Introduction:
Estimation of fibrinogen level by classical laboratory methods or by viscoelastic method-rotational thrombelastometry (ROTEM) is essential for the patient with multiple trauma as it plays a key role in hemostasis and is the first coagulation factor to be consumed. We investigated the predictive ability of lactate level and base excess to determine fibrinogen deficiency for the patient with multiple trauma from admission.

Methods:
This retrospective study includes 158 patients admitted to the Emergency Clinical Hospital of Bucharest which meet the Berlin criteria for the diagnosis of multiple trauma. There were taken into account: the level of lactate, base excess, and Maximum Clot Formation(MCF/FibTEM-ROTEM) from the admission of patients in hospital. For statistical analysis we used MedCalc14.1.

Results:
The study group includes 118 men and 40 women with a mean age of 43.008 vs. 40.32 years (p=0.639) admitted with the diagnosis of multiple trauma. We found a directly proportional and highly significant statistical correlation between base excess and fibrinogen level diagnosed using the MCF/FibTEM parameter(r=0.6382, p<0.0001) and an inverse proportional correlation between lactate level and fibrinogen level (r= -0.2164, p=0.0065). In the ROC analysis that uses as a variable the level of base excess and as a criterion of classification the fibrinogen deficit (MCF/FibTEM<12 mm) it can be observed that at a value of BE<7 mmol/l, we can diagnose a fibrinogen deficit with a sensitivity of 88.2% and a specificity of 80.6% (AUC= 0.872, p<0.0001). Lactate appears to be inferior to the excess base, but still has a good diagnostic power, a value of 2.6 mmol/l has a sensitivity of 67.1% and a specificity of 75% (AUC= 0.754, p<0.0001). The difference between the two ROC curves (0.118) is statistically significant (p = 0.0028).

Conclusion:
Both base excess and serum lactate can be used to diagnose fibrinogen deficiency with the mention that base excess appears to have a higher sensibility and specificity ability.
Comparison of ROC curves of Base excess (AUC=0.872) vs Lactate level (AUC=0.754) for diagnosis of fibrinogen deficiency.