



Post-Fragility Fracture Management: An Algorithmic Approach

Meir Marmor, M.D.



Disclosures

- Grant support, honoraria and professional responsibilities to nonprofit organizations



AO Foundation



Definitions

- Fragility Fracture \neq Hip Fracture
- What do we mean by FF?
 - Geriatric?
 - Osteoporotic?
 - Frailty?
 - Malnourishment?
 - Dementia?

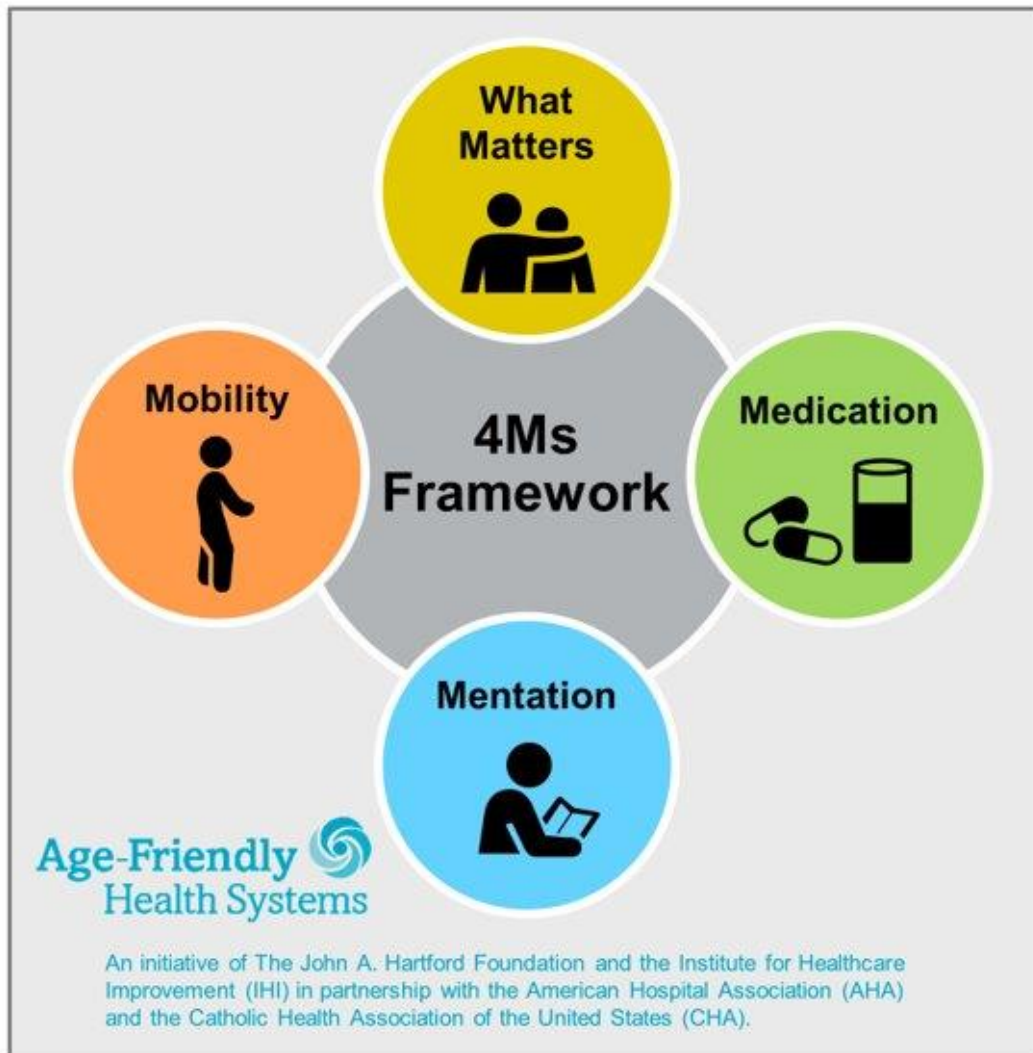


Who is our patient?

