Category :**Sepsis/septic shock: management**

A113 - ***Timing of dynamic measurement of stroke volume and patient outcome: results from examination of a large administrative database***

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Introduction:

IV fluid resuscitation is a central component of septic shock resuscitation but in excess is associated with adverse effects. Dynamic measurement of stroke volume (SV) following a fluid challenge is a safe and feasible method of rapidly predicting the effectiveness of fluid-induced augmentation of cardiac output. We have previously shown that SV guided dynamic assessment could alter the amount of IV fluid administered to patients with septic shock and improve patient outcomes. We sought to evaluate the timing of the initiation of dynamic methods using a large number of patients within the Premier dataset.

Methods:

We used the 2013-2019 Premier Hospital Discharge database to analyze the timing of initiating dynamic methods to guide fluid administration in 1,123 patients with severe sepsis and septic shock who were admitted to an ICU from the ER. Patients who received dynamic monitoring initiated days 1-2 were compared to those who received dynamic monitoring on days 3 and later.

Results:

The analysis set consisted of 1123 discharges from 19 hospitals. The mean patient age was 68.6 years of age and 42.2% were female. There was no significant difference in demographics or organ failures (**Figure 1**). Notably, patients who received monitoring on days 1-2 exhibited a decreased ICU length of stay (4.5 vs 10.7 days, $p<0.0001$) and need for vasopressors (2.5% vs 17.4%, $p<0.0001$) and lower risk of death (27% vs 40%, $p=0.001$) compared with patients who had monitoring started on Days 3+ (**Figure 1**).

Conclusion:

The present results suggest that timing of resuscitation efforts is critically important, as patients who received earlier dynamic monitoring exhibited improved outcomes.

Image :

Table 1. Characteristics and Outcomes

		Started Hemodynamic Montoring		
		Day1-2	Day 3+	P Value
N		968	155	
Age	Mean (Median)	69 (70)	65.5 (67)	
Female Sex		42.5%	40.6%	
Organ Failures at Admission				
	Number	2.0	2.3	0.008^
	Respiratory	39.6%	43.0%	
	Cardiac	76.0%	63.8%	
	Hematologic	20.6%	18.1%	
	CNS	39.0%	32.6%	
	Renal	53.7%	54.4%	
	Hepatic	5.7%	4.0%	
Outcomes				
ICU LOS Days	Mean (Median)			
	All	4.5 (3)	10.7 (8)	<0.0001^
	Survivors	4.4 (3)	9.9 (7)	<0.0001^
	Non-survivors	4.9 (3)	11.8 (9)	<0.0001^
Hospital Mortality		27.0%	40.0%	0.0011*
Started Vasopressor after first 2 days		2.5%	17.4%	< 0.0001*

* -Fischer's Exact Test, ^-2-Sample t-Test

Patient Characteristics and Outcomes