

# Survival Impact of Bacteremia on Left Ventricular Assist Device Patients Who Have Suffered Strokes

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## BACKGROUND

Stroke and infection are the two leading complications associated with left ventricular assist device (LVAD) therapy. Infection is considered as a risk factor for stroke, and bacteremia has been associated with increased risk of hemorrhagic stroke<sup>1-3</sup>. The combination of infection and stroke is particularly concerning for LVAD recipients and may be interrelated. The purpose of this study is to evaluate the impact of concomitant bacteremia in LVAD patients who suffered a stroke.

## METHODS

- All patients implanted with a continuous flow LVAD at our center from 2009 to 2019 who experienced a stroke post LVAD implantation were included.
- Stroke was defined by clinical signs of stroke and confirmed by neuroimaging.
- Stroke was classified as hemorrhagic (HCVA) and/or ischemic (ICVA). All patients with bacteremia prior to stroke were included in the analysis.
- The overall survival was calculated using Kaplan-Meier estimate, and the Log-Rank test was used to compare the survival curves.

Table 1. Demographic Characteristics

Characteristics	n= 117
Mean Age in years (SD)	57.3 (13.4)
Male – n (%)	87 (74.4)
Female – n (%)	30 (25.6)
Ethnicity	
Caucasian – n (%)	79 (67.5)
African American – n (%)	30 (25.6)
Hispanic – n (%)	5 (4.3)
Native American – n (%)	2 (1.7)
Asian – n (%)	1 (0.9)
Type of device	
HM2 – n (%)	100 (85.4)
HM3 – n (%)	12 (10.3)
HVAD – n (%)	1 (0.9)
Levacor – n (%)	4 (3.4)

## RESULTS

- A total of 117 LVAD patients with strokes were included, of those 62 had ICVA (53%) and 55 had HCVA (47%).
- Forty-three of these patients (37.6%) had an episode of bacteremia prior to their stroke, of whom 14 were in the ICVA group and 29 in the HCVA group.
- Patients with strokes and concomitant bacteremia carry significantly increased risk of mortality over two years ( $p=0.046$ ) compared to patients with strokes without bacteremia (Figure 1).
- No significant mortality difference between HCVA and ICVA in patients with stroke and concomitant bacteremia ( $p=0.473$ ) (Figure 2).
- Of the observed deaths, 8 out of 14 (57%) in the ICVA group died, while 19 of the 29 (66%) in HCVA died within a 2-year period.

