

Therapeutic benefits of quercetin in traumatic brain injury model exposed to cigarette smoke

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The deleterious effect of cigarette smoking or passive smoking on brain health particularly cognitive functions, blood–brain barrier (BBB) permeability, up-regulation of inflammatory cascades, and depletion of the antioxidant system. These combined effects become more progressive in the events of stroke, traumatic brain injury (TBI), and many other neurodegenerative diseases. In the current study, we investigated the long-term administration of quercetin in ameliorating the deleterious neurobiological consequences of chronic tobacco smoke exposure in TBI mice. After 21 days of cigarette smoke exposure and treatment with 50 mg/kg of quercetin, C57BL/6 mice were challenged for the induction of TBI by the weight drop method. Subsequently, a battery of behavioral tests and immunohistochemical analyses revealed the beneficial effect of quercetin on the behavioural assays and Immunohistochemistry analysis (Nrf2, HO-1, NFkB, caspase 3) possibly through up regulation of antioxidant pathways, and decreased apoptosis. Our findings support the therapeutic effectiveness of quercetin in protecting the central neurological functions that become aberrantly impaired in combined habitual cigarette-smoking individuals impacted with TBI.

Biography

Thamer has completed his PhD at the age of 32 years from Texas Tech University Health Sciences Center. He is an assistant professor at King Saud University. He has published more than 40 papers.