

The “Young men may die, but old men must die” concept reappraised: The case of subdural hematomas

Subdural hematoma (SDH) is a condition commonly encountered in the everyday practice. Epidemiology data support an increasing incidence and prevalence trend. Only in the United States (between 1998 and 2007), 720,297 patients were hospitalized for SDH. Among them, more than 70% were aged over 60 years. The advance in age comes with an increase in dementia and a frequent use of antiplatelet drugs and vitamin K antagonists, as well as a plethora of risk factors involved in SDH appearance.^[1] The financial burden on health systems is significant. During this decade, the annual hospitalization cost for patients with SDH reached 1.6 billion US dollars, while the average cost for each admission for traumatic SDH was estimated to be 47,315 US dollars.^[1,2] Thus, it seems logical to focus our research efforts on the population of older patients suffering from SDH. The central question raised is whether these patients get operated and, if so, what is the outcome?

During the last few years, many studies were conducted with a special emphasis on elderly patients harboring a SDH.^[3-6] Acute SDH (aSDH) are diagnosed roughly in one-third of the patients with severe traumatic brain injury, and they are associated with high mortality rates. Tausky *et al.*, retrospectively analyzed 37 Swiss patients (54% women, 46% men) who underwent craniotomy and duroplasty for aSDH.^[3] The median age was 73 years. Thirty patients (81%) had significant comorbidities and 43% of patients were treated by anticoagulation or thrombocyte-aggregation inhibitors. The median initial Glasgow coma scale score (GCS) was 8, and 51% patients presented with pupillary abnormalities. Perioperative morbidity occurred in 12 of 37 patients (32%), and 13 patients died in the postoperative period (35%). Overall, the outcome according to the Glasgow outcome scale (GOS) was

favorable (GOS, 4 and 5) in 15 of 37 patients (41%); severely disabled (GOS, 3) in 8 of 37 (22%), and unfavorable (GOS, 1 and 2) in 14 of 37 (38%). The authors concluded that craniotomy for patients aged more than 65 years remains controversial and that surgical treatment is associated with significant postoperative morbidity, mortality, and adverse outcome. However, selected patients benefit from an intervention, with a good outcome in 41% of patients.

Hanif *et al.*, evaluated 29 cases (16 males, 13 females, all over 70 years of age) with aSDH that required surgical evacuation.^[4] Seventeen Irish patients sustained severe head injury (GCS 3-8). Mortality rate was 50%, and the overall outcome was poor (GOS 3-5) (74.1%). There were no functional survivors among those with severe head injury. The researchers questioned the efficiency of surgical intervention to prevent the poor outcomes associated with increased age, especially in the cases of severe head injury.

It is easily understood that the prognosis is not favorable in old patients presenting with aSDH. What about chronic SDH (cSDH)? De Araújo Silva *et al.*, treated surgically 125 Brazilian patients with a median age of 69 (male/female ratio: 102/23).^[5] History of trauma was present in 60.8% of the patients. The median GCS on admission was 14. The median GOS at 6 months was 4 (range: 1-5). One hundred and three patients obtained a good outcome (GOS 4-5), representing 82.4% of the patients. Mortality rate was 11.2% (14 patients). Patients presenting with an admission GCS score ≥ 9 had a statistically significant better outcome ($P = 0.0033$). However, age was not statistically associated with the outcome. The authors emphatically underlined the fact that older patients could actually benefit from surgical treatment and that they should be provided with that option.

Javadi *et al.*, reported 40 patients with cSDH (28 males, 12 females) and a mean age of 67 years.^[6] From these, 7.5% presented with a GCS < 8 on admission. Antiplatelets were identified as the risk factors in 20% of the patients. Good outcome (GOS 5) after 6 months was found in 60% of patients treated with drainage

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and in 50% of those with no drainage. The researchers concluded that the surgical technique did not seem to be the main variable improving the outcome of such patients. Other factors such as age, neurological status, and comorbidities seemed to have a more significant role on the surgical outcome.

Mulligan *et al.*, presented their experience with 45 patients (33 men, 12 women) treated for aSDH, cSDH, and mixed SDH.^[7] The mean age was 79.8 years (range: 70-94) and 28 patients were on anticoagulation therapy. The authors found no improvement in the functional outcome (3 patients died, 7%). However, a significant neurological improvement was documented (Markwalder grading scale). Interestingly, improvement was observed in older patients with a worse preoperative neurological status in patients on anticoagulants and in patients with cSDH or mixed SDH.

The literature findings are consistent with a better neurological and functional outcome in cSDH as compared to patients suffering from aSDH. It is true that, during the last years, the number of patients with SDH with a good discharge disposition has increased, while, at the same time, mortality has decreased.^[1] Physicians need to further explore the aging-associated neurobiological changes in order to better understand the observed outcome.^[4] It is recommended that the method of intervention should be determined by individualized decision making for each patient, taking into account the individual underlying risk factors.^[5,6] However, older patients should at least be considered for a surgical intervention (if not provided one). Advanced age should not be seen as an absolute contraindication for an operation in this subpopulation. As with young

men, old men *may* die, but this does not mean that they *must* die...

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