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LOGISTIC REGRESSION MODELS FOR JAPANESE BLUNT TRAUMA VICTIMS

Akio KIMURA
Department of Emergency Medicine and Traumatology, International Medical Center of Japan

This study investigated logistic regression models that would offer better survival prediction of Japanese blunt trauma (BT) victims, and demonstrate the probability of survival (Ps) without RR data on admission. Using calculable data for Ps (12,975) from BT patients (17,564), registered in the Japan Trauma Data Bank (JTDB) (2004～2007), we allocated a random half (6,487) of the data to a training data set, and the remaining half (6,488) to a validation data set. For logistic regression analysis, age, injury severity score (ISS), Glasgow coma scale score (GCS), systolic blood pressure (BP), respiratory rate (RR), and their coded values (cBP, cGCS, cRR) were used as independent variables. For validation, areas under curves (AUCs) of receiver-operating characteristic curves were compared. Ps data that were not computable (4,574) were used for external application of the models. The model with ISS, age, cBP, cGCS, and cRR shows the best AUC of 0.9674 in the training data, and 0.9670 in the validation data. A similar model without cRR shows AUCs of 0.9670 and 0.9654. Application of the model to patients with missing RR data demonstrated an AUC of 0.9023. The model using ISS, age and cBP, cGCS, cRR seems to offer the best survival prediction. The model without cRR can be used, if RR data are not available.

Key words：JTDB, TRISS, non-penetrating trauma, respiratory rate