## RESULTS

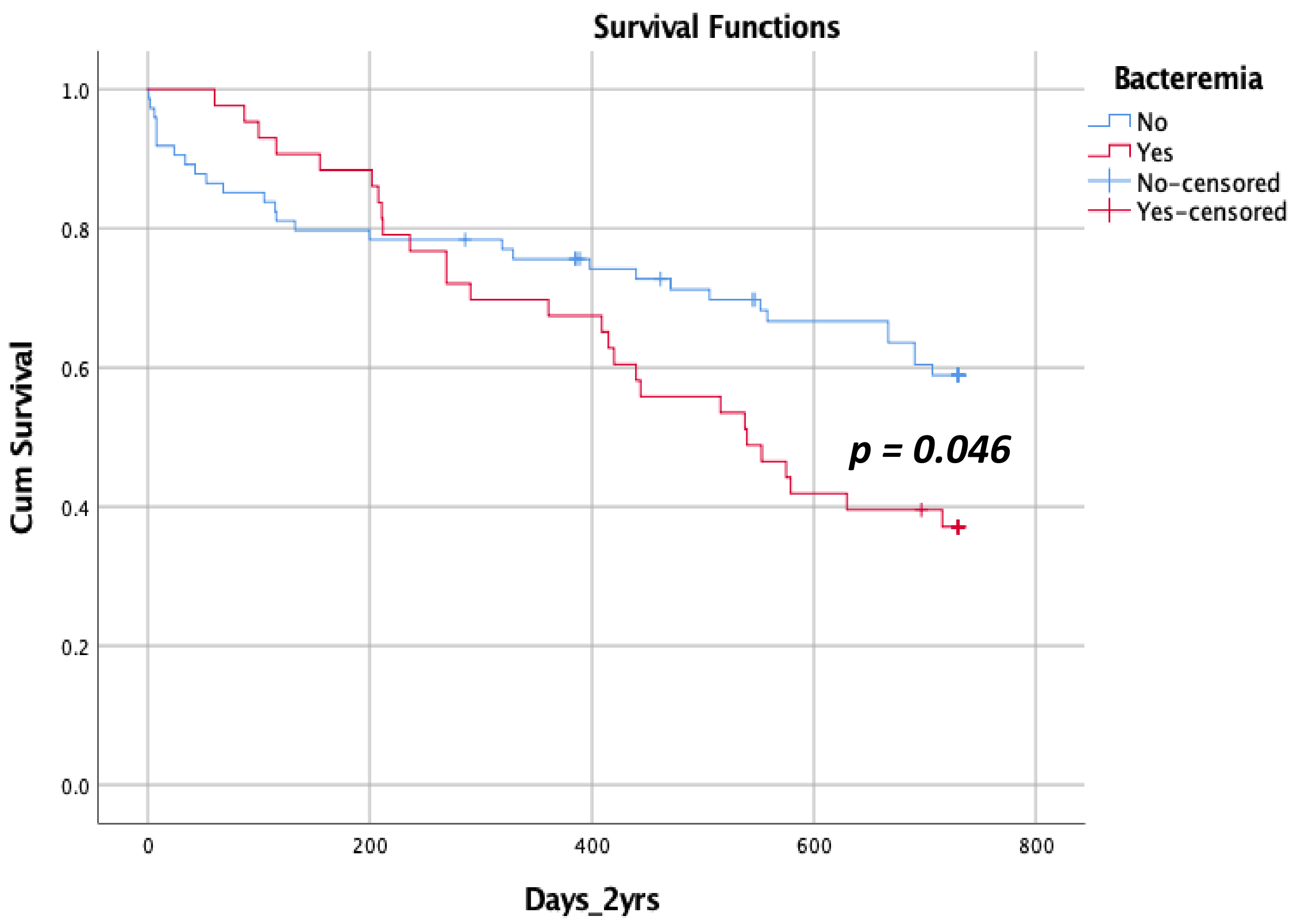


Figure 1. Survival Curve for LVAD Concomitant CVA and Bacteremia

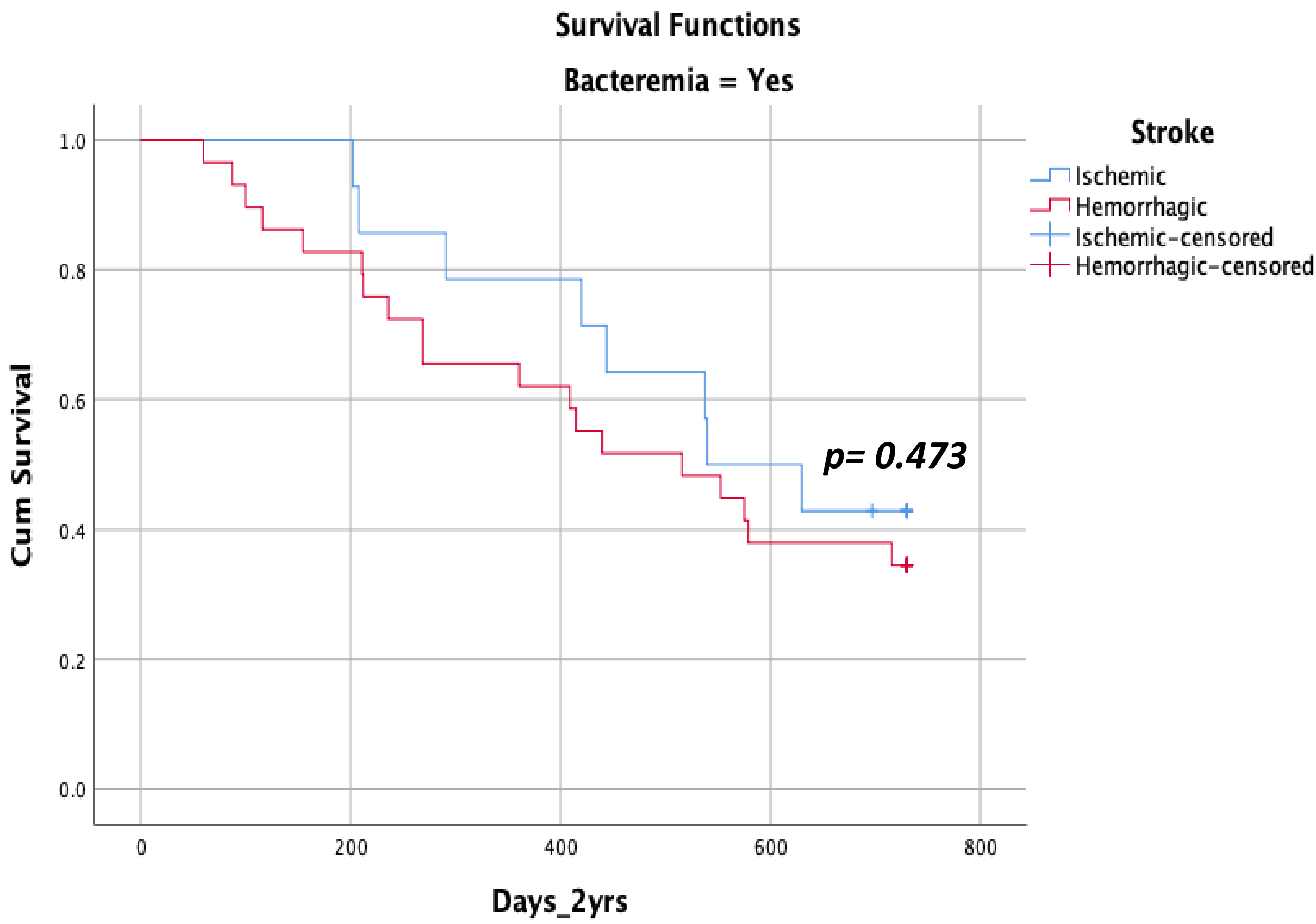


Figure 2. Survival Curve Comparing HCVA and ICVA with Concomitant Bacteremia

## CONCLUSIONS

- LVAD patients with bacteremia who have a stroke carry significantly worse 2 year survival when compared to those who do not have bacteremia at the time of their stroke.
- Patients with bacteremia and concomitant stroke may benefit from further investigation to create strategies to reduce the probability of subsequent mortality.

## REFERENCES

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## DISCLOSURE

The authors have not used any off label or unapproved product. The authors have no financial or professional affiliations to disclose related or derived from the information in this research.