OUTPATIENT INTRAVENOUS ALBUMIN DECREASES HOSPITALIZATION AND MORTALITY IN PATIENTS WITH CIRRHOSIS

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RESEARCH QUESTION

What is the effect of routine outpatient albumin infusion on the incidence of hospitalization and mortality in patients with end stage liver disease within a one year time period?

BACKGROUND

Administration of intravenous human albumin therapy has an important role in the management of spontaneous bacterial peritonitis, acute kidney injury, and reduction in risk of circulatory dysfunction following paracentesis. We hypothesized that albumin infusions given on an outpatient basis with increasing frequency will improve volume management and outcomes in patients with cirrhosis and refractory ascites or anasarca.

METHODS

We examined consecutive patients with cirrhosis and refractory ascites who initiated an outpatient intravenous human albumin treatment protocol. All patients received at least one albumin infusion of 25% human albumin 50g which was given independently from albumin received during paracenteses between the years of 2011 and 2015. Patients with transjugular intrahepatic portosystemic shunts (TIPS) were excluded. Laboratory and clinical data during the three months before and longitudinal follow up over 12 months was assessed, including hospitalizations, transplantation and overall survival.

Patient Characteristics	Overall (n=97)	≥ 12 Infusions (n=37)	< 12 Infusions (n=60)	P Value
Age	62 (38-86)	61 (45-75)	62 (38-86)	0.65
Gender				
Male	62 (64%)	26 (70%)	36 (60%)	0.31
Female	35 (36%)	11 (30%)	24 (40%)	
Race				
Caucasian	83 (86%)	35 (95%)	48 (80%)	
African American	6 (6%)	1 (3%)	5 (8%)	0.03
Hispanic	8 (8%)	1 (3%)	7 (12%)	
Diagnosis				
Cryptogenic	35 (36%)	17 (46%)	18 (30%)	
Hepatitis C Virus	33 (34%)	11 (30%)	22 (37%)	0.17
Other	29 (30%)	9 (24%)	20 (33%)	
Hepatocellular Carcinoma	15 (15%)	4 (11%)	11 (18%)	0.30
BMI	31 (17-47)	32 (22-43)	28 (17-47)	0.08
MELD	16 (6-29)	16 (7-29)	16 (6-28)	0.92
Prior hospitalizations	63 (65%)	43 (61%)	20 (77%)	0.14
Hospitalizations over 12 Months	1.35	1.57 (0-9)	1.22 (2%)	0.38
Mortality	39 (40%)	6 (16%)	33 (55%)	0.00010

