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Factors Influencing the Survival of Patients with C2 Fractures in the Elderly, according to the Treatment: Results of a Multicenter Study

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Title: Factors Influencing the Survival of Patients with C2 Fractures in the Elderly, according to the Treatment: Results of a Multicenter Study

Background: C2 fractures in the elderly are frequently associated with frailty and comorbidities, resulting in an increased mortality rate. In frail patients, surgical intervention is often avoided in favor of conservative treatment.

Research Question: Are there identifiable factors that can help in deciding the best treatment, related to mortality, for elderly patients with C2 fractures?

Design: This multicenter study is designed as a survival analysis of patients treated for C2 fractures in Catalunya (Spain)

Methods: Participants were over 65 years old with a follow-up period longer than one year. Demographic variables, Charlson index, initial neurological involvement, medical complications, previous home assistance, type of fracture, treatment, and discharge destination were collected. Statistical methods included Kaplan-Meier analysis to estimate survival within treatments, fracture patterns, delay from fracture to treatment, and age with comparisons made using the log-rank test. A Cox regression model was subsequently used to quantify the influence of variables on mortality.

Results: 128 patients were treated whether surgery, halo, and orthosis. Age and comorbidity were comparable between groups, with a higher proportion of women. Differences in survival rates were observed with surgery versus orthosis. The variables most affecting survival were male gender, neurological involvement, age group, and discharge destination. Type III fractures and home assistance were protective factors. The model presented high concordance (0.914).

Conclusions: Lower mortality rates were found with halo and surgery, although some bias selection of treatment is present. Home assistance and Type III fractures were associated to reduced mortality. Key factors included male gender, neurological involvement and discharge destination.