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Survival predictive models in severe trauma patients' transportation within Moldovan medical system

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Abstract

Background: Trauma remains an unresolved medical problem and its severity often requires the transfer of patients to specialized trauma institutions (centers). The elaboration of the predictive models represents an effective tool for improving the prognosis of the transported patients by optimizing the management of the trauma and/or improving the national interhospital transfer system. The survival probability predictive models in severe trauma were proposed in this pilot research.

Material and methods: Data were collected from 39 patients with severe trauma (NISS > 15) transported to the Emergency Medicine Institute (EMI), Chisinau, the Republic of Moldova, from district hospitals. These data were statistically processed using multivariate logistic regression where NISS, MPMoIII, age and biological gender were considered as covariates.

Results: There were developed three predictive models: based on the estimation of anatomical lesions (NISS), based on physiologic parameters estimation and conditions during/immediately after hospital admission (MPMoIII) and their combination (NISS + MPMoIII). The last of these showed significance only after the resampling, the characteristics of the model being superior (the coefficient of determination over 0.8, the sensitivity and the specificity over 80%) compared to the first two taken separately. Age and biological gender were insignificant and were not included in the equations.

Conclusions: Developed models are perspective (especially a combined one) in predicting survival rate of severe trauma patients transported to EMI from district hospitals. At the same time, taking into account the particularities and limitations related to the pilot study, the models can be recommended for use in clinical practice after validation procedure only.

Key words: severe trauma, predictive models, interhospital transportation.