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Review of Clinical Practice Guidelines: Cervical and Back Pain

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Introductions

Candace



Jessica



Agenda

- What are CPGs
- Review of CPG for Cervical Pain
 - Prevalence, relevant anatomy, classification, exam, treatment
- Review of CPG for Lumbar Pain
 - Prevalence, relevant anatomy, classification, exam, treatment
- Role of PT
- Effects of early imaging
- What should patients know about their pain and treatment
- Review of infographics and prep for workshop
- Summary
- References

What Are CPGs?

Definition: Clinical practice guidelines are recommendations for healthcare providers on how to diagnose and treat medical conditions

Development: Appointed content experts review literature to 1) identify impairments (ICF) and 2) provide supporting evidence for treatment of impairments

Purpose of our review: To discuss key components of the CPGs related to treatment of cervical and lumbar pain to develop infographics

Cervical Spine CPG



Cervical Did You Know?

- Neck pain is second only to low back pain in annual workers' compensation costs in the United States.²⁰
- It is estimated that 22% to 70% of the population will have neck pain some time in their lives.⁶
- At any given time 10% to 20% of the population reports neck problems with 54% of individuals having experienced neck pain within the last 6 months.⁶
- A 2013 data study indicated neck pain ranking 19th overall in global cause of disability-adjusted life years and 4th overall in years lived with a disability.^{12,13}

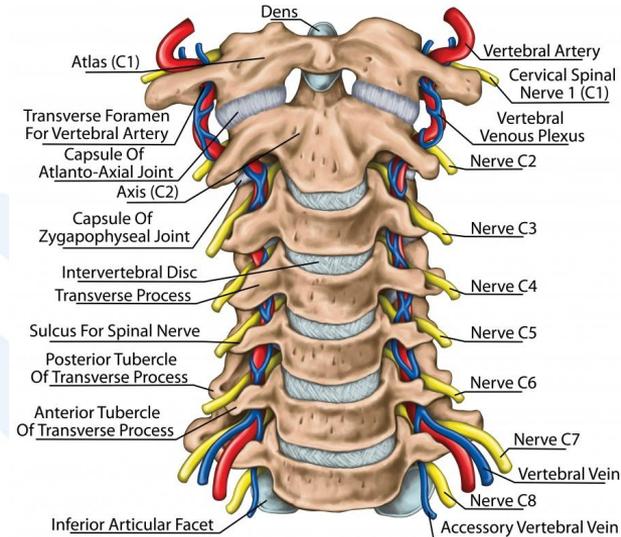
Risk Factors

- Age greater than 40
- Female¹³
- Prior history of neck pain or low back disorders
- Smoking history
- High job demands
- Poor quality of life
- Low social or work support



Pathoanatomical Features: Neck Pain

- Zygapophyseal joints
- Vertebrae
- Muscles
- Ligaments
- Connective Tissue
- Nervous Tissue



Cervical Examination

- Patient History and Subjective Information
- Outcome Measures
 - NDI
 - PSFS
 - VAS
- Assess Pain
 - Intensity
 - Perception of pain
 - Bodily Distribution
 - Temporal features of pain



Cervical Examination

- Cervical ROM
 - CROM
 - Goniometer
 - Inclinator
- PAIVM
- MMT
 - Cervical Musculature
 - Upper Extremities
- Myotomes
- Special Tests



Medical Screening

- Appropriate for physical therapy evaluation and intervention.
- or
- Appropriate for physical therapy evaluation and intervention along with consultation with another health care provider.
- or
- Not appropriate for physical therapy evaluation and intervention.

Medical Screening

- Screen for presence of psychosocial issues
- *Identifying cognitive behavioral tendencies during the evaluation can direct the therapist to employ specific patient education strategies to optimize patient outcomes to physical therapy interventions and potentially provide indications for referring the patient for consultation with another medical or mental health practitioners.*

Cervical Red Flags

- Cervical Myelopathy
- Cervical ligamentous instability
- Fracture
- Neoplasm
- Vascular Insufficiency
- Systemic Disease
- Infection
- Unexplained cranial nerve dysfunction
- Infection
- Cancer⁴



Treatment Based Classification

- Neck pain with mobility deficits
- Neck Pain with movement coordination impairments (including WAD)
- Neck pain with headaches (cervicogenic headaches)
- Neck pain with radiating pain (radicular)

