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### Trends and shifts in the treatment of proximal humeral fractures in Italy: a 22-year analysis of surgical and conservative approaches

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#### Introduction

Proximal humeral fractures (PHFs) are a significant health issue, particularly in the elderly, accounting for approximately 4% to 10% of all fractures, with a higher incidence in women. Treatment approaches include conservative methods, internal fixation and arthroplasty. Within the framework of the Italian Arthroplasty Registry (RIAP) and using data from the Italian Hospital Discharge Records (HDR) Database, this study aims to analyse trends in the treatment of PHFs in hospitalised patients in Italy from 2001 to 2022 and to provide an insight on stratification by age and sex.

#### Material and Methods

HDR records with ICD9-CM codes for PHFs (812.0x and 812.1x) were selected and categorised into three treatment groups: arthroplasty, fixation, and conservative according to procedures performed during hospitalisation. Time series analyses were carried out, and stratification by sex and age was performed to observe variations in treatment patterns.

#### Results

486,368 records of PHFs were extracted, with 223,742 cases handled surgically (arthroplasty or internal fixation) and 262,626 conservatively. Average age of patients was 66.6, with a higher prevalence of women, particularly among those treated with arthroplasty. The use of surgical approach increased from 20% in 2001 to over 60% in 2022. Internal fixation emerged as the most common treatment by 2014. There was a significant rise in arthroplasty among women, especially in 65-84 age group. Conservative approach was the preferred option for patients over 85 throughout the whole period.

#### Discussion

This research provides a thorough overview of changes in the treatment of hospitalised patients with PHFs in Italy, emphasising significant trends. Over the past twenty years, the approach to treat PHFs has moved from conservative methods to a preference for internal fixation and, increasingly, arthroplasty. This shift is particularly marked among women and patients aged 65-84, reflecting evolving trends and advancements in technology. A comprehensive national registry is recommended to monitor outcomes of these patients.

#### Notes