Albumin infusions given at least once every 2 weeks resulted in less hospitalizations and deaths among patients with cirrhosis
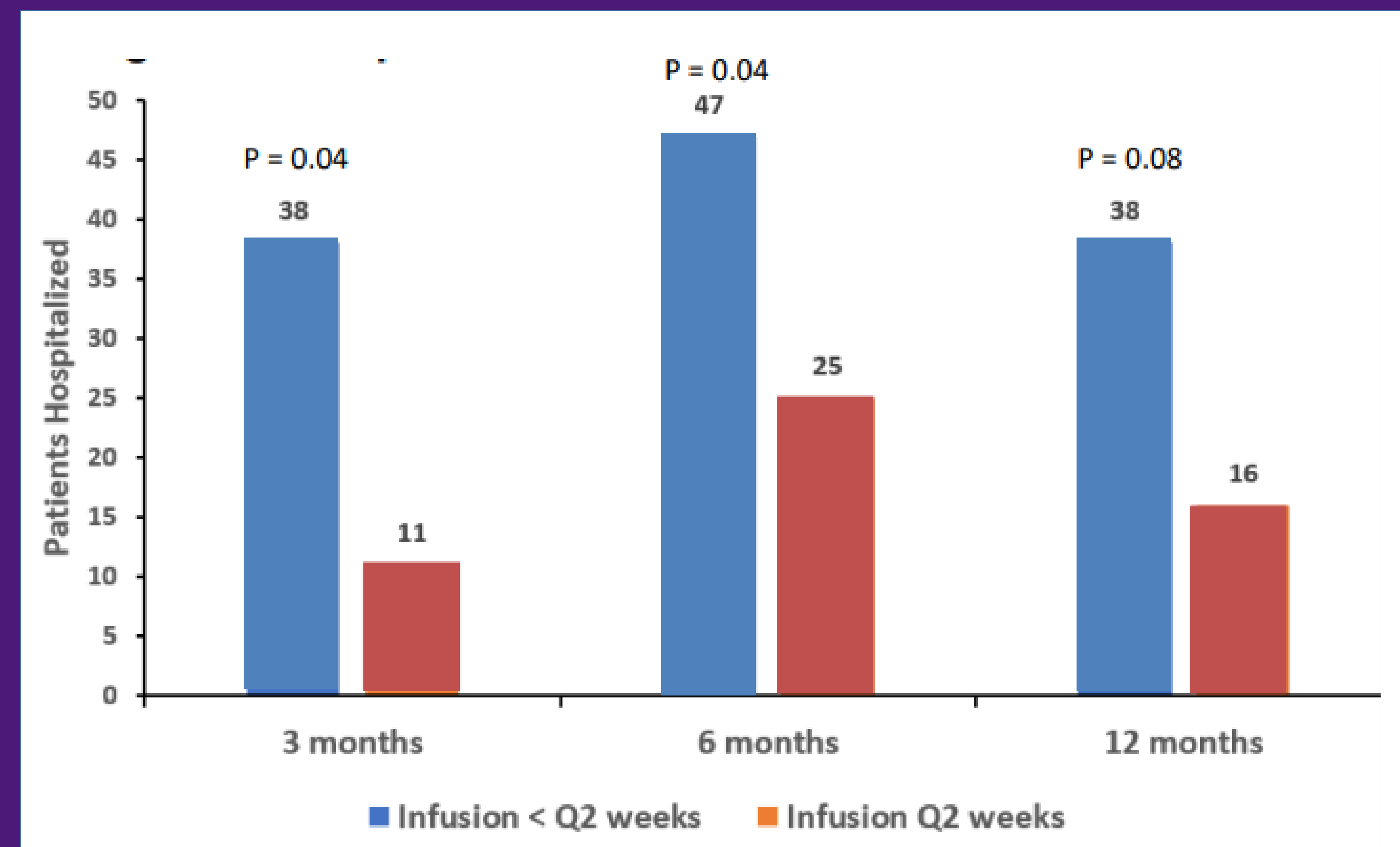