Neck Pain with Mobility Deficits

- Central and/or unilateral neck pain
- Limited neck ROM that consistently reproduces symptoms
- Associated (referred) shoulder girdle or upper extremity pain
- Cervical active ROM
- Cervical flexion-rotation test
- Cervical and Thoracic Segmental Mobility Test

Neck Pain with Movement Coordination Deficits

- MOI associated with trauma or whiplash
- Referred pain to shoulder girdle or upper extremity pain
- Nonspecific and variable concussive signs and symptoms
- Cranial Cervical flexion test
- Neck flexor muscle endurance test
- Algometric assessment of pressure pain threshold
- Sensorimotor deficits

Neck Pain with Headaches (Cervicogenic Headaches)

- Noncontinuous, unilateral neck pain and associated (referred) headache
- Headache is precipitated or aggravated by neck movements or sustained positions/postures

CFRT	Sn .70 Sp .91 +LR 2.3- 10.65
PAIVM From C0-C3 Common symptomatic segment C1-2	Sn .59- .65 Sp .78- .87 +LR 2.9- 4.9
Clustered cervical active ROM, PAIVM and CFRT	Sn .94 Sp 1.00

Neck Pain with Radiating Pain

- Neck pain with radiating pain in the involved extremity
- Upper extremity dermatomal paresthesia or numbness, and myotomal muscle weakness

Spurling Test	Sn .50	Sp .86- .93
Neck Distraction Test	Sn .44	Sp .90- .97
Valsalva Test	Sn .22	Sp .94
Neurodynamic Test (Median Nerve)	Sn .17- .78	Sp .72- .83

Cervical Interventions

- Manual Therapy
 - Mobilizations
 - Manipulation
- Exercise
- Patient Education
- TENS
- Dry needling
- Laser Therapy



Neck Pain with Mobility Deficits

Acute

- Clinicians should provide thoracic manipulation, a program of neck ROM exercises, and scapulothoracic and upper extremity strengthening to enhance program adherence
- Clinicians may provide cervical manipulation and/or mobilization.

Subacute

- Clinicians should provide neck and shoulder girdle endurance exercises.
- Clinicians may provide thoracic manipulation and cervical manipulation and/or mobilization.

Chronic

- Multimodal approach

Neck Pain with Movement Coordination Impairments (including WAD)

Acute

- Patient education
- Clinicians should provide a multimodal intervention approach

Chronic

- Patient education
- Mobilization combined with an individualized, progressive submaximal exercise program including cervicothoracic strengthening, endurance, flexibility, and coordination, using principles of cognitive behavioral therapy
- TENS

Neck Pain with Headaches

Acute

- Clinicians should provide supervised instruction in active mobility exercise.
- Clinicians may provide C1–2 self-sustained natural apophyseal glide (self-SNAG) exercise.

Subacute

- Clinicians should provide cervical manipulation and mobilization.
- Clinicians may provide C1–2 self-SNAG exercise.

Chronic

- Clinicians should provide cervical or cervicothoracic manipulation or mobilizations combined with shoulder girdle and neck stretching, strengthening, and endurance exercise.

