MARKERS FOR ADVANCED HEART FAILURE

CLINICAL (Meeting any one of the these criteria)

- Persistent symptoms of heart failure
  - New York Heart Association (NYHA) class III or IV

- Episodes of pulmonary or systemic congestion requiring high-dose diuretics
  - Furosemide ≥ 160 mg/day, torsemide ≥ 80 mg/day or bumetanide ≥ 4 mg/day

- Episodes of low cardiac output requiring inotropes or vasoactive drugs

- Systolic blood pressure <90 mmHg

- Intolerance to guideline-directed medical therapy
  - Severe exercise capacity impairment: low 6 minute walk distance (< 360 m), peak exercise oxygen consumption ($PVO_2 < 14 mL/kg/min$), $PVO_2 ≤ 55\%$ of predicted for age or minute ventilation/carbon dioxide ($VE/VCO_2$) slope > 40

- Episodes of angina or ventricular arrhythmias

LABORATORY (Meeting any one of the these criteria)

- Creatinine
  - ≥1.6 mg/dL or GFR <45 ml/min

- BNP
  - ≥500 pg/mL or NT-proBNP ≥1000 pg/mL

- Albumin
  - <3.5 g/dL

- Progressive hyponatremia
  - <133 mEq/L

- Abnormal liver function test attributed to hepatic congestion and/or hypoperfusion

IMAGING

- LVEF
  - ≤35\%

- Infiltrative or restrictive cardiomyopathies

- Moderate to severe mitral and/or tricuspid regurgitation

RISK SCORE DATA

- Seattle Heart Failure Model (SHFM) one year predicted survival
  - ≤80\%

- Meta-Analysis Global Group in Chronic (MAGGIC) Heart Failure Risk Score one year predicted survival
  - ≤80\%

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