

The Role of Sleep Quality and Fatigue on Outcomes in Patients with a Left Ventricular Assist Device

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Background

- A left ventricular assist device, LVAD, is a mechanical pump that is implanted to help patients with advance heart failure live a better life.
- Living with both advanced heart failure (HF) and a left ventricular assist device (LVAD) is demanding and complicated. (Abshire M, et al, 2016)
- Sleep plays a large role in wellness and complications of heart failure negatively impact sleep. Many HF patients experience poor quality of sleep and nightly interruptions that negatively impact overall quality of life, QOL.
- Impaired physical performance, dismal quality of life, pain and fatigue and adhering to a difficult medication regimen may negatively impact LVAD patient's psychological and emotional health. (Casida, Marcuccilli, Peters, & Wright S, 2011)
- LVAD patients may sleep fewer hours and have more interruptions which is associated with limited physical and social activities that can lead to depression, increased symptom burden and even increased risk of mortality.

Left Ventricular Assist Device, LVAD



Table 1: Sample Characteristics

	Mean ± SD or % (n) N = 62
Gender	
Male	N =48 (78%)
Female	N =14 (22%)
Age	56 ± 13
Race	
Black	N = 29 (47%)
White	N = 25 (40%)
Other	N = 8 (13%)
Married/Partner	N=40 (66%)
other	N=22 (34%)
Combined Income	
<\$30,000	N =17 (26.6%)
\$30-60,000	N = 9 (14.0%)
>\$60,000	N= 38 (59.4%)

Table 2: Measures of Sleep Quality on Patients

	Overall (N=62) Median	Good sleep	Poor sleep	P value
Fatigue MAF	13.7 (± 9)	10.2	16.8	<0.01
Sleep Quality	6.2 (± 3)	3.3	8.9	<0.01
Nightly Disturbances	2.3± 0.5	1.9	2.4	<0.01
PHQ9 Depression	3.2 (± 4)	1.1	5.1	<0.01
6 MWT	373.7 (± 120)	403.7	348.2	>0.01
BMI	32.9	35.2	30.8	>0.01
KCCQ Quality of life	72.7 (± 14)	77.0	69.1	>0.01
MoCA	21.6 (± 9)	22.8	20.5	>0.01

Purpose

- The objective of this study was to outline and examine the relationships between sleep quality, fatigue, BMI and clinical outcomes including KCCQ, and depression.

Methods

- Cross sectional study
- Convenience sampling from two outpatient based LVAD clinics.
- Measures: Multidimensional Assessment of Fatigue (MAF), sleep quality, nightly disturbances, 6 MWT, Depression PHQ9, KCCQ, BMI and MoCA.
- Two sample t-test and chi-square was used to analyze the data.

Conclusions

- LVAD patients report poor sleep quality, with sleep disturbances as a primary contributor to sleep quality scores.
- Overall, population was mostly male, Black and married. Poor sleep was associated with mild to moderate depression, P < 0.01; Overall sleep quality was poor and level of fatigue was moderate.
- Future research should focus on interventions that may promote better sleep in this population.

Strengths & Limitations

- Limited sample size
- Data collection from two outpatient centers improved generalizability
- There are both objective and subjective measures such as incorporation of stressful life event, psychosocial health, and 6MWT
- Cross sectional study design does not determine causality.



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