Hospitalizations over 12 month follow up
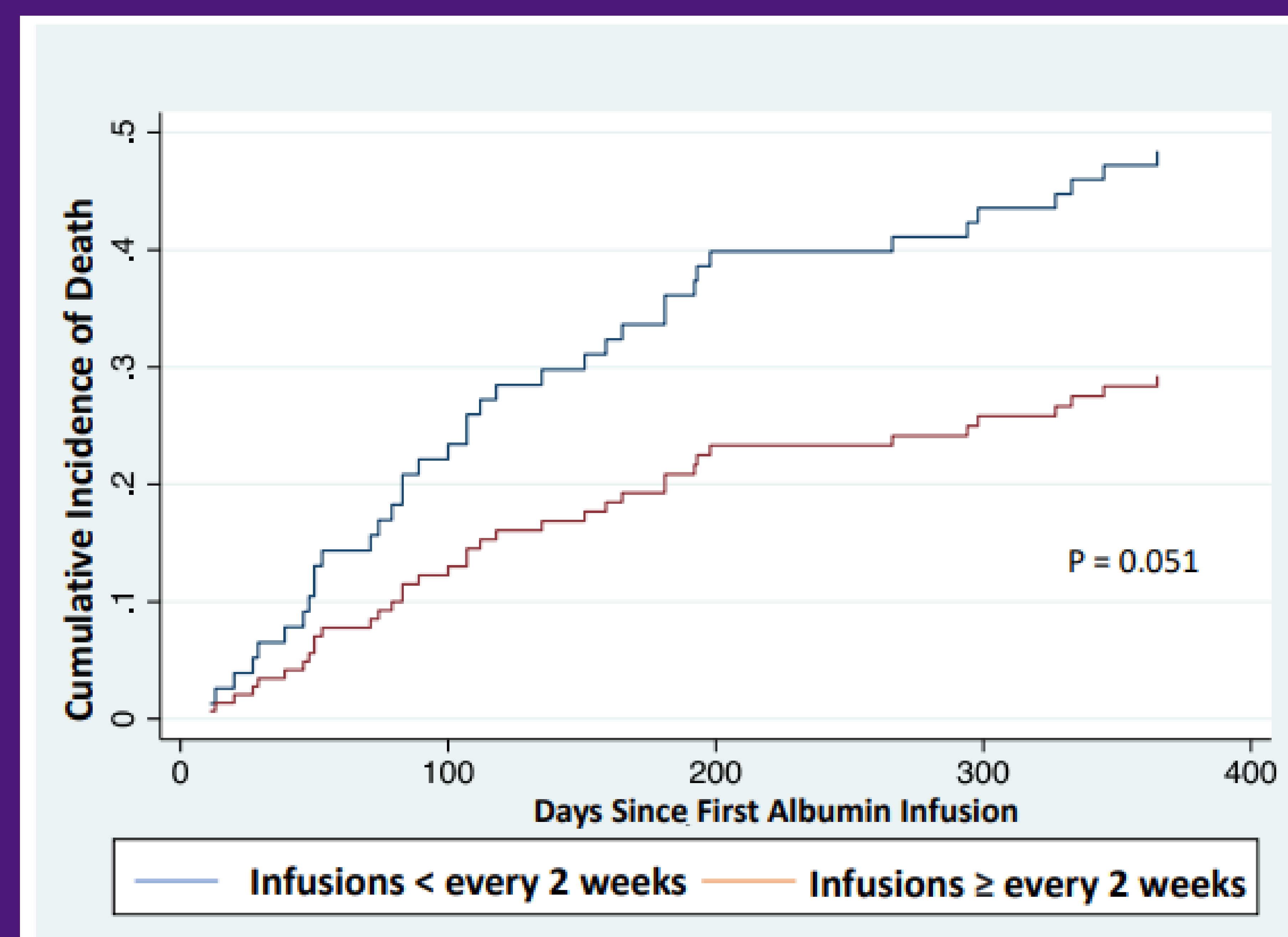
Incidence of death over 12 month follow up

