JT SOUTHWESTERN MEDICAL CENTER

Low back pain is defined as pain occurring from the posterior inferior costal margins to the buttocks. Acute LBP is defined as less than 6 weeks since the onset, sub-acute LBP is 6 weeks to 3 months post onset, and chronic LBP is > 3 months duration. The Risk Factors are cigarette smoking, obesity, age > 50 years, female, physically strenuous or sedentary work, lower educational level, Worker's Comp. Insurance, job dissatisfaction, and depression, somatization disorder, and anxiety.

Historical Questions: 1. What were you doing when symptoms began? 2. Were symptoms sudden, gradual or delayed? 3. What were symptoms then and now? 4. How has this limited your activities? 5. What aggravates and what lessens the symptoms? 6. What home remedies have been tried to this date? 7. Is there any past history of previous low back problems? 8. Is there a history of cancer, IV drug abuse, prolonged use of corticosteroids, unexplained fever, osteoporosis, immunosuppression? 9. If worker's comp, describe in detail work activities you perform using your back, how much were the weights or forces used and for how many hours that day, what position was the body when symptoms began and at what time did they occur? Verify job description and history with the employer supervisor or HR department. Do not give personal medical diagnoses to employer.

Historical Red Flags: Cauda Equina Syndrome: 1. Sudden or unexplained loss or changes in bowel or bladder control, especially urine retention, 2. Sudden or unexplained bilateral leg weakness/sciatica or saddle area numbness: Refer pt. to ER ASAP for MRI or CT (level A recommendation). Recent significant spine trauma or milder trauma if > age 50: R/O fracture with x-ray (level A). Unexplained weight loss or history of cancer or worsening of pain while lying in bed at night: R/O CA (level B). LBP with fever > 38 degrees C or 100.4 F for > 48 hours: R/O infection (level B). Progressive pain, weakness or neurologic deficits below the knee: R/O HNP/disc herniation if + PE (level A).

Physical Exam: focused (level B). Inspect back and posture (rule out scoliosis or spinal list or skin trauma). Check spine ROM limitations (especially flexion) and asymmetry for future reference in response to treatment. Palpate and document spinal or paralumbar tenderness or spasm. Perform sitting and supine Straight Leg Raising Test (SLRT). A true positive is radicular pain below the knee from 30-60 degrees of hip flexion with knee extended and ankle dorsiflexed. Also perform a Crossed SLRT which is testing the opposite lower extremity for sciatica in the symptomatic leg. Check gait, heel/toe walking and lower extremity muscle strength. Perform neurologic tests of the lower extremities to rule out nerve impingement and possible disc herniation: Focus on the L5 and S1 nerve roots as 98% of clinically significant disc herniations occur at L4-5 and L5-S1 levels.

Disc level:	Nerve Root:	Sensory deficit:	Motor weakness:	Reflex loss:
T12-L1	L1	Superior anterior thigh	Hip flexor	NA
L1-2	L2	Anterior mid thigh	Hip flexion, adduction and knee extension	NA
L2-3	L3	Ant. inf. thigh/ med. knee	Hip flexion, adduction and knee extension	NA
L3-4	L4	Med. foot/ant.leg, lat.thigh	Knee extension/squatting, hip adduct.	Patellar

Disc level:	Nerve Root:	Sensory deficit:	Motor weakness:	Reflex loss:
L4-5	L5	Lat.leg/dorsolat. Foot	Foot/1 st toe dorsiflex, hip abduct/heel walk	NA
L5-S1	S 1	Lat. foot/leg, post. Thigh	Knee /foot flexion/toe walk	Achilles

IMAGING: A 2 view lumbar spine x-ray is not routinely advised (level A) unless trauma history is great enough to cause fracture (fall from height, serious MVA or osteoporosis). Consider MRI or CT if there is suspicion for other red flags such as cauda equina, progressive

neurosensorimotor deficits, cancer, infection or no improvement of LBP at 12 weeks.

LAB TESTS: UA if possible UTI/renal stones. ESR +/- CBC or CRP if risk for other occult infection.

CATEGORIZE DIAGNOSIS: as acute or chronic LBP, and into 1 of 4 categories (A level): 1. nonspecific LBP (> 85% of cases), 2. LBP with radiculopathy (3%) or spinal stenosis (2%), 3. LBP from another specific spinal cause (8%), and 4. LBP from a medical condition other than spinal origin (2%).

MEDICAL TREATMENT for Acute Nonspecific LBP: (level A) 1. Conservatively treat for 4-6 weeks in the absence of red flags as about 90 % resolve by then. Recurrences up to 40 % may occur within 6 months. 2. Advise patient to stay active rather than have bed rest. 3. Oral NSAID's are recommended, and if NSAID's are contraindicated, then advise acetaminophen if no liver disease. 4. Skeletal Muscle Relaxants are centrally acting and may be helpful in the first few weeks if there is muscle tension, but side effects are significant, and some sources advise Q HS use only such as 5mg cyclobenzaprine (rather than 10 mg) or metaxalone 800mg. Carisoprodol has abuse potential and is not advised. 5. Opiates (level C) may be used in patients with severe pain for a few weeks only to avoid abuse. 6. Medications not recommended in acute nonspecific LBP are glucocorticoids, gabapentin, tricyclic antidepressants, and lidocaine patches. 6. Other treatments: Physical therapy (level C) is of uncertain benefit the first 2-3 weeks after onset of LBP, but McKenzie back extension stretches are helpful earlier. Early P.T. is proven to allow faster return to work if there is a strenuous back intensive job (B). Spinal manipulation (B level) such as high thrust/velocity allowed short term benefit of increased function vs. conventional medical therapy for acute and chronic nonspecific LBP, but no long term benefit. Injections only offer temporary relief in most studies. Patient education(C) is discussed later. Not recommended are for acute LBP are ice, ultrasound, TENS units, acupuncture, massage, yoga, back braces, traction, bed rest or being off of work if modified duty is available.

