Aggressive operative treatment of isolated blunt traumatic brain injury in the elderly is associated with favourable outcome²

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Outcome after traumatic brain injury (TBI) in the elderly has not been fully elucidated. The present retrospective observational study investigates the age-dependent outcome of patients suffering from severe isolated TBI with regard to operative and non-operative treatment. Data were prospectively collected in the TraumaRegister DGU®. Anonymous datasets of 8629 patients with isolated severe blunt TBI (AIS_Trauma ≥ 3, AIS_surgery ≤ 1) documented from 2002 to 2011 were analysed. Patients were grouped according to age: 1–17, 18–59, 60–69, 70–79 and ≥80 years. Cranial fractures (44.8%) and subdural haematomas (42.6%) were the most common TBIs. Independent from the type of TBI the group of patients with operative treatment declined with rising age. Subgroup analysis of patients with critical TBI (AIS_head = 5) revealed standardised mortality ratios (SMRs) of 0.81 (95% CI 0.75–0.87) in case of operative treatment (n = 1201) and 1.13 (95% CI 1.09–1.18) in case of non-operative treatment (n = 1096). All age groups ≥60 years showed significantly reduced SMRs in case of operative treatment. Across all age groups the group of patients with low/moderate disability according to the GOS (4 or 5 points) was higher in case of operative treatment. Results of this retrospective observational study have to be interpreted cautiously. However, good outcome after TBI with severe space-occupying haemorrhage is more frequent in patients with operative treatment across all age groups. Age alone should not be the reason for limited care or denial of operative intervention.

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Introduction

Traumatic brain Injury (TBI) accounts for around 52% of all deaths of trauma admissions and is therefore the leading cause of death among trauma patients [10]. In patients between 1 and 44 years of age it remains the leading cause of mortality [21]. On average, 39% of patients with severe TBI die from their injury [23]. Treatment options are limited and the therapeutic benefits of aggressive operative intervention especially in the elderly population have been widely discussed [8,9,22,24]. The surgical management of TBI has changed little over the last 20–30 years and mainly consists of the early evacuation of space-occupying haemorrhage. The benefit of such means is thought to be self-evident and has therefore not been validated by many randomised controlled trials (RCTs) [21]. A recently published RCT (DECRA-study) showed even greater risk for impaired outcome when decompressive craniectomy was performed when compared with standard care in patients between 15 and 59 years [7]. However, the study design and patient selection have been questioned and this finding therefore been contested [14,23,27,29]. Being one of the few RCTs available on this field, this study focused on diffuse