

# Invasive Hemodynamic Parameters in Patients with Clinical Hepatorenal Syndrome

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## Introduction

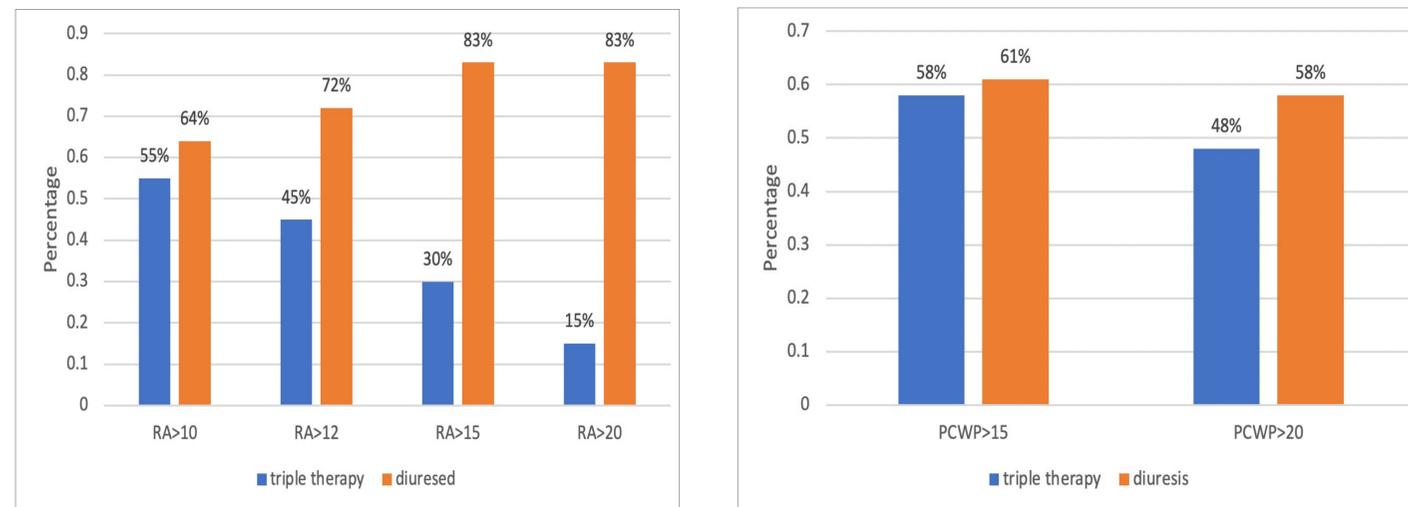
Emerging evidence suggests that cardiac dysfunction mediates decline of renal function in patients with cirrhosis. However, there is sparsity of data in clinical and invasive hemodynamic characteristics of patients with HRS that may overlap with CRS.

## Methods

We conducted a single center retrospective analyses involving patients admitted to AEMC from 2010-2020 with decompensated cirrhosis, clinical HRS and available RHC data as part of cardiac work-up prior to listing for liver transplantation. Demographic, clinical variables and laboratory parameters were collected by review of electronic medical records.

## Results

Out of 282 patients with decompensated cirrhosis, the final sample included 99 patients. The mean age was 60. Forty percent (40%) were female and 30% were African-American. Fifty-seven percent (57%) received triple therapy (midodrine, albumin, octreotide) directed towards HRS.



Percentage of patients receiving triple therapy and started on diuretics stratified by RAP and PCWP cutoffs

Findings from the RHC resulted in 60-80% of these patients being switched to diuretics which paralleled the proportion with elevated cardiac filling pressures.

## Conclusions

A proportion of patients with clinical diagnosis of and treated for HRS may have elevated right and left filling pressures suggestive of CRS – a condition underestimated in cirrhosis patients.

RHC findings show that having invasive hemodynamic data can lead to meaningful change in management for HRS patients, with initiation of decongestive therapy when filling pressures are elevated.

Modifying the management early in the course of HRS with CRS-like physiology may potentially change the renal trajectory of these patients, reduce dialysis needs and save unnecessary kidney and/or liver transplants.

## Legend:

HRS: Hepatorenal syndrome  
CRS: Cardiorenal syndrome  
AKI: Acute kidney injury  
AEMC: Albert Einstein Medical Center

RAP: Right atrial pressure  
PCWP: Pulmonary capillary wedge pressure  
RHC: Right heart catheterization

