



# EVALUATION OF VENTRICULAR ASSIST DEVICE RELATED INFECTIONS



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## Introduction & Purpose

Ventricular assist device (VAD) implantation has been increasingly used as destination therapy for patients with heart failure. One of the most serious complications of VAD therapy is infection. The aim of this study was to evaluate VAD related infections in a single referral heart transplant center of Turkey.

## Methods

Patients undergoing continuous flow left ventricular assist device (LVAD)'s implantation since 2010 were retrospectively reviewed in regard to device related infections. Adult patients 18 years old and above were admitted to this study. Clinical presentations and culture results were evaluated.

## Results

Since December 2010 Heartware ventricular Assist System (*Heartware, Inc, Miramar, FL*) was implanted in seventy-three patients and Heartmate II (*Thoratec Corp, Pleasanton, CA*) was implanted in fourteen patients. Seventy-five out of eighty-seven patients (86.3%) were male. The mean age was 49.54±11.82 at the time of LVAD placement. The incidence density of LVAD related infection was 13.7% (n=12). The most common LVAD associated infection was driveline (n:9) Pump-pocket infection and related sepsis in two patients and pump-pocket infection in one patient were respectively occurred. Device type, median duration of support and microbiological culture results of infected patients were summarized in table.

Patient	Device	Gender	Age	Duration of LVAD (days)	LVAD-related infection			Result
					A	B	C	
1	Heartware	Male	40	564	<i>S.aureus</i> (I)			Died
2	Heartware	Male	57	289	<i>S.aureus</i> (I)			Alive*
3	Heartware	Male	29	611		<i>S.aureus</i> (II)		Died
4	Heartware	Male	49	175		<i>S.aureus</i> (II)		Alive
5	Heartware	Male	51	102	<i>S.aureus</i> (I)			Died
6	Heartware	Male	42	246	<i>S.aureus</i> (III)			Alive
7	Heartware	Male	56	169	<i>S.aureus</i> (I)			Alive
8	Heartware	Female	47	130	<i>S.aureus</i> (I) <i>A.baumannii</i>			Alive
9	Heartmate	Male	47	108			<i>S.aureus</i> (I)	Alive
10	Heartmate	Male	56	134	<i>P.aeruginosa</i>			Alive
11	Heartmate	Male	64	37	<i>P.aeruginosa</i>			Died

A: Driveline infection; B: Pump-pocket infection+sepsis; C: Pump-pocket infection; \*: Transplanted  
I: Methicillin sensitive, penicillin resistant; II: Methicillin and penicillin sensitive; III: Methicillin resistant

## Conclusions

This study was only focused on LVAD related infections. Although non-LVAD related infections such as; pneumonia, central venous catheter related infections or urinary tract infection have occurred they have not taken into the consideration. Our results indicated that LVAD related infections were associated with both by Heartware and Heartmate implantations. *Staphylococcus aureus* was the most common pathogen. But gram-negative nosocomial pathogens have also identified. Fixation of driveline exit site, cautious wound care, early diagnosis and antimicrobial therapy of LVAD infections, suppressive antimicrobial therapy, vacuum assisted closure as needed and cardiac transplantation as soon as possible have been the main measures to control LVAD related infections.

## References

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2. Nienaber JJC et al. *CID* 2013; 57: 1438-48.
3. Lok SI et al. *European Journal of Cardio-Thoracic Surgery* 44(2013) e233-e238.