

ABSTRACT

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Traumatic brain injury and subsequent brain tumor development: a systematic review of the literature.

Shah DS(1), Sanan A(2), Morell AA(2), Eichberg DG(2), Shah AH(2), Luther E(2), Lu VM(2), Elarjani T(2), Higgins DMO(2), Patel NV(2), Jagid JR(2), Ivan ME(2), Komotar RJ(2).

Author information:

(1)Department of Neurological Surgery, Dell Medical School, University of Texas at Austin, 501 Red River St., Austin, TX, 78712, USA. darsh.shah@utexas.edu.

(2)Department of Neurological Surgery, University of Miami, Miami, FL, USA.

The role of prior head trauma in stimulating brain tumor development has been previously described in the literature but continues to be debated. The goal of this study was to conduct a systematic review interrogating the contemporary literature to delineate any possible relationship between traumatic brain injury and brain tumor development. A systematic review exploring development of post-TBI brain tumor was conducted by searching electronic databases. Abstracts from articles were read and selected for full-text review according to criteria previously established in the scientific literature. Relevant full-text articles were divided into case reports and single-arm studies and epidemiological studies. Of 1070 resultant articles, 18 case reports and single-arm studies (level of evidence of IV and V) with 45 patients were included. The most common cause of TBI was traffic accidents. The average period between TBI and subsequent tumor diagnosis was 12.8 years. Meningiomas represented the largest share of tumors, followed by gliomas. Most post-TBI brain tumors developed in the frontal and temporal lobes. Fifteen epidemiological studies were also interrogated from a variety of countries (level of evidence of III). Case-control studies were more common than cohort studies. There were 9 of 15 studies proposed a possible relationship between history of head trauma and development of brain tumor. The relationship between head trauma and neoplastic growth continues to be heavily debated. There are certainly case reports and epidemiological studies in the literature that suggest a correlational relationship between the two. However, there is no concrete evidence of a causal relationship between TBI and brain tumors. More research is needed to definitively delineate the extent of any such relationship.

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