Proximal Humeral Fracture

Introduction

Patient group: Those with proximal humeral fractures with a NEERS classification of 1. This classification is whereby no bony segment is displaced more then 1cm or angled more than 45 degrees in relation to each other.

Current management: Conservative management, Non-operative, physiotherapy management

Scope of practice

These guidelines are designed to guide physiotherapists when treating patients following proximal humerus fracture or NEERS 1. These guidelines were produced by a process of systematic review of the current evidence based literature, medical and peer consultation. They were correct at the time of writing. The guidelines should be used in conjunction with the clinical reasoning skills of the physiotherapist and patients should always be treated on a case-by-case basis.

Aim

The aim of these guidelines is to provide physiotherapy staff with a series of recommendations from the current evidence base, to assist in the management of patients following proximal humerus fracture with a NEERS classification on 1.

Literature Review Question

What is the most effective and safe rehabilitation approach to follow for patients who have sustained a proximal humeral fracture with a NEER classification of 1 to maximize functional outcomes?

Search Process

Appraisal process: the databases below were searched between 2014 and April 2024, as the previous guidelines were searched upto 2014. The titles and abstracts of all identified studies were assessed to determine whether they were pertinent to the research question. The initial searches were then carried out on the other databased and the results combined to ensure articles were not duplicated.

Total number of articles selected excluding duplicates: 32
Total number of articles screened out: 21
Total number of articles included (CASPs used): 11

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Databases:

Database	Dates	Limitations
AMED	2014-April 2024	Full articles and English
Cinahl	2014-April 2024	Full articles and English
Cochrane	2014-April 2024	Full articles and English
EMBASE	2014-April 2024	Full articles and English
PEDro	2014-April 2024	Full articles and English
MEDLINE	2014-April 2024	Full articles and English

Key words:

Population	Intervention	Outcome
Proximal humerus fracture	Mobilisation	Quality of life
NEERS 1	Non-surgical management	Return to function
	Exercise	Return to sport
	Rehabilitation	DASH
	Physiotherapy management	
	Conservative management	

Results

No article answered the research question in its entirety.

- 7 Randomized controlled trials examined multiple aspects of conservative treatment regards early mobilization, complications or risks of surgery and the differences between supervised and unsupervised exercise programs (Bruinsma et al, 2023, Cabona et al, 2016, Carbone et al, 2017, Duran et al, 2024, Handoll et al, 2017, Ostergaard et al, 2023, Fleischhacker et al, 2023).
- 3 Systematic reviews (Handoll et al, 2022, Nararvo et al, 2018, Ostergaard el at, 2021) and a meta-analysis were included (Song et al, 2015).

From the articles reviewed:

- Conservative management is favorable over surgical management of proximal humerus fractures due to risk of complications and infections (Lim et al, 2023 and Nararvo et al, 2018).

- Early physiotherapy intervention is beneficial for pain and function in the early stage (Handoll et al 2017, Handoll et al, 2022 and Ostergaard et al, 2021) however its suggested that outcomes at 6 and 12 month follow up were similar to delayed physiotherapy intervention (Bruinsma et al, 2023).
- Incidence of proximal humeral fracture rapidly increase with age. Therefore, it is important to consider individual patient's needs, frailty and co-morbidities which may influence recovery, functional outcomes and compliance (Handoll & Broson 2015)
- Consistent adherence and compliance with protocols is a key factor for better functional outcomes however slight deviations from protocols in elderly do not cause significant deterioration in functional outcomes (Fleischhacker et al, 2023).
- There is no evidence supervised is superior to unsupervised rehabilitation (Cabanna et al, 2016, Handoll et al, 2022, Ostergaard et al, 2023)
- Caution should be used with interpreting these results due to sample sizes, some level of bias and cannot be generalized due to differing populations.

Precautions

No weight bearing for the first 6/52, however there may be exceptions if it is limiting patient's mobility. Examples of shoulder weight bearing include using a walking aid or upper limb support to assist a sit to stand. The orthopaedic team must be made aware of this potential situation.

In an inpatient setting: discussions with the named orthopaedic team is required prior to allowing shoulder weight bearing.

Recommendations

Phase 1

Immediately post fracture (0-7 days) **A**

Goals	Recommendations
Protection of fracture site	Sling Immobilisation
Decrease effects of immobilisation	AROM exercises for elbow, wrist and hand Scapular exercises

Phase 2

Approximately 1-3 weeks **A**

Goals	Recommendations

Early mobilisation	Pendular exercises
Decrease effects of immobilisation	Active assisted ROM within pain free range Wean off sling as able Scapula exercises Postural advice

Phase 3
Approximately 3-6 weeks **C**

Goals	**Recommendations**
Progress mobilisation	Pendular exercises
Improved function	Full active assisted ROM Pain free active ROM Passive shoulder mobilization Light functional tasks

Phase 4
Approximately 6-12 weeks **C**

Goals	**Recommendations**
Progress mobility	Active assisted exercises
Improve strength	Passive shoulder stretches
Improve proprioception	Isometric exercise within pain free limits
Improved function	Theraband exercises within pain free limits
Begin weight bearing	Submaximal strengthening exercises Proprioceptive retraining Encourage ADL's Weight bearing exercises

Phase 5
Approximately 12+ weeks **C**

Goals	**Recommendations**
Normalise range of movement	Shoulder stretches
Improved function (ADL's, work and hobbies)	Active ROM exercises
Progress strength and endurance	Strengthening exercise throughout full range

Progress weight bearing	Isotonic rotator cuff exercises (Eccentric and concentric) Functional overhead progressions as able Progress to FWB

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