



Diastolic dysfunction and mortality in severe sepsis and septic shock

Thesis

**Submitted for Partial Fulfillment of MSc
Degree in Critical Care**

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2019

Abstract

Background: It's well known that systolic dysfunction has Paradoxical effect on survival and myocardial dysfunction recovers if patients survived the septic course in sepsis and septic shock however diastolic dysfunction is often ignored in sepsis and septic shock.

Methods: We investigated the relation between the extent of the diastolic dysfunction and mortality and length of ICU stay, using echocardiography at the first day of admission and correlating the different measures of diastolic function with mortality.

Results: The echocardiographic parameters E, A, E/A, E/e' , septal e' , lateral e' , Tricuspid regurgitation max velocity, stroke volume, cardiac output, all showed a statistically significant correlation to mortality with p value of (0.005, < 0.001, < 0.001, < 0.001, < 0.001, < 0.001, 0.008, 0.003 and 0.026 respectively), E/e' , lateral e' showed a statistically significant correlation to the need for dialysis with p value of (0.035 and 0.039 respectively), using ROC curves Septal e' velocity is predictive of mortality with a cut off value < 7.25 cm / second with 82.1% sensitivity and 90.5% specificity, Lateral e' velocity is predictive of mortality with a cut off value < 8.9 cm / second with 67.9% sensitivity and 92.9% specificity, Tricuspid regurgitation maximum velocity is predictive of mortality with a cut off value > 296.50 cm / second with 60.7% sensitivity and 69% specificity, E/A is predictive of mortality with a cut off value > 1.895 with 64.3% sensitivity and 83.3% specificity, E/e' is predictive of mortality with a cut off value > 11.050 with 64.3% sensitivity and 78.6% specificity.

Conclusion: systolic and diastolic dysfunction have a strong predictive value for mortality in sepsis and septic shock, stroke volume, E/A ratio, septal e' are the strongest independent risk factors predicting patient's mortality.

Key Words : sepsis, septic shock, diastolic dysfunction, mortality, echocardiography.

Aim of the work

- To re-evaluate the diastolic function of the heart in sepsis.
- To solve some of the discrepancies between previous studies.
- Evaluate correlations between mortality and all the other routinely measured hemodynamic parameters adding to them systemic vascular resistance (SVR), APACHE II score, and SOFA score, all the routine labs, CRP, lactate and lactate clearance after 24 hours of admission , echocardiographic parameters evaluating diastolic dysfunction including (IVRT , E wave deceleration time , velocity of propagation , E , A , E/A ratio , tissue doppler for mitral valve annulus measuring septal e' , septal a' , lateral e' , lateral a' , E/e' ratio) using statistical analysis to find correlations between all of the echocardiographic parameters and other clinical and laboratory data evaluating their effects on mortality.