Extension deficit following fasciectomy: what is the effect on function?

Background and questions

Finger extension deficit post fasciectomy for Dupuytren Disease may result in functional impairment. Patients may be more concerned with functional use of the hand than range of motion (ROM).

Patient rated outcome measures (PROs) are used to measure functional outcomes. Generic PROMs such as the Disability of the Hand Shoulder and Hand (DASH) may not be sensitive enough for the Dupuytren population (Jerosch-Herold et al., 2011).

Prior to 2011 there was no Dupuytren specific scale to measure functional impairment. A Dupuytren disease specific PROM was introduced in 2011 entitled the Unité Rhumatologique des Affections de la Mains (URAM) (Beaudreuil et al., 2011).

This study was initiated to investigate the following questions:

1. What is the relationship between extension deficit and functional impairment following fasciectomy?
2. What degree of extension loss will predict functional impairment?
3. Is the URAM a clinically useful tool?

Methods

Observational, correlational

Data collected at 3 months post fasciectomy on 42 patients treated at Manukau Super Clinic Hand Therapy between Sept 2013 and Sept 2014:

- Extension deficit measured in degrees as Total Active Extension (TAE), MCP+PIP+DIP extension
- Functional deficit measured by URAM

Statistical analyses by biostatistician: Spearman correlation of URAM and TAE of finger with worst TAE.

Patient rated outcome measures

Self-rated scales used to measure functional outcomes. Criticised as being clinician rather than client-centred; may underestimate or fail to capture functional impairment specific to individuals (Davis, 2015; Rodrigues et al., 2014).

Disease specific PROM may be better at determining deficits unique to a certain disease

URAM

First Dupuytren specific PROM (Beaudreuil et al., 2011) 9 questions with a total score of 45.

Questions generated from interviewing 9 patients and 7 medical experts about functional restrictions of Dupuytren’s disease.

Tasks common to majority of patients selected. Activities not representative in general Dupuytren population were excluded (music, sports, DIY).

Tested and validated on Dupuytren population.

URAM scale

URAM: score range 0-45 with greater score indicating greater impairment. 0 = no impairment. 45 = greatest impairment.

Scatterplot of URAM and extension deficit

Can we define what degree of extension loss will predict functional impairment?

A TAE of greater or less than 30º was compared with a URAM score of 0/45 or >0/45 (0=least impairment, 45=greatest impairment).

Table of counts and proportions of URAM by extension deficit

Results

Discussion

1. What is the relationship between extension loss and functional impairment following fasciectomy?

Moderate positive relationship

Overall, greater extension loss is associated with greater functional impairment.

We can say to our patients that in general, people with a straighter finger post fasciectomy, report fewer difficulties with everyday activities.

2. What degree of extension loss will predict functional impairment post-surgery?

Partly answered

Everyone with >30º TAE reported at least one functional problem.

This suggests that a TAE of 30º of greater will predict functional deficit.

A larger sample would be required to give a stronger finding.

3. Is the URAM clinically useful?

The URAM has only 9 questions and this may minimize the true impact of Dupuytren Disease on function.

Fails to capture the broad spectrum of activity limitations (Rodrigues et al., 2015; Wilburn et al., 2013).

Wilburn et al., 2013 found that the URAM does not address quality of life: affection, esteem, social, cognitive needs.

Focuses on extension: functional difficulties may equally be related to loss of palmar span, dexterity (Rodrigues et al., 2015) or poor postop fixation.

As with other PROMs it is not client centred and does not capture problems specific to an individual.

The URAM is a clinically useful tool for measuring functional impairment post fasciectomy. The addition of individualized PROMs that allow patients to specify tasks with which they have difficulty (Rodrigues et al., 2015) would add breadth to the measuring of functional impairment. Such tools include the Canadian Occupational Performance Measure or the Patient Specific Functional Scale.