Geriatric	Osteoporotic	Frailty	Nutritional State	Mental State
(Age)	(T-score)	(Frailty Index)	(SGA)	(FAST)
55-64	Normal bone density	Very fit	Well-nourished	Normal Adult
65-74	Osteopenia	Managing well	At-risk	Normal Older Adult
75-84	Mild Osteoporosis	Pre/mildly frail	Mildly malnourished	Early Dementia
85-94	Mod. Osteoporosis	Moderately Frail	Mod. malnourished	Mid-Stage Dementia
95+	Severe Osteoporosis	Severely Frail	Sever. malnourished	Late Dementia

- Multiple Diagnoses?
- Social Deprivation?
- Procedures & Hospitalizations?
- Culture & Personal Narrative?

Algorithmic Approach



What Matters

Know and align care with each older adult's specific health outcome goals and care preferences including, but not limited to, end-of-life care, and across settings of care.

Medication

If medication is necessary, use Age-Friendly medication that does not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care.

Mentation

Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care.

Mobility

Ensure that older adults move safely every day in order to maintain function and do What Matters.



What Matters

- Advanced Directives
- Meaningful Health Goals
- Care Preferences

Research

Predictive Fixation

Kevin L. Mel
Yash P. Che
Sandesh S.
Kawsu Bar
Varun Pun
Raj M. A
Harpal S

REVIEW ARTICLE

Surgical and Nonoperative Management of Olecranon Fractures in the Elderly: A Systematic Review and Meta-Analysis

Michael J. Chen, MD,^a Sean T. Campbell, MD,^a Andrea K. Finlay, PhD,^a
Andrew D. Duckworth, MSc, FRCSEd(Tr&Orth), PhD,^b Julius A. Bishop, MD,^a
and Michael J. Gardner, MD^a

Objectives: The aim of this comparative effectiveness study was to perform a meta-analysis of adverse events and outcomes in closed geriatric olecranon fractures, without elbow instability, after treatment with surgical or nonoperative management.

Data Sources: PubMed, Web of Science, and Embase databases.

Conclusions: Comparable outcomes were achieved with surgical or nonoperative management of olecranon fractures in geriatric patients. Surgical intervention carried a high risk of reoperation regardless of whether plate or tension band wire fixation was used. Functional nonunion can be anticipated if nonoperative treatment is elected in low-demand elderly patients.

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Data Sources: PubMed, Web of Science, and Embase databases.

Study Selection: Articles were included if they contained clinical data evaluating outcomes in patients ≥ 65 years of age with closed olecranon fractures, without elbow instability, treated surgically, or with nonoperative management.

Conclusions: Comparable outcomes were achieved with surgical or nonoperative management of olecranon fractures in geriatric patients. Surgical intervention carried a high risk of reoperation regardless of whether plate or tension band wire fixation was used. Functional nonunion can be anticipated if nonoperative treatment is elected in low-demand elderly patients.

Key Words: geriatric, olecranon fracture, implant removal

Level of Evidence: Therapeutic Level IV. See Instructions for Authors for a complete description of levels of evidence.

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Mobility

- Fall Prevention
- Balance & Gait Training
- Early Weight Bearing
- Functional Surgery



