

Progressive hemorrhagic injury

[Progressive hemorrhagic injury](#) (PHI) greatly affects the [traumatic brain injury outcome](#) (TBI).

Intracranial hemorrhage (ICH) after traumatic brain injury (TBI) commonly increases in size and coagulopathy has been implicated in such progression.

A meta-analysis to assess their relationship. Cochrane library, PubMed, and EMBASE were searched for literatures. Pooled effect sizes and 95% confidential intervals (CIs) were calculated using random-effects model. We included six studies, involving 1700 participants with 540 progressive hemorrhagic injuries (PHIs). Our findings indicate that PT, D-dimer level, and INR value are positively associated with the risk of PHI. Higher level of PLT and Fg seemed to suggest a lower risk of PHI. Among these parameters, higher D-dimer level and INR value would possess more powerful strength in predicting PHI. ¹⁾

[D-dimer/fibrinogen ratio](#) (D/F ratio) may be a potential predictor for [venous thromboembolism](#). A study of Xu et al. sought to describe and evaluate any relationship between D/F ratio and PHI after TBI.

This retrospective study included a cohort of 192 TBI patients. Plasma D-dimer and fibrinogen were measured, and subsequently, D/F ratio was calculated. Multivariate logistic regression analysis was applied to identify predictors of PHI. The receiver operating characteristic (ROC) curve was configured to analyze predictive capability for PHI.

A total of 43 patients (22.4%) experienced PHI. Both [Glasgow coma scale](#) (GCS) score (odds ratio [OR], 0.565; 95% CI, 0.464-0.689) and D/F ratio (OR, 4.026; 95% CI, 2.219-7.305) were the two independent predictor for PHI. Area under ROC curve (AUC) of D/F ratio was similar to that of GCS score (AUC, 0.816; 95% CI, 0.754-0.868 vs. AUC, 0.834; 95% CI, 0.773-0.883; P=0.699). Moreover, D/F ratio significantly improved AUC of GCS score to 0.928 (95% CI, 0.881-0.960; P<0.001).

D/F ratio was strongly predictive of PHI in the studied cohort and, thereby should be considered in the clinical management of TBI patients ²⁾.

Unclassified

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