

Arthroplasty Can Improve Long-Term Survival of Female Patients Sustained Femoral Neck Fracture Age Over 90: The 10-Year Results Compared to Conservative Treatment
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Purpose: China's population of age over 90 years accounts for nearly 15% of the same age group of the total world population. There is a lack of data reflecting the short and long-term outcome of nonagenarian patients suffering femoral neck fracture in a China context. The main purpose of the current retrospective study was to evaluate and compare the short and long-term mortality between operative and nonoperative treatment of femoral neck fracture patients over 90 years of age during the same 10-year period. The second goal is to analyze the influence of gender difference on the mortality of these patients.

Methods: From January 2007 to December 2016, all consecutive nonagenarian and centenarian patients with femoral neck fracture admitted to our hospital were included for evaluation. The end point of follow-up was defined as the date of death or emigration, or 30 August 2018, whichever came first, and survival was determined at this time. The primary outcome was defined as 30-day mortality, 1-year, 2-year, 3-year, 4-year, and 5-year mortality after injury. Survival status analysis was performed by the Kaplan-Meier method for all- cause mortality. Using the log-rank (Mantel-Cox) test, the stratified analyses by gender, arthroplasty group and conservative group, educational level, and marital status were performed to compare the difference of survival distributions.

Results: Finally, 104 patients, 54 women (51.9%) and 50 men (48.1%), were included in the study. The arthroplasty group and the conservative treatment group included 37 and 67 patients, respectively. The median age of the arthroplasty group and conservative was 93years (range, 90-100) and 92 years (range, 90-103), respectively. The survival time of arthroplasty group is significantly higher than the conservative group (24.50 months vs 40 months, $P = 0.012$). The cumulative mortality after injury of 30 days, 1 year, 2 years, 3 years, 4 years, and 5 years for conservative group and arthroplasty group was 14.9% versus 8.1%, 26.9% versus 10.8%, 34.3% versus 18.9%, 46.3% versus 29.7%, 52.2% versus 35.1%, and 58.2 versus 40.5%, respectively. The gender difference of survival distributions between the conservative group and arthroplasty group is significant for women ($P < 0.05$), but not for men ($P = 0.6222$).

Conclusion: The arthroplasty procedure can improve the short and long-term survival of femoral neck fracture patients age above 90 years, especially for women. Arthroplasty treatment in the extreme elderly should not be discounted on the grounds of age alone. It can be anticipated that almost two-thirds of the patients will survive more than 5 years after surgery.