.61
Readmissions in 2-years	3 (2-6)	4 (2-7)	0.22
Complications			
Drive Line Infection	46 (33.6%)	44 (44.9%)	0.08
Bacteremia	44 (32.1%)	33 (33.7%)	0.80
CVA	24 (17.5%)	18 (18.4%)	0.87
Thrombosis	8 (5.8%)	10 (10.2%)	0.21
<b>Hemolysis</b>	<b>9 (6.6%)</b>	<b>16 (16.3%)</b>	<b>&lt;0.05</b>
GI Bleed	58 (42.3%)	41 (41.8%)	0.94
<b>Waitlisted for Transplant</b>	<b>41 (29.7%)</b>	<b>16 (16.2%)</b>	<b>&lt;0.05</b>
Transplanted	39 (28.3%)	11 (11.1%)	<0.05

## Scoring System Interpretations

Scoring System	Description	Normal	Mild	Severe
MOCA	Cognitive Impairment	≥25	<25	
PHQ-9	Depression	0-4	5-9	15-27
GAD-7	Anxiety	0-4	5-9	15-21
TERS	Pre-transplant psychosocial testing	27-29	30-37	38-80

## Results

- High risk patients were found to be younger, more likely to have used illicit drugs, and lack post-implant social support
- No difference in two-year survival, days to first readmission, mean readmissions
- High risk patients were more likely to have pump hemolysis and less likely to be waitlisted or transplanted

## Conclusion

- Despite higher risk of pump hemolysis, no significant impact was seen on other complications or survival in high-risk patients
- Psychosocial factors need to be incorporated into the overall clinical picture when evaluating patients for LVAD implantation