Primary Health Care Initiatives (PHCI) Project
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Abt. Associates Inc.

BACK PAIN

LEARNING OBJECTIVES

- Describe that the risks factors of developing acute and chronic back pain
- Understand the natural history of uncomplicated low back pain
- Develop effective strategy for diagnosis of back pain, diagnose the urgent case, the serious case, and which need conservative treatment , and when to refer to physiotherapy
- Reduce unnecessarily imaging studies .
- Appropriate nonpharmacological & pharmacological management

TEACHING STRATEGIES

- Stress that the patient history and physical exam is the most important part of diagnostic evaluation
- Lecture discussion for the:
  a. Common causes of back pain, and
  b. How to differentiate between benign and malignant conditions
  c. Preventive care of back

MATERIALS AND EQUIPMENT NEEDED

- Anatomical model for the back, with anatomical structures.
- White board and flip chart and markers.
- Overhead projector and transparency

LEARNING POINTS

1. Determine the risk factor for back pain, including:

Medical	Environmental	Family and Individual
Pregnancy	Long hours of sitting	Depression
Metastatic cancer	Poor job satisfaction	Alcohol abuse
Lymphoma	Transient jobs	Obesity
Multiple myeloma	Truck/auto driving – long periods	Anxiety
Pelvic disease	Improper lifting	Poor aerobic condition
Infections (TB, abcess)		Poor posture

2. Clinical evaluation of the patient with backache

a. Important elements of the history
   - Onset, duration, severity of pain – history of trauma
   - Location and radiation of pain
   - Aggravating and relieving factors
   - Associated symptoms (sensation, sphincter control, weight loss, sleep)
   - Ability to work

b. Important elements of the physical examination
   - Gait, posture, flexibility
   - Palpation for tender points and muscle tone and spasm
   - Range of movement of joints and spine
   - Straight leg raising and confirmatory tests
   - Neurologic exam (nerve root specific strength and sensation, DTR)

c. NOTE: X-rays of the spine are not necessary as part of initial evaluation when no neurologic signs are present. May consider referral for X-rays or computerized tomography when conservative treatment fails to resolve pain, or if neurologic signs are present.

3. Musculo-skeletal strain

a. Common elements of history and examination
   - Most common cause of acute back pain – 70 – 80% of all cases
   - Onset may be gradual or acute, often within 24 hours of a known strain from fall or lifting
   - Pain is diffuse across the low back, may radiate into hips or buttocks
   - No numbness, weakness, or change in reflexes of lower extremities

b. Pathophysiology of musculo-skeletal strain
   - Tearing and injury to paraspinal muscles, ligament attachments over pelvis, or to ligaments of facet joints of lumbar spine
   - Reinjury is common, because of insufficient healing before muscles or ligaments strained again

c. Natural history of back pain secondary to strain:
   - 90% recover within 6 wks, with or without therapy
   - 75% of acute low back pain return to work within 1 month
   - 2-3% last more than 6 months
   - 1% last more than one year.

4. Lumbar disc disease

a. Common elements of history and examination
   - Onset often more acute, related to strain or forward flexion
   - Pain markedly worse with cough or strain
   - Pain often radiates into posterior thigh of one leg (sciatic radiation), and is worse with stretching of sciatic nerve (straight leg raising sign)
   - May be accompanied by numbness, weakness, and loss of reflex of one leg

b. Pathophysiology of disc disease
   - Herniation of lumbar disc with compression of one or more lumbar nerve roots

- Usually occurs at L4-5 or L5-S1 level

c. Natural history of disc disease
   - Most cases of acute disc herniation resolve with time with conservative treatment
   - Only about 10% of all cases fail to resolve, and may require more aggressive management, such as surgery or corticosteroid injection into epidural space

5. Psycho-somatic issues in back pain

a. Risk factors for disability
   - Back pain sustained in an accident in which the other person is perceived to be at fault
   - Back pain in which compensation is pending

b. Role of psychological factors in low back pain
   - Chronic anger, fear
   - Chronic life stresses
   - Work-related back injury

