# Abstract

## INTRODUCTION:

Refractory hypotension and cardiovascular collapse are frequently observed in the terminal phases of septic shock. While impaired systolic function has been identified as the major culprit, the contribution of diastolic dysfunction to cardiovascular morbidity and mortality in septic shock is not fully understood.

## OBJECTIVES:

to evaluate the prognostic significance of NTproBNP, Troponin I, and Tissue Doppler echocardiographic variables to septic shock mortality, and to assess the rule of serum procalcitonin as a useful marker for mortality in septic shock.

## METHODS:

Thirty Patients with septic shock were enrolled in the study After exclusion of patients with cardiomyopathy and significant valvular heart diseases. Each patient was subjected to the following:

Measurement of serum NTproBNP, Troponin I, and procalcitonin, routine echocardiographic study with measuring of LV end-diastolic volume index (LVEDVI), LV end-systolic volume index (LVESVI) and calculation of LV ejection fraction (LVEF) and cardiac output index (COI), LV diastolic function was assessed with measuring of transmitral peak E and A velocities, E/A ratio and E deceleration time. Tissue Doppler echocardiography was performed with measuring of septal mitral annulus peak e', a' and s' velocities, the E/e' was then calculated. All the above measurements were done within 72 hours of development of septic shock.

## RESULTS:

The study population were divided into two groups according to 28$^{th}$ day mortality, group I (survivors, 12 patients, 6 males and 6 females) and group II (non survivors, 18 patients, 8 males and 10 females). No significant

difference between groups regarding age and sex distribution, associated co-morbidities and SAPS II score on admission. The most common source of sepsis in both groups was chest infection followed by infected surgical wounds and urinary tract infection in group I, and abdominal sepsis and infected surgical wounds in group II. 27 patients (85%) had positive culture (9 in group I & 18 in group II). The most common organisms were klebseilla in group I (13%), Klebseilla & MRSA in group II (25% each). Inspite of higher level of NTproBNP, troponin I, and procalcitonin in group II (617.89±354.75, 1.624± 1.582, and 4.898±5.578 respectively) compared to group I (464.67±417.39, 0.283±0.129, and 0.661±0.879 respectively), the p value was non-significant (0.37, 0.047, and 0.051 respectively). According to the echocardiographic variables; the only predictor factor of mortality was higher E/e' with a cut off limit of 7.6, sensitivity 83%, and specificity of 50% (E/e' was 7.87 ± 1.38 in group I and 11.62 ± 5.08 in group II, p value: 0.019). None of the other variables showed any relation to mortality.

## CONCLUSIONS:

the only predictor factor of mortality was higher E/e' with a cut off limit of 7.6, sensitivity 83%, and specificity of 50% (E/e' was 7.87 ± 1.38 in group I and 11.62 ± 5.08 in group II, p value: 0.019).
None of the other variables showed any relation to mortality.

- **Key words:**
- Septic shock
- Tissue Doppler imaging
- Procalcitonin
- Cardiac biomarkers (NTproBNP and Troponin I)