Is the Regular Intake of Anticoagulative Agents an Independent Risk Factor for the Severity of Traumatic Brain Injuries in Geriatric Patients? A Retrospective Analysis of 10,559 Patients from the TraumaRegister DGU®

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Abstract: The purpose of this study was to assess anticoagulant medication as an independent factor influencing the occurrence of a severe traumatic brain injury in geriatric patients. Data were collected from the TraumaRegister DGU® between January 2015 and December 2018. We included patients with an age of ≥65 years with a blunt TBI; an AISHead ≥2 but no other relevant injuries. Patients were divided into five subgroups: no anticoagulant medication, anti-platelet drugs, vitamin K antagonists, direct-oral-anticoagulants, and heparinoids. Separation between moderate TBI (AISHead 2–3) and severe TBI (AISHead ≥ 4) and multivariable regression analysis were performed. The average age of 10,559 included patients was 78.8 years with a mean ISS of 16.8 points and a mortality of 22.9%. The most common cause of injury was a low fall of <3 m with 72.8%. With increasing age, the number of patients without any anticoagulant therapy decreased from 65.9% to 29.9%. The intake of coagulation medication increased mortality significantly. Severe TBI was observed in 51% of patients without medication and ranged from 61 to 67% with anticoagulant drugs. After adjusting for confounding variables, the intake of VKA or DOACs was significantly associated with an increased risk of severe TBI. The use of anticoagulant medication is an independent factor and is associated with an increased severity of TBI depending on the type of medication used.

Keywords: traumatic brain injury; medication; geriatric; odds; DOAC