6. Differential diagnosis of back pain

a. Mechanical causes – herniated disc, spondylolysis, spinal stenosis (elderly)
b. Neoplasm – primary or metastatic cancer, multiple myeloma
c. Infectious etiology – infection of disc space (especially in children)
d. Spondylo-arthropathies – ankylosing spondylitis
e. Metabolic causes – osteoporosis with vertebral fracture
f. Extrinsic disease – pelvic inflammatory disease, urinary tract infection
g. Psychological – suppressed anger or resentment

7. Conservative management of low back pain, without significant risk factors

a. Brief, initial bed rest for 2 –3 days only – only until acute pain improving
b. Ice pack initially, followed by local heat and gentle massage
c. Analgesia, anti-inflammatory medication
d. Mobilization and stretching exercises
e. Muscle strengthening of abdomen and back
f. Appropriate use of corset or external support
g. Management of associated emotional and psychological factors

PROTOCOL FOR BACK PAIN

Non-urgent – Manage with trial of conservative management:

- Mild to moderate pain of recent onset (< 6 weeks, acute)
- Improved with lying down, worse in upright position or stooping
- Absence of:
  a. Bowel of bladder sphincter disorder
  b. Fever
  c. Recent weight loss

Note: Initial presentation of low back pain with sciatic radiation or mild nerve root compression signs can be often treated safely with conservative management and close follow up for improvement

Urgent – evaluate within 24 hrs. and consider referral to specialist:

- Fever 38°C. or greater
- Unrelenting night pain
- Pain with significant distal numbness or weakness of the leg(s)
- Loss of bowel or bladder control
- Progressive leg weakness or loss of sensation
- Anxious patients

CASE STUDIES

1. A 36 year old man noticed immediate pain in the low back on lifting a heavy box out of a truck 2 days ago. He has significant pain with standing or walking, and the pain radiates from the back into the right posterior thigh and calf muscle. It is much worse with coughing or straining. He walks very slowly bent over at the waist. He is urinating and stooling normally, and he does not notice leg weakness.
    a. What is the most likely cause of this pain?
    b. What specific steps in examination can confirm this diagnosis?
    c. Is this an urgent or non-urgent situation?
    d. What should be your recommendations to this patient?

2. A 62 year old woman is complaining of pain in the mid back for the past several weeks. The pain is dull, sometimes worse with long walks, does not radiate to the legs, and sometimes awakens the patient at night. She is somewhat short of breath, and has noticed decreased appetite and some fullness of her abdomen.
    a. What is the most likely cause of this pain?
    b. What specific steps in examination can confirm this diagnosis?
    c. Is this an urgent or non-urgent situation?
    d. What should be your recommendations to this patient?

3. A 42 year old man noticed some low back pain on getting out of bed this morning, and presents to the Health Center asking for a release from work for today and tomorrow. He was unloading a truck of heavy boxes yesterday; he did not notice any significant pain while working. Today, the pain is in the middle of the low back, radiates slightly into both upper legs, and is not worse with a cough. There is no weakness or numbness noticed in the legs.
    a. What is the most likely cause of this pain?
    b. What specific steps in examination can confirm this diagnosis?
    c. Is this an urgent or non-urgent situation?
    d. What should be your recommendations to this patient?

PREVENTION ISSUES AND HEALTH EDUCATION MESSAGES

- Concentrate on preventing back trauma and consequent disability

- Pt education, pre-employment physical examination
- if there is a relation of job related back pain
- Measuring strength, and prescribing general fitness exercise job design modification, cessation of smoking
- Correction of obesity
- Aerobic fitness

CRITICAL ELEMENTS FOR REFERRAL

- Suspicion of malignant or infectious cause
- History of significant trauma
- Chronic low back pain more than three months duration
- Presence of any of the following:
  - cauda equina syndrome (loss of bowel, bladder sphincter control)
  - Progressive or significant neuromotor deficit, foot drop or functional muscle weakness such as hip flexion weakness of quadriceps weakness
  - Persistent neuromotor deficit more than 4-6 wks of conservative Rx
  - Presence of bulging disc and severe pain with persistent neurological deficit
  - Failure of response to conservative management (4-6 wks)

CRITICAL ELEMENTS FOR EVALUATION OF COMPETENCE

- Proper diagnosis and classification of low back pain – urgent and non-urgent case?
- Appropriate non-pharmacological management?
- Role of medications like NSAID, muscle relaxing?
- Appropriate patient education regarding back pain?
- Management plan and life style modification.