Fostering Orthopedic Clinical Reasoning Skills in the Physical Therapist Student

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Objectives

• Discuss clinical reasoning opportunities and challenges in pre-clinical and clinical DPT students.

• Identify opportunities in their own practice setting for fostering orthopedic clinical reasoning skills in physical therapist students.

• Utilize the tools from the course to foster clinical reasoning in DPT students both within academic programs and clinical settings.
Clinical Reasoning

- Experience
- Evidence
- Context
- Trial and Error
SACRR

• Self-Assessment of Clinical Reflection and Reasoning (SACRR)
  – a 26 item scale rated on a five-point scale ranging from a 5, “strongly agree”, to a 1, “strongly disagree” and can be used to assess students perceptions of teaching methods on their clinical reflection and reasoning
  • Royeen, CB. 2001; Roth, R.A. 1989
SACRR Factor Analysis

• I question how, what, and why I do things in practice
• I look to theory for understanding a client’s problems and proposed solutions to them
• I use theory to understand treatment techniques
• I cope well with change
• I can function with uncertainty
• I use theory to understand intervention strategies
How to measure clinical reasoning?
Clinical Reasoning Continuum
MUSC Continuum

1. In class assignments
2. Projects on clinical practicum
3. Reflective case presentation to students and faculty
Evidence Based Best Practices for In-Class Assignment

• Paper Case Studies
• Guided Case Studies
• Hybrid: Video of patient interview and examination and paper case study
• Virtual Case Studies
“Lesson”
### History
- Student given a video of the patient interview (real patient or scripted interaction)
- Students can download a completed body chart of area of symptoms
- Question (Multiple Choice): What is your initial hypothesis for this patient?

### Outcome Measures
- Students can download the patient completed Oswestry Disability Index or Neck Disability Index and Instrumental Activities of Daily Living (IADL)
- Questions (2 multiple choice): Scores and interpretation of scores of each measure (minimal, moderate or severe disability)

### Initial Hypothesis
- Questions (2 essay)
  - List items from the history that support this hypothesis from the history
  - List items from the history that do not support this hypothesis

### Severity and Irritability
- Question (multiple choice): What is the patient's irritability and severity? (mild, moderate, severe)

### Precautions/Red Flags
- Question (multiple choice)
  - Are there any red flags or need for a referral at this time or is it OK to proceed with the examination?

### Inflammatory or Mechanical
- Question (2 essay)
  - List items that support your decision regarding the nature of this patient's disorder (inflammatory or mechanical)
  - List items that do not support your decision regarding the nature of this patient's disorder (inflammatory or mechanical)
Neurological Exam
- Question (multiple choice):
  - Is a neurological exam necessary?

Comparable Signs
- Question (multiple choice):
  - Do you expect comparable signs (positive objective finding) to be easy or hard to find during your examination?

Functional Limitations
- Question (essay)
  - List the patient's specific functional limitations

Prognosis
- Question (multiple choice):
  - What is the patient's prognosis
- Question (essay)
  - List factors that may affect the prognosis including motivation level, work status, education level, family support, and other diagnoses

Differential diagnosis
- Question (essay)
  - List other possible non-musculoskeletal diagnoses based on the patients area of symptoms.
Examination
- The student is now provided with a list of clinical examination tests and findings
- Question (essay):
  - What is the sensitivity and specificity of the tests and any other tests that need to be performed

Referral
- Question (multiple choice)
  - Is a referral to another professional necessary or is it OK to proceed with the examination?

Literature Search
- At this point the students are directed out of the lesson to the university library to perform a literature search and article review to support the clinical decisions for treatment.
- The students will submit the article review as an essay in the lesson.

Response to Treatment
- Question (essay):
  - What is the predicted response to the initial treatment? (The treatment should be based on the literature search performed in the previous question.)

Rehabilitation Potential
- Question (multiple choice)
  - What is the patient’s rehabilitation potential?
| Practice Pattern | Question (fill in the blank)  
|                  | What is the practice pattern from the Guide to Physical Therapy Practice |
| Goals            | Question (essay)  
|                  | Write one short term and one long term goal for the patient. (This needs to fit current Medicare standards and needs to reflect the patient’s specific functional limitations.) |
| Frequency and Duration | Question (short answer)  
|                  | What is expected the frequency and duration of treatment for this patient. |
| Treatment Plan   | Question (essay)  
|                  | What is the treatment plan for this patient? |
| Home Program     | The students are directed out of the lesson again to and online, free physical therapy exercise site to develop a home program specific to this patient. This is submitted into the lesson.  
|                  | Develop a home program and using an online resource |
| SOAP notes       | Question (essay)  
|                  | Write a SOAP note for a visit somewhere in the middle of the patient’s treatment. It should reflect where the patient would most likely be in their care.  
|                  | Write a SOAP note for the discharge visit. |
CAVEAT: C.A.R.E.S.
Clinical Practicum 1

• After 4 semesters and completion of all orthopedic related course work
• All students complete an outpatient orthopedic experience
• Developed and modified from Jones “Clinical Reasoning in Manual Therapy”
Retrospective Case Study
Example of Case Presentation with Clinical Reflection

2 examples (modified) of student case presentations
CASE 1: “Lumbar Sprain” Retrospective Case Analysis
History

• 27 y/o female presented to the clinic with acute LBP 4 days after transferring a patient (stand and pivot)
  – Felt a sharp pain and “pop” in the LB
  – Pain and stiffness are constant = 4/10
• Also experiences N/T and pain in the R posterior thigh when sitting with knees to chest for a prolonged time
• Diagnosed with a Lumbar sprain
  – Restricted from lifting > 20lbs. or repeated forward bending
• No previous Hx of LBP
• Works as a PTA, currently on “light duty”
• Very active individual, in good shape
• Eager to return to regular working status
Visit 1