Mentation

- Dementia
- Delirium
- Depression



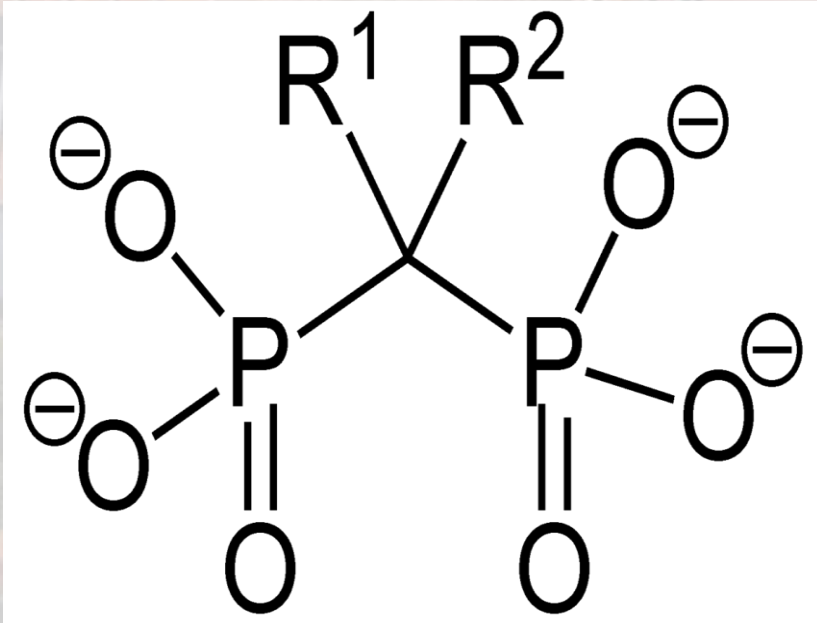
Objective. The objective is to observe the effect of Comprehensive Geriatric Assessment (CGA) in the perioperative period of hip fracture. **Methods.** From October 2018 to October 2021, 155 patients over the age of 65 diagnosed with hip fracture and treated with surgery at the Department of Trauma Orthopaedics of General Hospital of Ningxia Medical University were randomly divided into two groups using a prospective research method. A total of 70 cases in the CGA group received a perioperative comprehensive assessment of the geriatric, and 85 cases in the control group received routine medical consultation. **Results.** Elderly patients with hip fractures have a high comorbidity index. Patients with abnormal daily activity before injury accounted for 55%, the abnormal rate of nutrition was 58.1%, the abnormal rate of cognition, anxiety, and depression was 81.8%, and 77.3% of the patients were in a weak state. There was no significant difference in age, gender, ASA grade, fracture type, and operation mode between the two groups, but there were significant differences in operation rate at 48 h ($\chi^2 = 22.153$; $P \leq 0.001$), preoperative waiting time ($Z = -6.387$; $P \leq 0.001$), total hospital stay ($Z = -11.756$; $P \leq 0.001$), and incidence of postoperative delirium ($\chi^2 = 23.897$; $P \leq 0.001$). **Conclusions.** The implementation of CGA shortened the preoperative waiting time and total hospital stay, increased the 48 h operation rate, and reduced the incidence of postoperative delirium.

deal with them during the perioperative period and also becomes an important reason for delaying surgery [2]. At present, the treatment mode advocated is the before discharge, and lower the incidence of postoperative delirium [4]. In this study, the elderly comprehensive evaluation method was used to evaluate the perioperative period of elderly hip fracture patients, and the patients with abnormal scores or high-risk patients were mainly



Medication

- Polypharmacy
- Geriatric Dosing
- Metabolic Augmentation



- BMD Evaluation (DEXA)
 - Treat OP (Bisphosphonates)
- Metabolic Evaluation
 - Supplement Calcium / Vitamin D
 - Treat Thyroid pathology
 - Treat Diabetes
- Nutritional Evaluation
 - Supplement protein
 - Supplement vitamins
- Fracture Healing Augmentation
 - Forteo?

There is an Algorithm!

REVIEW ARTICLE

Update on the Comprehensive Approach to Fragility Fractures

Matthew R. Cohn, MD,* Arianna L. Gianakos, DO,†‡ Kirsten Grueter, RN,‡ Natalie Rosen, BA,§
Guang-Ting Cong, MD,|| and Joseph M. Lane, MD‡

