

The Relationship Between Delirium & Hip Fractures

Presented By: Kelly Dunlap

About Me

- Hometown: Vienna, VA
- I graduated from Virginia Tech in 2020
- I am a 2nd year UNC DPT student
- PT interests:
 - Pediatrics
 - Orthopedics
 - Pelvic Health



Learning objectives

- Demonstrate understanding of the relationship between delirium and hip fractures
- Identify risk factors for delirium
- Identify role of exercise in delirium prevention
- Share strategies that have been effective for working with delirious patients

Presentation Overview

- Clinical Experience: Q&A
 - My experience
 - What is Delirium?
 - Literature Review
 - Delirium & Exercise
 - Personal Opinion
- Our Role as Rehab Professionals
 - Open discussion
 - Questions?

Clinical Experience: Q&A

- How many of you have treated a patient with delirium?
- How many of you have treated a patient with a hip fracture?
- How many of you have treated a delirious post-op hip fracture patient?
- Anyone have a story that they would like to share?

My Personal Experience

- Communication Difficulties
- Maintaining Precautions
- Safety
- Orientation



Delirium¹

- Definition: “a severe neuropsychiatric syndrome that is characterized by acute onset of deficits in attention and other aspects of cognition”
- Potential triggers:
 - acute medical illness, drug use or withdrawal, trauma, surgery
- Predisposing risk factors:
 - increased age, cognitive impairment, frailty, comorbidities, depression, other psychiatric illness, alcohol use, poor nutritional status, visual and hearing impairment
- Precipitating factors:
 - acute medical illness, trauma, surgery, dehydration, psychological stress



Types of Delirium^{4,8}

- Hyperactive Delirium
 - Restlessness, excitability, and agitation
- Hypoactive delirium
 - lethargy, inactivity, and disinterest
- Mixed delirium
 - combination of hyperactive and hypoactive delirium features
 - Switching between both symptom sets

Review of Postoperative Delirium in Geriatric Patients After Hip Fracture Treatment⁴

- Type: literature review
- Methods: articles collected from 1990-2021
- Pathophysiology:
 - Unclear, but here are some theories...
 - Neurotransmitter imbalance
 - Inflammation
 - Inflammation + pain + stress + repair = inflammatory chemicals such as cytokines get released in response to cell damage that takes place during surgery
 - Cytokines are associated to delirium
 - Electrolyte or metabolic derangements
 - Lack of fatty acids cause neurodegenerative effects that are associated with POD

Review of Postoperative Delirium in Geriatric Patients After Hip Fracture Treatment⁴

Risk factors:

- gender
- indoor injury
- older age
- prior dementia or cognitive impairment
- Diabetes
- multiple comorbidities
- American society of anesthesiologists classification >2
- vision impairment
- low BMI
- pre-op malnutrition
- low albumin
- low hematocrit
- blundered pre-op cytokines
- emergency surgery
- time to admission
- pre-op waiting time
- pre-op medical treatment
- multiple prescription meds
- treatment with antibiotics
- anesthesia time
- use of midazolam
- abnormally high or abnormally low BP
- Fever
- Depth and type of sedation

Review of Postoperative Delirium in Geriatric Patients After Hip Fracture Treatment⁴

- Results:
 - Post op delirium is expected to increase by 11.9% from 2010 to 2030
 - POD most common complication in emergency hip fracture surgery
 - Difficulty with independent living, prolonged LOS, d/c to care facility, increased 30 day re-admin rate = worst outcomes
 - POD – less likely to return to functional baseline

Review of Postoperative Delirium in Geriatric Patients After Hip Fracture Treatment⁴

- Prevention
 - non pharmacy– reduce by 27-100%
 - education, interdisciplinary approach, sensory enhancement, visual aids, ADs, hearing aids, mobility enhancement
 - Ambulating pts daily
 - Minimizing immobilization equipment, cognitive stimulation, familiar objects in patient room, reorientation by family members
- Treatment
 - Pharmacy interventions
- Conclusion:
 - early prevention, recognition, and treatment = best s/p outcomes



