



# Does fracture of the dominant shoulder have any effect on functional and quality of life outcome compared with the nondominant shoulder?

Carlos Torrens, MD\*, Juan Francisco Sanchez, MD, Anna Isart, MD, Fernando Santana, MD

*Department of Orthopedics, Hospital del Mar, Parc de Salut Mar, Barcelona, Spain*

**Hypothesis:** Proximal humeral fractures involving the dominant arm are not predisposed to worsen the functional outcome and the quality of life compared with proximal humeral fractures of the nondominant arm.

**Methods:** This was a retrospective study including 179 consecutive proximal humeral fractures divided into 2 groups: fractures involving the dominant arm ( $n = 97$ ) and fractures involving the nondominant arm ( $n = 82$ ). Both groups were prospectively assessed for 2 years, and at the end of the follow-up, all patients underwent functional assessment by Constant score and quality of life assessment through the 36-Item Short Form Health Survey (SF-36).

**Results:** At the 2-year follow-up, the mean Constant score of the whole series was 65.5 (64.1 in the dominant group and 66.8 in the nondominant group). No significant differences were noted between groups in the total Constant score or among any of the items of the Constant score (total Constant score,  $P = .43$ ; pain,  $P = .63$ ; activities of daily living,  $P = .70$ ; forward elevation,  $P = .57$ ; abduction,  $P = .52$ ; lateral rotation;  $P = .90$ ; internal rotation,  $P = .32$ ; and strength,  $P = .24$ ). The mean physical component summary score of the SF-36 at the 2-year follow-up was 40.8 (39.7 in the dominant group and 41.9 in the nondominant group). The mean mental component summary score of the SF-36 at the 2-year follow-up was 43.5 (44.2 in the dominant group and 42.7 in the nondominant group). No significant differences were noted between groups in any item of the SF-36 (physical component summary score,  $P = .29$ ; mental component summary score,  $P = .51$ ).

**Conclusion:** No significant difference could be found relating to dominance in functional outcome and in the quality of life perception in proximal humeral fractures. Dominance of the affected shoulder has no influence and should not be used to make treatment decisions.

**Level of evidence:** Level III, Retrospective Cohort, Treatment Study.

© 2015 Journal of Shoulder and Elbow Surgery Board of Trustees.

**Keywords:** Fracture; proximal humerus; dominance; conservative treatment; surgical treatment; outcome; osteoporosis; quality of life

The Ethical Committee of the CEIC-Parc de Salut Mar approved this study: No. 2012/4955/I.

\*Reprint requests: Carlos Torrens, MD, Hospital del Mar, Passeig Marítim 25-29, E-08003 Barcelona, Spain.

E-mail address: [86925@parcdesalutmar.cat](mailto:86925@parcdesalutmar.cat) (C. Torrens).

Treatment of displaced proximal humeral fractures (PHFs) remains unclear. Whereas some authors advocate for surgical treatment of complex PHFs, others consider that conservative treatment remains a good option for most

PHFs.<sup>5,6,12,13</sup> Routinely, factors affecting treatment decision include age, comorbidity, fracture patterns, and associated injuries, and there is a tendency toward a surgical decision in younger patients, with more complex fractures, and with associated injuries that require surgery.<sup>6</sup> Functional outcomes of PHF seem to be strongly influenced by age, gender, treatment, intraoperative or postoperative complications, and ability to obtain anatomic restoration.<sup>8,9,11</sup>

Although it is clear that the quality of life is strongly impaired in fractures affecting the dominant hand,<sup>3,10</sup> little evidence is available about the consequences of PHFs affecting the dominant shoulder compared with those affecting the nondominant shoulder in terms of functional outcome and quality of life perception. However, dominance is frequently considered to be relevant in planning what decision to take in PHF.

The objective of this study was to determine whether PHF involving the dominant arm is predisposed to worsen the functional outcome and quality of life compared with PHF involving the nondominant arm and whether mortality and a level of autonomy can also be affected.