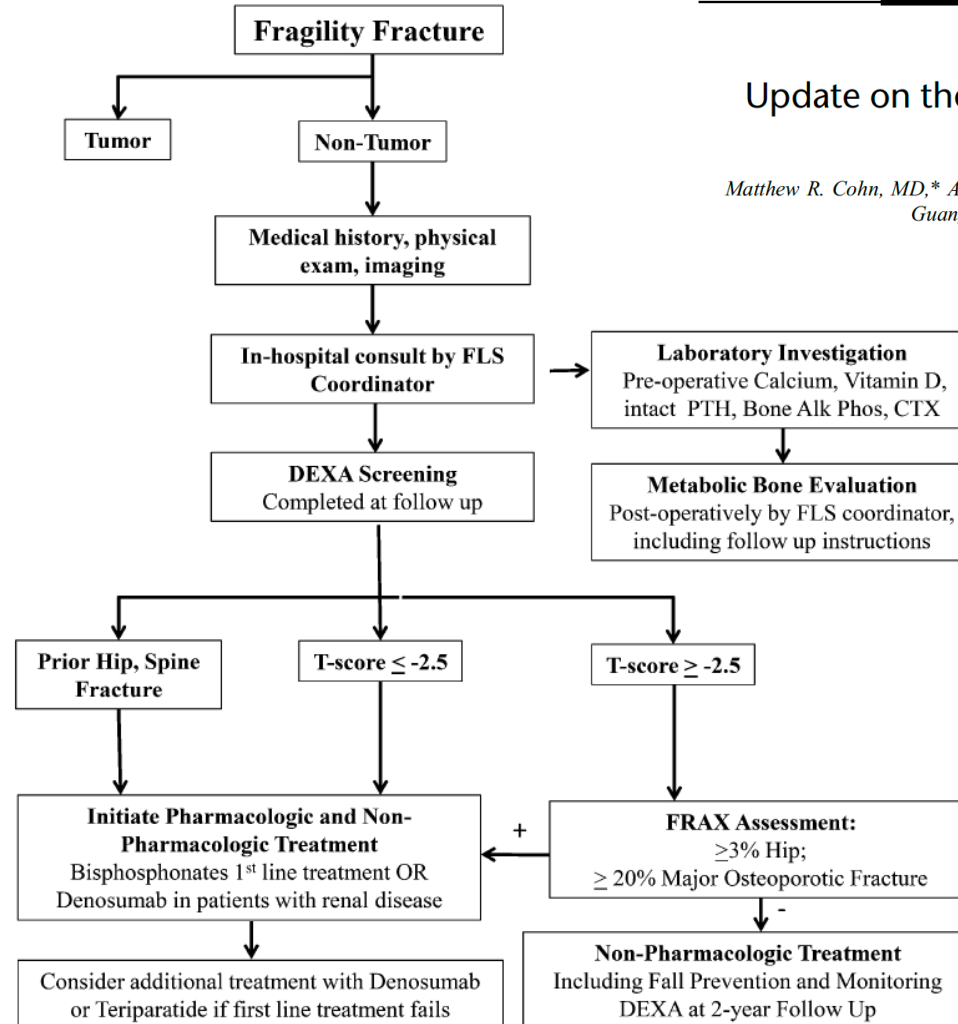
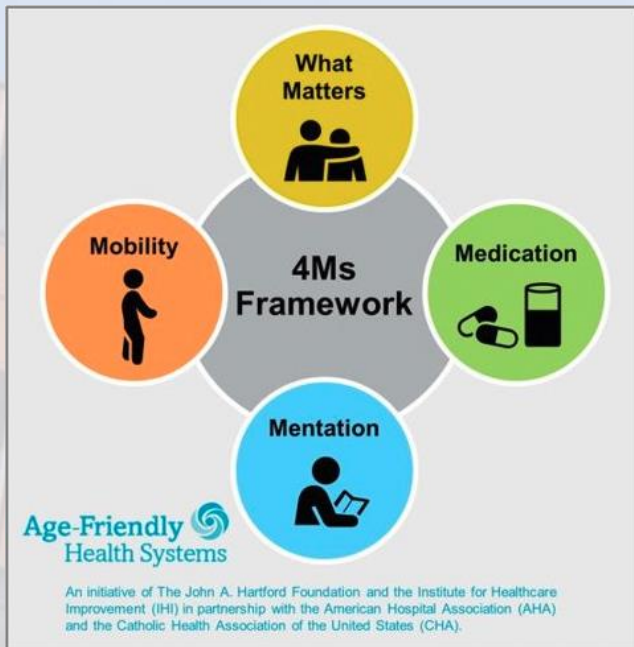


FIGURE 1. A flow chart illustrating the assessment of a patient with a fragility fracture. CTX serum cross-linked C-telopeptide of type I collagen; DEXA, dual-energy x-ray absorptiometry; FLS, Fracture Liaison Service; FRAX, fracture risk assessment tool; PTH, parathyroid hormone.

Algorithmic Approach to Fragility Fractures



1. Know your patient & Adjust
2. Address the 4 Ms
3. Evaluate Fragility, Mobility & Metabolism

Thank You

Orthopaedic Trauma Institute
UCSF + SAN FRANCISCO GENERAL HOSPITAL