Early Intervention of Perioperative Delirium in Older Patients (>60years) with Hip Fracture: A Randomized Controlled Study⁵

- Type: Randomized control study
- Methods:
 - Inclusion: patients over 60 yrs with isolated hip fracture
 - Conventional care group:
 - pre-op skin traction, analgesia, correction of electrolyte imbalance, post-op fluid therapy, treatment of hypoxemia, monitoring vitals
 - CAM-CR score 20 or greater received risperidone
 - Comprehensive care group:
 - routine orthopedic care, pre-op psychological counseling and self-hypnosis instruction (use prompts and own imagination to self-hypnotic state)



Early Intervention of Perioperative Delirium in Older Patients (>60years) with Hip Fracture: A Randomized Controlled Study⁵

- Results:
 - Comprehensive care group – reduced rate and duration of perioperative delirium and reduced LOS
- Conclusion:
 - Evaluate patient using CAM-CR or DRS-R-98 (need training) for POD
 - Correct modifiable risk factors
 - infection, fever, post-op pain, sleep disorder, electrolyte disorder, hematological abnormalities



Dementia and delirium, the outcomes in elderly hip fractures^{6,8}

- Type: retrospective cohort study
- Methods:
 - 70 yrs or older with isolated hip fracture
 - DOSS (Delirium Observational Screening Scale) – screen for POD post/op
 - score 3 or greater for 3 consecutive nursing shifts = highly suggestive of delirium and criterion for geriatrician consult
- Risk factors
 - age, ASA score, dementia, previous delirious episode, functional dependency, post-op hemoglobin level, home care prior to admission, institutionalization prior to admission

- Delirium & dementia can occur at the same time
- Major difference
 - Delirium – acute changes
 - Dementia – gradual changes

Dementia and delirium, the outcomes in elderly hip fractures⁶

- Results:
 - 35% had delirium during hospital stay and follow up
 - Post op outcomes with delirium -> longer LOS, higher complication, higher incidence of mortality
 - Incidence of postoperative delirium:
 - 35% in the patients with dementia
 - 21% in the patients without dementia
- Conclusion
 - POD associated with impaired functional and cognitive recovery, increased LOS, higher cost, increased mortality
 - Dementia one of the most important risk factors for delirium
 - Both dementia and delirium → increased functional impairment

Early coordinated rehabilitation in acute phase after hip fracture – a model for increased patient participation⁷

- Type: prospective, controlled, intervention study
- Methods:
 - Evaluation in-patient and 1 mo follow up post acute d/c
 - 3 groups
 - 1 intervention – OT/PT co-treat within 24 hrs post-op, TLS-BasicADL (tool for goal setting), support self-efficacy, individualized HEP, 3x/day training offered, interdisciplinary meetings daily basis,
 - 2 controls – standard rehab Monday-Friday from OT & PT
- Inclusion:
 - acute hip fx
 - 65 or older
 - independent walking indoors w/ or w/o AD and in personal care exception for bathing



Early coordinated rehabilitation in acute phase after hip fracture – a model for increased patient participation⁷

- Results

- Intervention group – higher perceived participation
- Both groups improved MDC for balance and physical performance but still at risk of falls

- Conclusion

- Positive effect on patient participation
- No diff in results 1 mo-post op or risk of future falls
- Limitation – excluded cognitive impairment!!