MEDICAL TREATMENT OF LBP with Radiculopathy: Cauda equina syndrome, defined above, should be referred ASAP to the ER for an MRI or CT scan and if scan is + then to a surgeon. Nerve root irritation is usually manifested as symptoms of sciatica with sharp or burning pain distal to the knee, and may worsen with coughing, sneezing or Valsalva maneuver. Progressive neurological deficits in sensation, reflexes or muscle strength require imaging with MRI preferred over CT scan to rule out surgical disc herniations (A level). Persistent sciatica, sensory deficit or reflex loss with a +SLRT require imaging in 4-6 weeks if patient is a surgical candidate. Medical treatment of LBP with improving radiculopathy is the same as for acute nonspecific LBP.

MEDICAL TREATMENT of LBP from Spinal Stenosis: This condition is chronic and caused by congenital or acquired narrowing of the spinal canal, nerve root canals or intervertebral foramina. Symptoms of pseudoclaudication or neurogenic claudication develop (with normal pulses) and may include LBP with transient paresthesias of the legs which is worse with ambulation and back extension and lessened or relieved by rest or sitting or spine flexion. MRI or CT may confirm this cause. See treatment of chronic low back pain below.

MEDICAL TREATMENT of CHRONIC LBP such as spinal stenosis, degenerative disc or facet processes, spondylolisthesis, or old vertebral compression fracture. 1. Advise to remain active (A), limit bed rest (A), and ideally use a medium firm mattress when sleeping (B). 2. Patient education (B) which is evidence based and self help oriented such as "The Back Book." 3. Short courses of NSAID's or acetaminophen for exacerbations and rarely opiates (B). 4. Home and supervised exercise programs for stretching and strengthening if patient is motivated (B). Low impact aerobics regularly (B). 5. For severely impaired, refer for functional restoration or interdisciplinary rehabilitation (B). 6. Trials of Yoga (especially Viniyoga), spinal manipulation, massage therapy, acupuncture or cognitive behavioral therapy (B). 7. Screen for depression (B) and if significant, treat with newer antidepressants rather than tricyclics due to side effects. 8. Epidural steroid injections (C) may give short term relief for prolapsed disc with sciatica, but is otherwise not recommended. Not recommended for chronic LBP are: certain surgeries discussed below, traction, TENS, PENS, ultrasound, passive P. T. modalities, lumbar supports, muscle relaxants, benzodiazepines, short-wave diathermy, low level laser therapy. EVALUATION of LBP of NONSPINAL ORIGIN was mentioned on Historical Red Flags and Imaging/Lab with cancer and infection and renal disease. Other causes include abdominal aortic aneurysm, GI disease such as pancreatitis, peptic ulcer, cholelithiasis or GU disease such as PID, endometriosis, prostatitis. SURGICAL TREATMENT of acute LBP is emergent with cauda equina syndrome and urgent with LBP with progressive neurological deficits, and if there are severe lumbar radicular symptoms of 6-12 weeks duration, then open discectomy or microdiscectomy is advised (B). There is no evidence that early surgical referral improves outcomes with other patients with prolapsed or herniated lumbar disc and radiculopathy. Mild foot drop or other mild motor deficits for nerve root compression is not an absolute surgical indication as many such patients recover in 4-6 weeks with conservative care. For severe nonspecific LBP >1 year duration, failing conservative treatments and intensive rehabilitation and cognitive behavior therapies, then consider vertebral fusion (B). The benefits of surgical fusion benefits do not persist after 1-2 years vs. conservative treatment. For severe spinal stenosis patients who have failed conservative treatment, consider laminectomy (B) but benefits may decrease over 1-2 years. Interventional therapies not recommended are chemonucleosis, intradiscal cortisone, local injections except for ESI, radiofrequency denervation, facet joint injection, medial branch block, intradiscal electrothermal or radiofrequency denervation, prolotherapy or botulinum toxin injection.

PATIENT EDUCATION: The Back Book is useful (B). Emphasize conservative care, explain that the natural history of LBP in > 90 % of patients is improvement or resolution in < 6 weeks, and that staying active as much as possible is helpful and not harmful. Explain that lumbar x-rays rarely explain the cause of nonspecific LBP. Discuss potential causes that aggravate LBP. Return to work ASAP while limiting heavy lifting, repetitive stooping, bending and twisting, and prolonged standing or sitting in the acute phase, and increasing work capacity about weekly.

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