Background: Mild traumatic brain injury (mTBI) is a common cause of emergency department visits. Only a small fraction of these patients will develop intracranial hemorrhage (ICH) with an even smaller subgroup suffering from severe outcomes.

Objective: To perform a systematic review and meta-analysis of the literature to examine which risk factors impact the risk of ICH in patients with mTBI.

Methods: The literature was searched using Medline, Embase and Web of Science. Reference lists of major literature was cross-checked. The outcome variable was ICH on computed tomography (CT).

Results: Eighteen papers were selected for inclusion after completion of screening in the meta-analysis, with a pooled patient population of 22149 where 1527 cases of intracranial hemorrhage were verified through CT (6.9%). Only three of the eighteen papers presented data in the form of multivariable logistic regression odds ratios (OR). The only novel predictor identified was the presence of a scalp lesion, with an OR of 2.2 (95% confidence interval 1.03-4.68).

Conclusion: The result from our meta-analysis provides additional insight to how independent risk factors impact the risk of ICH. However, there are notable issues of heterogeneity between studies in terms of method, definitions of mTBI, and data presentation.