Neck Pain with Radiating Pain

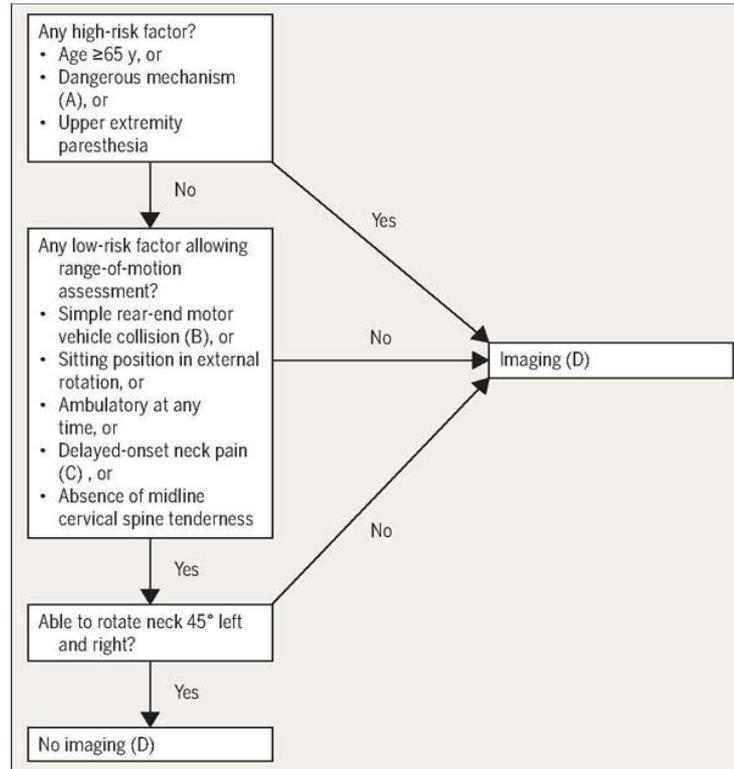
Acute

- Clinicians may provide mobilizing and stabilizing exercises, laser, and short-term use of a cervical collar.

Chronic

- Clinicians should provide mechanical intermittent cervical traction, combined with other interventions such as stretching and strengthening exercise plus cervical and thoracic mobilization/manipulation.
- Clinicians should provide education and counseling to encourage participation in occupational and exercise activities.

When Should our Patients Seek Imaging?



Cervical CPG Summary

I just need
the main ideas



Low Back Pain: An Epidemic

- 80% of the world's population will experience at least one episode of LBP in their lifetime.²
- 5% go on to experience chronic LBP
- Back pain is the 2nd most common reason adults consult a PCP
- LBP accounts for over 1.8 billion dollars annually in healthcare costs in the US alone.⁸
- Globally, LBP is the leading cause of YLDs



Risk Factors for LBP



- Females tend to have a higher prevalence of LBP
- Increasing prevalence with age up to 60-65
- Lower educational status - longer duration and worse outcomes
- Physically demanding jobs
- Obesity and other CV risk factors
- Psychosocial factors - depression and fear-avoidance

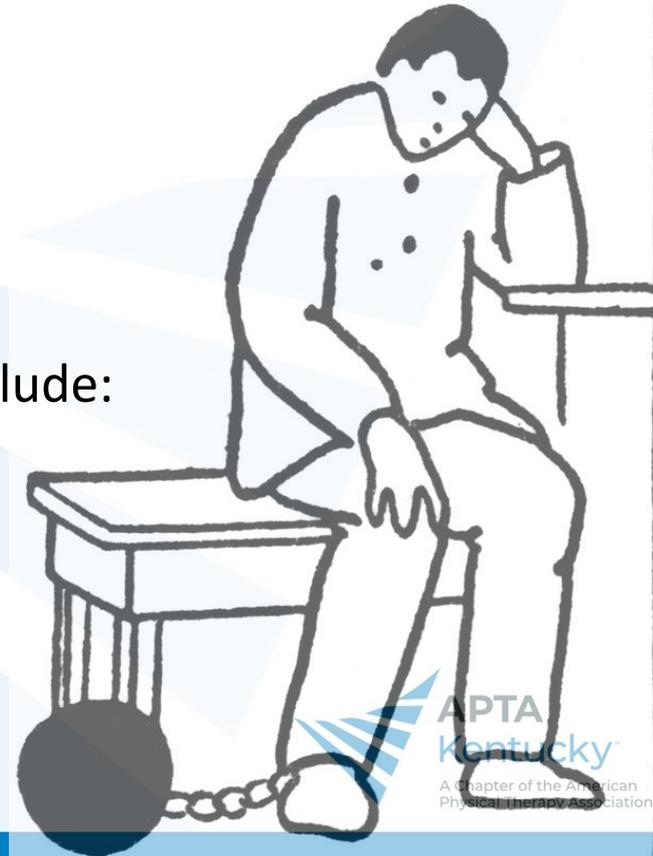
Long Haulers

Prognostic factors for developing recurrent LBP include:

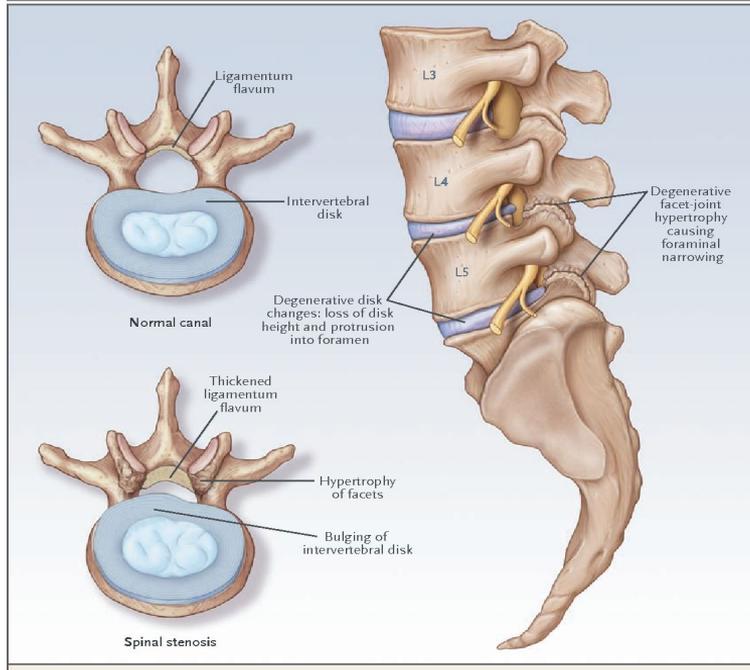
- Previous episodes
- Excessive spine mobility
- Excessive mobility in other joints

Prognostic factors for developing chronic LBP include:

- Presence of symptoms below the knee
- Psychological distress/depression
- Fear of pain, movement, reinjury, or low expectations of recovery
- Pain of high intensity
- Passive coping style



Pathoanatomical Features: Back Pain



- “Low back” comprised of lower thoracic, lumbar, sacrum and coccyx
- Facet joints, intervertebral discs
- Intervertebral foramen with nerve roots exiting both sides
- Thick stabilizing ligaments and fascia
- Paraspinal musculature - dense muscles to stabilize spine as well as create movement

Examination

- LQ Screening - DTR, dermatomes, myotomes
- Palpation
- Active and Passive ROM (assess above and below)
- MMT
- Extensibility
- PIVM
- Special testing
- Functional outcome measures
- Patient-reported outcome measures



Classifying LBP

- Diagnosis vs classification
- Recognizing red and yellow flags
- Acute, Subacute, Chronic
- Impairment-based classification
- Treatment-based classification
- Other models - pathoanatomical, biopsychosocial, neurophysiological, etc

Impairment vs Treatment-Based Classification

Impairment-Based:

- Incorporates ICF impairments of body functions
- The addition of LBP with “related cognitive or affective tendencies” and “generalized pain”
- Level of acuity defined in terms of time since onset of symptoms and movement/pain relations

Treatment-Based:

- Uses info from H&P
- Places patients into 1 of 4 subgroups
- Captures the primary focus of the PT intervention

Impairment-Based Classification

- low back pain with mobility deficits (acute, subacute, chronic)
- low back pain with movement coordination impairments (acute)
- low back pain with related lower extremity pain (acute, subacute, chronic)
- low back pain with radiating pain (acute or subacute)
- Low back pain with related cognitive or affective tendencies
- and low back pain with related generalized pain (chronic)

Acute Low Back Pain

***with mobility deficits**

Presentation:

- restricted spinal range of motion and segmental mobility
- low back and low back–related lower extremity symptoms are reproduced with provocation of the involved segments

Interventions:

- focused on reducing pain and improving mobility of the involved spinal segments

Acute Low Back Pain

- *with movement coordination impairments
- *with radiating pain

Presentation:

- pain that occurs with initial to mid-ranges of active or passive motions

Interventions:

- focused on movements that limit pain or increase the pain-free movement in the mid-ranges

Subacute Low Back Pain

- *with mobility deficits
- *movement coordination impairments
- *radiating pain

Presentation:

- pain that occurs with mid- to end-ranges of active or passive motions

Interventions:

- focused on movements that increase movement tolerances in the mid- to end-ranges of motions

Chronic Low Back Pain

- *with movement coordination impairments
- *chronic low back pain with radiating pain

Presentation:

- pain that occurs with sustained end-range movements or positions

Interventions:

- focused on movements that increase movement tolerances in the end ranges of motion

Acute Low Back Pain

***with related (referred) lower extremity pain**

Presentation:

- high irritability

Interventions:

- focused on centralizing or abolishing the patient's symptoms

Acute and Subacute Low Back Pain

*with related cognitive and affective tendencies

Chronic Low Back Pain

*with generalized pain

Presentation:

- the low back pain does not follow the initial, mid-range, or end-range movement/ pain relations reflective of tissue stress, inflammation, and irritability.