## Materials and methods

A retrospective study was conducted with the data collected prospectively involving 196 consecutive PHFs attended at our institution from January 2009 to December 2010. Seventeen patients were lost before the final follow-up and were excluded from the study. The mean age of the 179 patients finally included was 68.3 years (59-81 years). There were 140 women and 39 men. Fractures were divided into 2 groups: PHF involving the dominant arm ( $n = 97$ ) and PHF involving the nondominant arm ( $n = 82$ ). Seventy-six fractures were surgically treated (41 dominant and 35 nondominant), whereas 103 were conservatively treated (56 dominant and 47 nondominant). Surgical treatments included 50 osteosutures, 19 hemiarthroplasties, 2 reversed shoulder prostheses, and 5 osteosynthesis with angular plates. Conservative treatments included a 3-week immobilization with a sling followed by an assisted progressive rehabilitation program. Fracture pattern was studied through radiography (anteroposterior view and outlet view) and computed tomography scan, and after that, fractures were classified according to Neer's classification system into 8 1-part, 102 2-part, 63 3-part, and 6 4-part fractures with no significant differences between the dominant and nondominant groups.<sup>7</sup> All the fractures were classified by the same senior shoulder specialist (C.T.) after review of all image files, but no interobserver/intraobserver reliability study was done. No epidemiologic or fracture pattern differences were noted between groups (dominant and nondominant). In surgically treated fractures, the American Society of Anesthesiologists physical status classification did not significantly differ between groups (Table I). Both groups were prospectively observed during 2 years, and at the end of the 2-year follow-up, all the patients involved underwent a functional assessment with the aid of the Constant score and quality of life assessment through the 36-Item Short Form Health Survey (SF-36).<sup>1,2,4</sup> Mortality and level of autonomy, assessed by asking the patient if he or she was fully independent for activities of daily

**Table I** Gender, type of fracture, treatment, and ASA distribution according to dominance

	Dominant (%)	Nondominant (%)	<i>P</i> value
Gender			
Female	54.3	45.7	.55
Male	53.8	46.2	.55
Type of fracture			
1 part	62.5	37.5	.18
2 parts	47.8	52.2	.15
3 parts	60.3	39.7	.18
4 parts	50.0	50.0	.59
Treatment			
Surgery	53.9	46.1	.53
Conservative	54.4	45.6	.53
ASA class			
1	47.8	52.2	.84
2	48.9	51.1	.84
3	58.3	41.7	.80
4	50.0	50.0	.48

ASA, American Society of Anesthesiologists physical status classification system.

living (ADLs) or after the fracture became dependent for some ADLs, were also recorded at the end of the 2-year follow-up.

## Statistics

Categorical variables were compared with  $\chi^2$  test or Fisher exact test as appropriate. Quantitative variables were compared with Student *t* test. All statistical analyses were conducted with the SPSS statistical software (SPSS Inc., Chicago, IL, USA). The  $\alpha$  level was set at .05.

## Results

At the 2-year follow-up, the mean Constant score of the entire series was 65.5 (64.1 [standard deviation (SD) 21.3] for the dominant group; 66.8 [SD 20.9] for the nondominant group). No significant differences were noted between groups in the total Constant score or in any of the items of the Constant score (total Constant score,  $P = .43$ ; pain,  $P = .63$ ; ADLs,  $P = .70$ ; forward elevation,  $P = .57$ ; abduction,  $P = .52$ ; lateral rotation,  $P = .90$ ; internal rotation,  $P = .32$ ; and strength,  $P = .24$ ).

The mean physical component summary score of the SF-36 quality of life questionnaire at the 2-year follow-up was 40.8 (39.7 [SD 11.3] for the dominant group and 41.9 [SD 11.9] for the nondominant group). The mean mental component summary score of the SF-36 at the 2-year follow-up was 43.5 (44.2 [SD 13.2] for the dominant group and 42.7 [SD 12.7] for the nondominant group). No significant differences were noted between groups in any item of the SF-36 (physical component summary score,  $P = .29$ ; mental component summary score,  $P = .51$ ) (Table II).

At the 2-year follow-up, the mean mortality rate was 3.9% (4.1% in the dominant group and 3.7% in the

Download English Version:

<https://daneshyari.com/en/article/4073049>

Download Persian Version:

<https://daneshyari.com/article/4073049>

[Daneshyari.com](https://daneshyari.com)