Functional Impairment of Patients Undergoing Surgical Correction for Charcot Foot Arthropathy

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Background

- Understanding the impact of Charcot foot arthropathy on quality of life is essential in helping better establish the optimal methods of management and timing of intervention.
- Traditional non-surgical accommodative treatment for diabetes-associated Charcot foot arthropathy, like total contact casting, has been unsuccessful in improving the quality of life.
Background

• Previous investigations have demonstrated a reduced self-reported quality of life and lower extremity function in Charcot foot arthropathy using the SF-36 and the American Orthopaedic Foot and Ankle Society Diabetic Foot Questionnaire (AOFAS-DFQ)

Reliability of AOFAS Diabetic Foot Questionnaire in Charcot Arthropathy: Stability, Internal Consistency, and Measurable Difference

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Self-Reported Quality of Life in Patients With Diabetes: A Comparison of Patients With and Without Charcot Neuroarthropathy

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Background

- The Short Musculoskeletal Functional Assessment (SMFA) is a tool used in the management of patients with a broad range of musculoskeletal disorders and has been shown to be a valid instrument for clinical assessment.
  - It is composed of
    - Two Indices: bothersome and functional
    - Four subscales: daily activities, emotional status, arm and hand function, and mobility
Goals

• To determine if the SMFA is a valid instrument capable of measuring the impact of Charcot foot on quality of life

• To establish a benchmark level of disability for the objective measurement of improvement after operative correction of deformity
Methods

**Short Musculoskeletal Function Assessment**

**Injury and Arthritis Survey**

Please complete this survey today.

For further information contact:
MFA Project / 315 - 9th Avenue / Harborview Medical Center
University of Washington, Box 359798 / Seattle, Washington 98104 / (206) 731-4113
Methods

• 25 consecutive patients with Charcot foot deformity completed the SMFA survey prior to undergoing operative correction
  • All patients with deformity within the midfoot and all were clinically and radiographically non-plantigrade
  • 16 males, 9 females
  • Average age 59.5 at time of surgery
  • Average Hemoglobin A1C 7.5 prior to surgery
  • Average BMI 37.4 prior to surgery
Results

• All 25 patients exhibited significant impairment in all six domains of the SMFA as compared to published normative data on 100-point scale (independent sample T-tests)

| Table 1: SMFA Comparison of Loyola Patients with Charcot Foot to the Literature Results |
|-----------------------------------------|-------------|-------------|-------------|-------------|
|                                        | N           | Loyola SMFA | N           | Literature SMFA | P        |
| Functional Index                       | 25          | 46.21 (17.41)| 1871        | 12.70 (15.59)   | <.0001   |
| Bother Index                           | 23          | 43.84 (22.22)| 1734        | 13.77 (18.59)   | <.0001   |
| Daily Activity Index                   | 25          | 63.00 (28.78)| 1891        | 11.85 (19.20)   | <.0001   |
| Emotion Index                          | 25          | 43.43 (16.10)| 1885        | 20.54 (18.38)   | <.0001   |
| Arm/Hand Index                         | 25          | 16.88 (19.16)| 1890        | 6.02 (12.26)    | <.0001   |
| Mobility Index                         | 25          | 53.67 (17.94)| 1888        | 13.61 (18.31)   | <.0001   |

Note: means are reported with standard deviation in parentheses. Significance (p) is calculated using an independent T Test.

Results: There was a statistically significant difference in every SMFA index when comparing Loyola patients to the literature results (p<.0001).
Results

• There was a significant correlation between the 2 indices and 4 domains of the SMFA (Pearson’s correlation coefficients)

![Table 2: Correlations between SMFA Indices](image)
Conclusion

• The SMFA is a valid tool to demonstrate that Charcot foot arthropathy imparts a negative impact on health related quality of life
  • Equally impacts all of the functional and emotional domains measured with the SMFA survey as compared with population norms previously established
  • Scores consistent with cumbersome AOFAS DFQ and SF-36 scored
• Results serve as benchmark for measuring the positive or negative impact of surgical correction
References

- Pinzur, MS: Neutral Ring Fixation for High Risk Non-Plantigrade Charcot Midfoot Deformity. Foot Ank Int. 2007; 28 (9): 961-966. PMID: 17880868.