Background:

There are studies emphasizing the importance of arterial blood lactate level on outcome, specifically mortality in patients with circulatory shock, cardiac arrest, trauma, sepsis, septic shock, ards, pulmonary embolism and cardiovascular outcome, but its prognostic significance in mixed icu population is not well defined.

Objective:

To examine whether value of arterial blood lactate level on admission to a general intensive care unit with mixed populations of septic and non septic patients can indicate prognosis.The primary outcome measured is 28 day mortality.

Design:

Prospective Observational study.

Setting: General adult intensive care unit in a tertiary care teaching hospital.

Interventions: Arterial blood samples were obtained on admission to the intensive care unit.

Patients: 224 consecutive patients admitted to the intensive care unit. Patients are split into two groups namely septic and non-septic from final diagnosis.

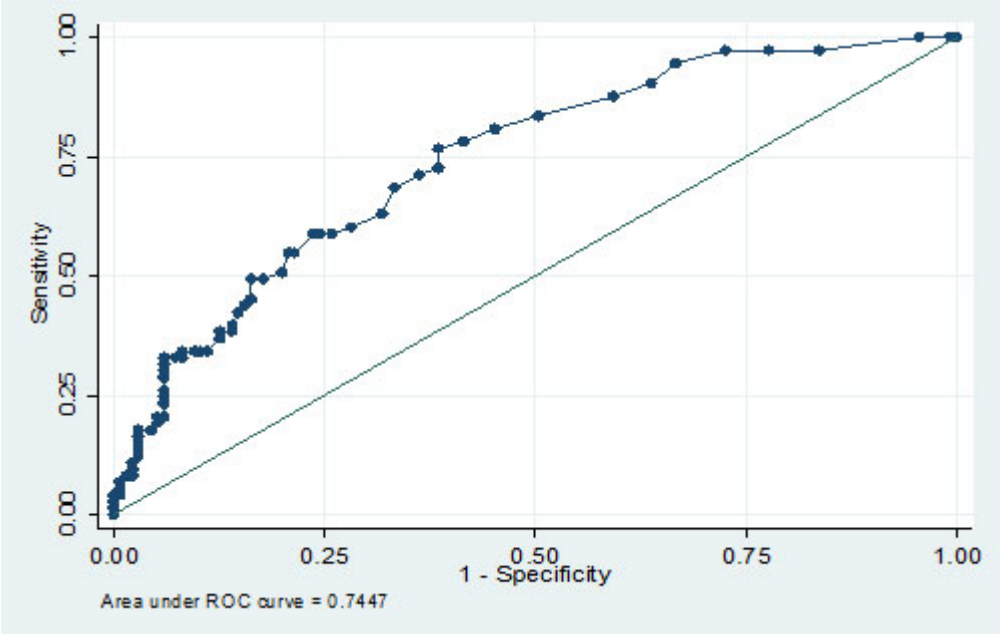
Measurements and results:

For statistical calculation, we used Stata/SE 11 software. Out of Total 120 septic patients 25 patients lost to follow up and Out of 104 non-septic patients 19 lost to follow up, so excluded from the study for 28 days mortality. In all patients whose initial arterial blood lactate levels were >1.9, the unadjusted and adjusted odds ratios are 3.64 (2.00 – 6.62) and 3.30 (1.66-6.57) with 95% CI and p value of 0.001. Inseptic patients the area under ROC curve is 0.7794 and the same for non-septic patients is 0.8657. The area under ROC curve for all patients (total 180) is 0.7447.