- Lumbar ROM
  - Flexion: 50-75% and limited by stiffness and pain
  - Ext. and SB all WNL
- Hip AROM
  - All WNL
- Pelvic Landmarks
  - ASIS, IC, PSIS all level
- No pain with palpation at the PSIS or SI Joint

- Normal Sensation
- Bilateral LE strength
  - All 5/5
- Bilateral LE DTR’s
  - All WNL
- Mild HS tightness
Visit 1

• Special Tests
  – Slump: positive (R)
  – Passive SLR: positive (R)
    • Both with very mild symptoms to the posterior thigh
  – Clonus: negative
  – Spring Testing: positive for hypomobility in the lumbar spine
Hypotheses

• Primary
  – Lumbar Sprain
  – Piriformis and HS tightness

• Secondary
  – Lumbar Radiculopathy
  – Peripheralization with flexion?
Visit 1 Treatment

- Abdominal Bracing
  - TA activation
- Bridging
  - Very weak
- Prone Laying
  - Bias?
- HS stretches
So here’s an idea

- Acuity <16 days
- Hip ROM >35°
- No symptoms distal to the knee
- Hypomobility with spring testing
- FABQW?
  - Not tested
Evidence


• Studies have shown that patients who meet 4/5 of the criteria in the CPR show successful outcomes in just 2 visits when using lumbar manipulation techniques.

• Other studies have shown that patient outcomes with just therapeutic exercise have been just as good as those with exercise and manipulations.
Visit 2

• Lumbar Roll Manipulation

Exercise visit 2

• Hand Heel Rocking
• Lower Trunk Rotations on Swiss ball
• Abdominal bracing
• Bridging
• Prone Legs
• Quadruped Legs
• HS stretches
• Piriformis stretch
Visit 3

- No pain, but some mild stiffness on arrival

- Lumbar Roll & Hand heel
- LTR on swiss ball
- Prone Arms and legs
- Quadruped arms and legs
- Bridging on swiss ball
- Prone planks
- HS and Piriformis Stretches
She’s doing great!!

Primary Hypothesis

- Lumbar Sprain
- No longer experiencing radicular symptoms in the buttock and posterior thigh

Prognosis

- Excellent!!
- Very motivated and showing great improvements.
Visit 4/5

• Still LB stiffness, MD cleared lifting for up to 30lbs.
• Progression of exercises and work specific activities.
Visit 6

- MD cleared her to return to work on a light case load and to lift up to 60lbs.
Retrospective case study

SPT Case 2
Initial evaluation

- 43 year-old M, injured his neck in a MVA
- Had an MRI that showed moderate R sided facet DJD at C2-C3
- Received 6 visits of PT but d/c due to exacerbation of symptoms with cervical traction
- Mostly sedentary for past 4 weeks
- Currently working full time
- Aggravating factors- sitting long periods, driving, turning neck, wearing gun belt and vest
- Easing factors- ice, massage
Examination Findings

- Limited CROM with poor quality of motion
- Forward head posture w/ excessive thoracic kyphosis
- Restricted thoracic motion with tight pecs
- NDI score- 26 (moderate)
- FABQ Physical activity- 16 (severe)
- FABQ Work- 34 (moderate)
- MD dx of ‘cervicalgia’
- Pain not reproduced with CPAs or UPAs which I thought was weird
- Normal ULNTT
- Spurling’s- negative
- Vertebral artery- negative
- Normal reflexes/sensation/muscle power
- No excess motion with sharp purser
Visit 1

- First day we did deep cervical flexor strengthening (OA nodding) with palpation of SCM,
- lat pull downs
- pec stretch in doorway
- AROM cervical rotation in supine
- chin retraction
Third visit

- Felt a little better! Still having pain and poor quality of motion with CROM, but not in constant pain
- This time we added:
  - STM to neck and upper trap
  - Laser guided feedback for training of cervical muscles
  - AROM in supine with gentle isometric resistance
  - Thoracic mobility with towel- tried thoracic manip, but didn’t work
  - Stretch levator scap and upper trap
- Same hypothesis
- Prognosis was fair
  - Favorable- motivated, no severe damage with imaging
  - Unfavorable- still working 12 hour shifts in aggravating position, time since injury, poor posture, sedentary lifestyle
Neck pain: clinical practice guidelines

- Highest levels of evidence specifically for whiplash disorder support:
  - Thoracic mobilization
  - Early return to normal activities
  - Early active CROM exercise (more effective than soft cervical collars)
  - Cervical muscle coordination/strengthening/endurance exercise
  - Stretching exercise
  - Patient education
  - Provide reassurance that their prognosis is good

Fourth visit

• Came in and was feeling a little better again- he thought it was the STM
• Cervical ROM was improving, but still had poor posture and restricted thoracic mobility
• Starting to think his problem is not fully resolving due to prolonged poor posture rather than cervical soft tissues
• I think initially I focused too much on his neck and did not put enough emphasis on his thoracic mobility as a possible source of symptoms
• Prognosis- improved due to his decrease in symptoms so early on
• Same treatment, but added more thoracic mobility and posture training.
• **Clinical pearl**- just because you know the injury is at the neck, keep an open mind for other structures
Figure 5: Thoracic mobility

Changing What's Possible
discharge

• Saw him 12 times total
• Consistently made gains and improvements throughout treatment
• By the end of his treatment, I felt a lot more comfortable handling neck patients
• Hindsight:
  – MOI- obviously his whiplash during MVA, this didn’t change
  – Sources of symptoms- partially due to trauma and weakness in soft tissues of the neck as well as slight facet joint involvement. However, I did not emphasize enough the large role that his posture and limited thoracic ROM played.
Groups