Interventions:

- not focused on normalizing movement/pain relations but rather on addressing the relevant cognitive and affective tendencies and pain behaviors with patient education and counseling

Treatment-Based Classification

Mobilization: CPR = Low Fear-Avoidance, <16 days, no sx below knee, 1 or more hypomobile segments, at least 1 hip w/ >35deg IR

Specific Exercise: Centralization during movement examination, Postural preference

Immobilization: Prone instability, Aberrant motions, Hypermobility, Younger age, Greater SLR ROM

Traction: Neuro signs, Leg symptoms, No centralization during movement testing, Crossed SLR

Interventions

- Manual Therapy
 - Address muscle tone, trigger points, tightness
 - Thrust and non-thrust mobilization
 - Patient buy-in
- Modalities? - poor evidence (but makes the patient feel good)
- Trunk coordination, strengthening, and endurance exercises
- Progressive endurance exercises
 - Moderate to high intensity for those without generalized pain

Interventions

Key points:

- Thrust manipulation more effective than non-thrust for acute LBP meeting CPR criteria
- Must combine manual therapy and exercise - not as effective individually
- Patients who centralize with lumbar extension benefit from an extension oriented treatment approach
- Traction is not recommended for patients with back pain without radicular symptoms
- Do not over-explain related anatomy
- Address psychosocial components - refer out if necessary
- Don't forget CV training

Is Early Imaging Necessary?

- A study found that 64% of participants had significant MRI findings without having back pain⁵
- Imaging in LBP is associated with higher medical costs, increased healthcare utilization and more absence from work¹⁰
- There is radiological evidence of herniated disc material in 20% to 76% of persons with no sciatica
- Another study found 47% of subjects who were experiencing low back pain had no abnormality identified¹⁶
- 32% of pts in one study received imaging within 30 days of dx and 35% received imaging without trial of PT⁸

The Big Picture

“The determination of a pathoanatomic origin of low back pain is made difficult by the rate of false-positive findings on imaging studies, that is, individuals without low back pain showing abnormal findings.”

- [The Monkey Business Illusion](#)
- Current recommendations from the American College of Physicians are that:
 - imaging is only indicated for severe progressive neurological deficits or when red flags are suspected
 - routine imaging does not result in clinical benefit and may lead to harm

Role of PT

- PTs listen and watch for red flags in order to refer to appropriate provider
- PTs have advanced knowledge of the musculoskeletal system
- Experts in recognizing and treating impairments that lead to pain and dysfunction
- Develop individualized plan based on the patient's needs
- Early PT intervention for acute cervical/lumbar pain can reduce risk of conversion to chronic pain.¹¹

What Do We Want Patients to Know?

- Stay active, bed rest is not recommended
- Role of PT
 - trained to screen for red flags
 - recognize impairments
 - provide appropriate treatment to reduce pain and decrease risk of exacerbation
 - PTs follow specific guidelines (CPGs) - not making things up!
- Get in to PT early!
- Imaging is generally not recommended for acute or chronic pain
- How to classify their LBP (acute vs chronic, hypomobile vs hypermobile, radicular vs referral)

- PT reduces financial burden on patient and healthcare system
- Decreased likelihood of surgery, improved energy and fitness, reduced risk of re-injury
- What signs should patients be aware of?
 - Progressive weakness
 - Changes in bowel/bladder habits
 - Constitutional s/s - fever, night sweats, etc
 - Unrelenting pain that does not change with position or activity changes
- Otherwise....go to PT first!

“A Picture is Worth a Thousand Words”

Infographics = A visual image such as a chart or diagram used to represent information/data

Goal = Develop an infographic for knowledge translation for the general population

Topic = LBP Clinical Practice Guidelines

Key Points = negative effects of imaging, seek PT treatment early for better outcomes

Considerations = clear and concise information, avoid jargon

Extra Challenge = take some time to work on cervical infographic after session

Summary

- Back pain is an epidemic; it is expensive, 80% will experience it
- Imaging is not recommended (except where red flags are suspected)
- PTs will screen for red flags and refer if needed
- PT is known to reduce pain and disability
- Treatment classification - mobilization, specific exercise, immobility, traction
- Infographics capture a larger population and are effective for KT

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