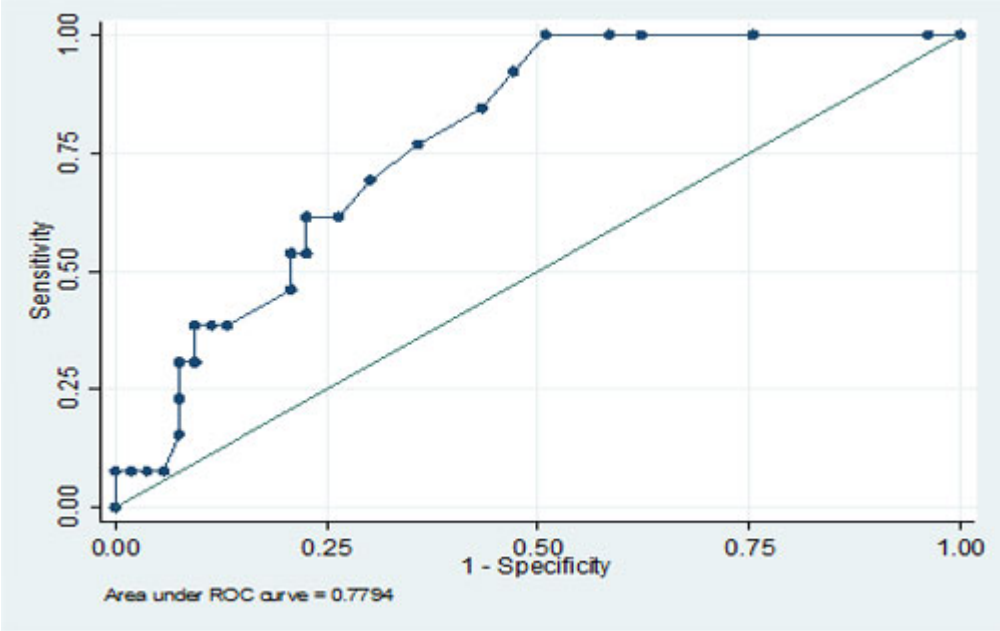
Discussion:

In a study by Wong DT(Crit care med,1995),Apache II ROC curve is 0.860 for prediction of hospital mortality.More recently PROWESS study(Richards G, J intensive care med, 2011)

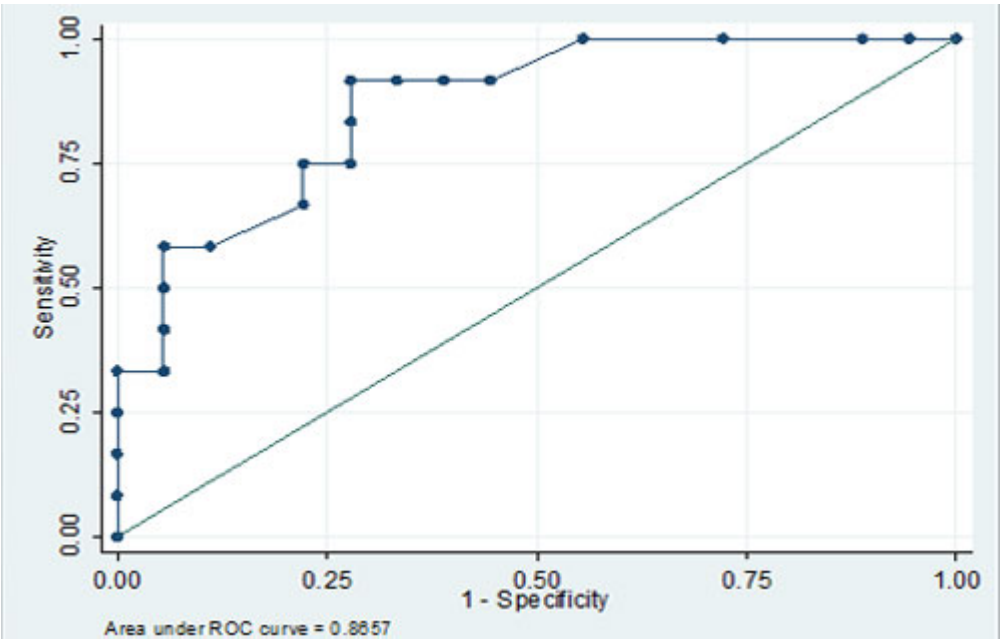
the patients with community acquired pneumonia in placebo arm, the ROC for Apache score of ≥ 25 was 0.64 for 28 day mortality. Our study ROC Curve for mixed ICU population is 0.7447 for prediction of mortality at 28 day. It is a very easy accessible and relatively cheap measure. Its ability favorably compares to apache II.



ALL ICU PATIENT MORTALITY ROC



ROC SEPTIC PATIENTS = 0.779



ROC NON SEPTIC PATIENTS = 0.8657

Conclusion:

Admission arterial blood lactate level can be used to predict outcome in patients admitted to the intensive care unit. This variable may be utilized to identify patients who have a high risk for mortality and thus who should be admitted to the intensive care unit. The limitation of the study is that it is a single centered study.

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