

## PREDICTIVE POWER OF RTS, ASCOT, NISS, ISS AND TRISS SCORES IN SEVERE TRAUMA PATIENTS FROM REPUBLIC OF MOLDOVA. PRELIMINARY DATA

Ion Grabovschi, Department of Human Physiology and Biophysics, State University of Medicine and Pharmacy „Nicolae Testemițanu”, Chisinau, Republic of Moldova

**Introduction** Attempts to predict the evolution course of the pathological conditions led to the traumatic scores' elaboration based on the distinct medical systems realities that differ in many respects from the local one. Thus, it is necessary to identify the optimal one for the trauma centers in the country.

**Keywords** Trauma, survival, predictive scores

**Purpose** Comparative evaluation of the five most common traumatic scores described in the literature in the conditions of a trauma center in the Republic of Moldova to identify the score with maximum predictive abilities.

**Material and methods** In the retrospective study (654 patients with severe trauma), RTS, ISS, NISS, ASCOT, TRISS scores were applied to assess patient's survival rate. The prediction results were compared and statistically analyzed by logistic regression.

**Results** The comparative evaluation of the five traumatic scores indicated the superior predictive abilities of the ASCOT score as indicated by its coefficient of determination (21.6%), calibration ( $\chi^2 = 9,171$ ,  $df = 8$ ,  $p = .328$ ) and discrimination (area under the curve ROC 0.727). It was followed by the modified TRISS score with the coefficient of determination (20.3%), calibration ( $\chi^2 = 8,824$ ,  $df = 8$ ,  $p = .357$ ) and discrimination (area under the ROC 0.719 curve).

Table 1. Tested models' comparative evaluation

Model	Nagelkerke R Square (%)	Hosmer and Lemeshow Test			Area under ROC curve	Confidence interval	
		Chi-square	df	p		Lower bound	Upper bound
RTS	18,8	15.656	8	.048	.711	.672	.750
ISS	11.9	4.349	8	.824	.674	.633	.715
NISS	10.6	4.412	8	.818	.665	.624	.707
TRISS st	17	10.031	8	.263	.705	.665	.745
TRISS modified	20.3	8.824	8	.357	.719	.680	.757
ASCOT	21.6	9.171	8	.328	.727	.688	.765

df- degree of freedom, p-statistical significance

RTS - Revised Trauma Score, ISS - Injury Severity Score, NISS - New Injury Severity Score,  $TRISS_{standard}$  - standard Trauma Injury Severity Score (variable age used as binary covariate, cut-off being 55 years),  $TRISS_{modified}$  - modified Trauma Injury Severity Score (variable age used as continuous covariate – the real age value), ASCOT - A Severity Characterization Of Trauma.

Table 2. Tested models' area under ROC curve comparative evaluation

Test Result Variable(s)	Area Under the Curve			Confidence Interval	
	Area	Std. Error <sup>a</sup>	Asymptotic Sig. <sup>b</sup>	Lower Bound	Upper Bound
ASCOT	.727	.020	.000	.688	.765
TRISS_mod	.719	.020	.000	.680	.757
TRISS_st	.705	.020	.000	.665	.745
RTS	.711	.020	.000	.672	.750
NISS	.665	.021	.000	.624	.707
ISS	.674	.021	.000	.633	.715

The test result variable(s): Predicted probability, Predicted probability,  
a. Under the nonparametric assumption  
b. Null hypothesis: true area = 0.5

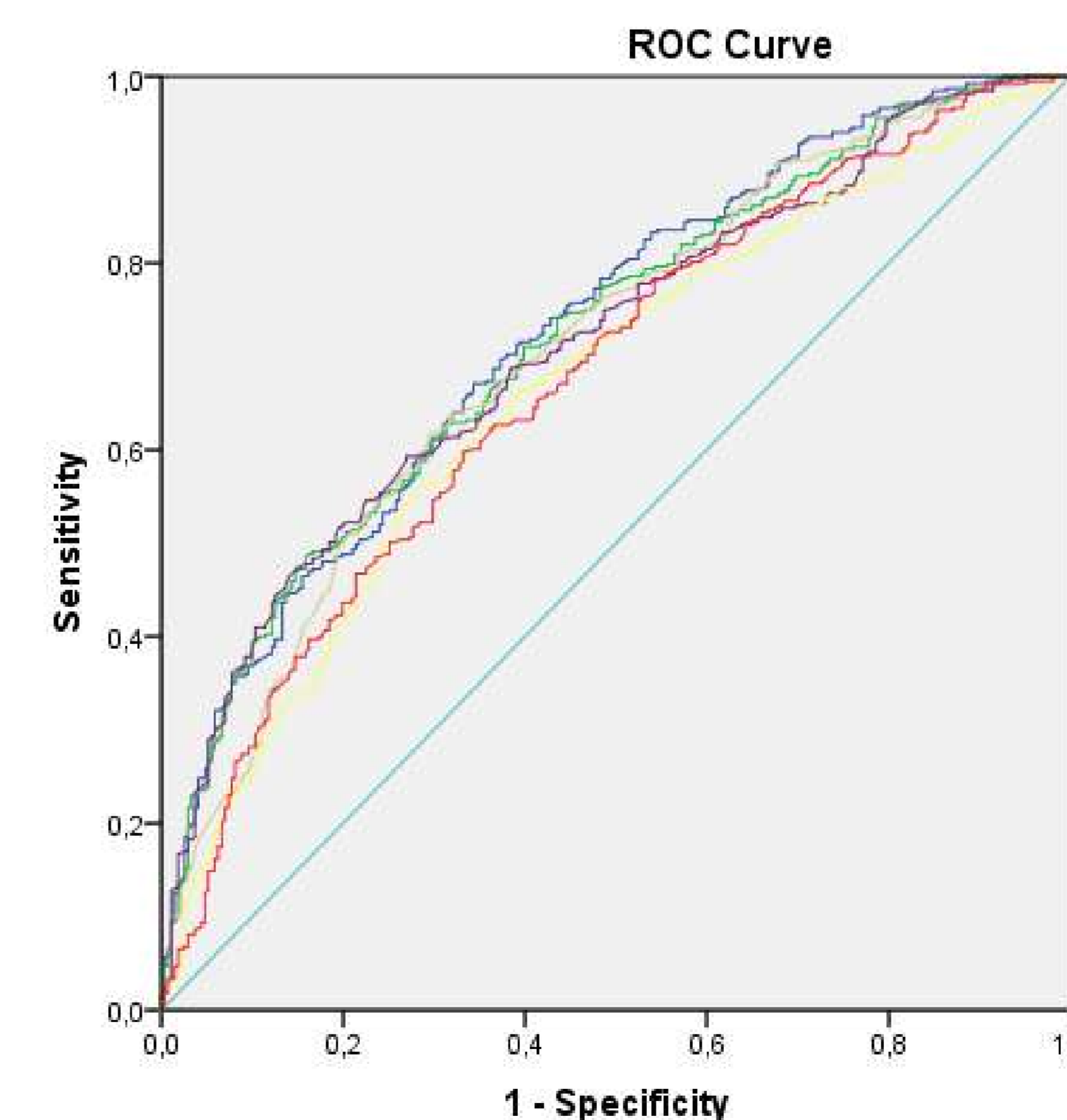


Figure 1. Area under ROC curve for ISS (red), NISS (yellow), RTS (brown), ASCOT (blue), TRISSmodified (green) and TRISSstandard (purple).

**Conclusions** The comparison of the proposed scores determined the ASCOT score as one with the highest accuracy in prediction in the conditions of a trauma center in the Republic of Moldova.