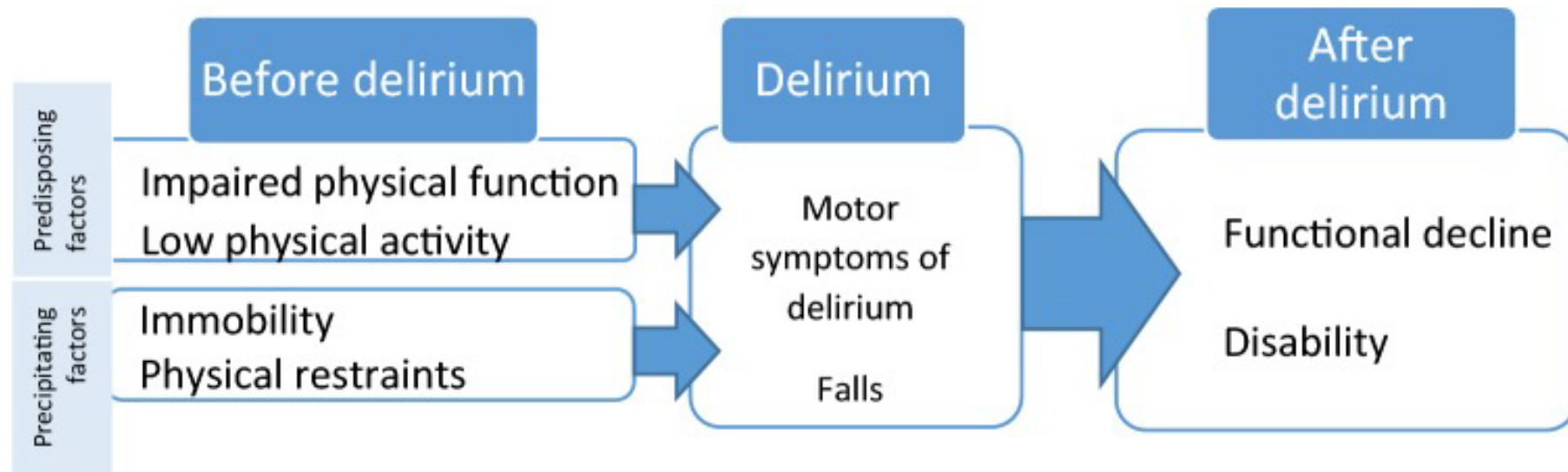
The role of physical exercise and rehabilitation in delirium³

- Type: narrative review
- Methods:
 - Assess evidence regarding link between physical exercise and delirium
- Importance of Exercise
 - maintaining independence
 - maintaining muscle mass, strength and balance
 - prevention of chronic diseases
 - maintaining QOL

The role of physical exercise and rehabilitation in delirium³

- Results:

- Physical activity is linked to improved cognitive functioning and decreased risk of cognitive impairment
- Delirium as a motor disorder
 - worse motor function
 - subtypes of delirium
 - increased risk of falls due to inattention





The role of physical exercise and rehabilitation in delirium³

- Strategies to manage delirium:
 - early mobilization
 - encourage walking (with assistance, if necessary)
 - increase mobilizations in bed
 - promote autonomy in ADLs
 - perform physical exercises with static bicycles
 - avoid the use of immobilizing equipment (e.g., bladder catheters, i.v. equipment or physical restraints)

Personal Opinions

- Many of the risk factors are outside of our control
- Important to provide education to patients, other health professionals, and family members about POD
- Co-treats may improve participation, but may limit OOB mobility frequency each day
- Cognition impacts mobility and post-op outcomes
- Updating and writing HEP on boards!

Our Role as Rehab Professionals

- Recognizing risk factors
- Assisting with reorientation
- Maximize safe mobility
- Provide frequent cueing to maintain attention (if necessary)
- Providing caregiver education on POD
 - Bringing in familiar items, assisting with reorientation
- Dementia and delirious patients – writing HEP on boards, providing printout to caregivers
- Communicate with other rehab professionals and nursing
- Utilize rehab & mobility team for HEP implementation

Open Discussion

- How can we implement this research into our setting/practice?
- What are potential challenges to implementing this research?
- What communication techniques have you found helpful when working with delirious patients?

Questions?

Feedback Survey



Resources

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