RESULTS

97 patients received at least one outpatient infusion of albumin. Patient demographics included median age 62 (range 38-86), 64% male, 86% Caucasian, 43% cryptogenic/nonalcoholic fatty liver disease and 34% chronic hepatitis C. Primary presentation included ascites 74%, hepatic hydrothorax 13%, and anasarca 12%. Median Model for End-Stage Liver Disease (MELD) score was 15 (6-29) with 24% MELD >20 and 51% of patients required hospitalizations within three months prior to initiation of outpatient albumin protocol. 18% of patients received a transplant by 12 months and 69% died during follow up.
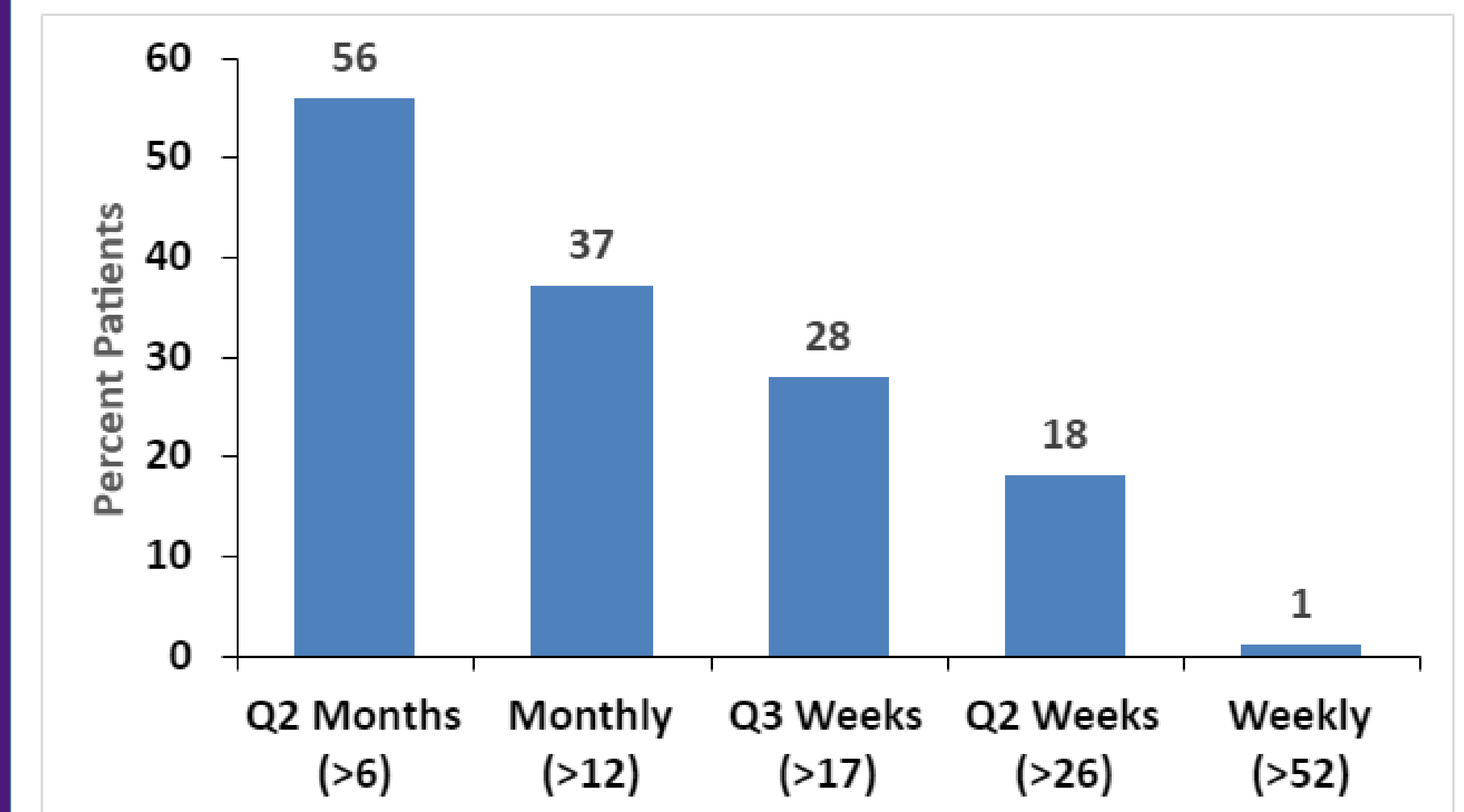
Albumin Infusions Received Over 12 Month Follow-Up

FUTURE DIRECTIONS

It would be beneficial to do a prospective study in which patients with liver cirrhosis, refractory ascites and anasarca are randomly assigned to receive albumin infusions at set frequencies (weekly vs twice a week vs at attending's discretion) to definitively prove that outpatient albumin infusions directly decrease morbidity and mortality in patients without any selection bias. Investigators could also try to follow patients out further since our results imply that outpatient albumin infusion efficacy may wane over time (monthly albumin infusions were statistically significant in decreasing hospitalizations and mortality at the 3 month mark, whereas only albumin infusions every other week or more frequently by 12 months was significant).