Trauma Injury Severity Score (TRISS)

Formula

The formula for the probability of survival using TRISS is :

Ps=1/(1+e-b)

Where

b=αi+βAGE,i×AGE+βRTS,i×RTS+βISS,i×ISS

with i=1 (blunt injury) or 2 (penetrating injury), αi is the constant for mechanism i, βAGE,i, βRTS,i, and βISS,i are the coefficients associated with AGE, RTS, and ISS and mechanism i, respectively. RTS is given by :

RTS=βRR×RR+βSBP×SBP+βGCS×GCS

Where βRR, βSBP, and βGCS are the coefficients associated with RR, SBP, and GCS. Substituting the formula for RTS into the equation for b gives :

b=ai+βAGE,i×AGE+βRR,i×RR+βSBP,i×SBP+βGCS,i×GCS+βISS,i×ISS

Where βRR,i, βSBP,i and βGCS,i are the coefficients associated with RR, SBP, and GCS with mechanism I, and βAGE,i and βISS,i are defined as above. The TRISS variable classifications assigned the values and coefficients derived from the MTOS in 1995 and the NTDB in 2010.

Importance

Despite several limitations, the Trauma Injury Severity Score (TRISS) is normally used to evaluate trauma systems.

The use of the TRISS formula has been suggested to consider definitively preventable death (DP); the deaths occurred with a probability of survival (Ps) higher than 0.50 and possible preventable death (PP); the deaths occurred with a Ps between 0.50 and 0.25. Deaths in patients with a calculated Ps of less than 0.25 is considered as no-preventable death (NP).

A total of 565 consecutive severe trauma patients with ISS>15 or Revised Trauma Score<7 were admitted and excluded a total of 24 patients from our analysis : 22 patients younger than 15 years, and 2 patients with burned injury. Of these, 221 patients with head injury were analyzed in the final study. One hundred eighty-two patients were in DP, 13 in PP and 24 in NP. The calculated predicted mortality rates were 11.13%, 59.04%, and 90.09%. The actual mortality rates were 12.64%, 61.547%, and 91.67%, respectively.

Although it needs to make some improvements, the present study showed that TRISS performed well in predicting survival of traumatic brain injured patients. Also, TRISS is relatively exact and acceptable compared with actual data, as a simple and time-saving method [1].

1)

Moon JH, Seo BR, Jang JW, Lee JK, Moon HS. Evaluation of probability of survival using trauma and

injury severity score method in severe neurotrauma patients. J Korean Neurosurg Soc. 2013 Jul;54(1):42-6. doi: 10.3340/jkns.2013.54.1.42. Epub 2013 Jul 31. PubMed PMID: 24044080; PubMed Central PMCID: PMC3772286.