









 More Difficult



 Very Difficult



 Super Difficult





Low Back Pain The CONUNDRUM

- Low Back Pain is a common problem, and the resulting disability frequently contains nonorganic, psychological, and social elements that are difficult for the busy clinician to assess.

*Up to 85% of patients cannot be given a definitive diagnosis because of a weak association among symptoms, pathological changes, and imaging results
Dayo, JAMA 1992



Natural History of LBP

- 90% of LBP resolves in 4-6 weeks
- 5% more by 12 weeks
- 5% become chronic
- Sciatic pain > 50% resolves in 6 weeks
- 75% resolves by 6 months
- 50% of those with acute LBP have a reoccurrence in 1 year.
- *Among the 10% of patients whose low back pain last longer than 12 weeks, they tend to have either more complex pathoanatomic medical problems or more commonly high psychosocial risk factors leading them to develop chronic pain syndromes. These risk factors include life stressors, maladaptive behaviors, and mental health disorders.

*Kelsey Spine 1980



Causes of LBP


Disc	Radiculopathy	Spinal
Facet	Sciatic neuritis	stenosis
SI joint	Muscular	Vertebral
Mechanical	Ligamentous	comp. Fx
Instability	Visceral Ds	Metabolic
Infection	Functional	Hip pain
Malignancy	Psychosocial	Cervical Ds.






Pathologic Causes of LBP Etiology

- 1) **Inflammatory/Rheumatologic Disorders;**
Ankylosing Spondylitis, Psoriatic arthritis, Rheumatoid arthritis, PMR, Fibromyalgia
- 2) **Endocrine & Metabolic:**
Osteoporosis with Fx, Hypothyroid, Testosterone levels
- 3) **Infections:**
Discitis, Herpes Zoster, TB, Epidural abscess
- 4) **Tumors:**
Benign, Multiple Myeloma, Mets
- 5) **Visceral Referred Pain**
Pyelonephritis



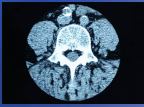
Pathologic Causes of LBP


- Focal progressive **unrelenting pain**.
- PMH: Cancer, Steroid use, IV drug use Suspicious Nevi, Prostate Nodularity, Masses, Diabetes
- Urinary retention or incontinence, Numbness of perineum, Severe bilateral sciatic distribution pain
- Progressive weakness of one/both legs
- Diagnostic Studies: Lab work-up and Imaging studies




Common Causes of LBP


- Muscle Dysfunction
- Osteoarthritis and spinal stenosis
- Discogenic * J Am Acad. Orthop Surg. 2009 17: 102-111
- Radicular (including sciatic distribution pain)






Doc. How about an MRI?






Imaging Studies

- Plain X-Rays are not recommended for the routine evaluation of patients with acute LBP within the first 4 weeks of symptoms unless a **red flag** is noted:
- **Red Flags:** Trauma, Prior CA, Fever & Chills, IV Drug Use, Prolonged Steroid Use, Weight Loss, Pain That Is Unimproved With Rest, Neurologic deficit..




*Agency for Health Care Policy and Research Guidelines – 2016
*Get L-spine X-ray prior to Physical Medicine referral if not done.




Advanced Imaging Studies

- 1) Patients with moderate to severe low back pain and/or radicular pain for more than 4-6 weeks failing conservative treatments.
- 2) Radicular syndrome and suspected lumbar disc HNP with **progressive** neurologic deficits or pain.
- 3) Patients with progressive unrelenting pain (incapacitating) that are unable to get into any comfortable position.




Advanced Imaging Studies


- 4) Spinal stenosis with neurologic claudication who would consider surgical intervention.
- 5) Chronic Low Back Pain and/or radicular syndromes who have a significant change in their chronic pain state.
- 6) When moderate to severe or bilateral neurologic deficits are present.



Advanced Imaging Studies

- Attempt NOT to order an MRI for the “Gee Whiz” factor.
- It’s OK to order an MRI of the lumbar spine because you do not know what is going on.






Imaging

The diagnostic study is only as good as the physician’s history, physical examination, differential diagnosis, and judgment.

** Don’t miss the forest for the trees.*
** MRI’s are not curative*






Neuroimaging in Asymptomatic Patients

Existence of a bulging disc:		Existence of a herniated disk:	
Years	%	Years	%
30-39	32	20-29	15
40-49	65	30-39	21
50-59	82	40-59	30
		>60	20

Jensen. NEJM. 1994

Boden. JBJS. 1990



Neuroimaging in Asymptomatic Patients

- 148 VA subjects without baseline LBP
- Baseline & 3-year MRIs
- 3-year incidence of pain 67%
- Protrusions, nerve root contact, central stenosis not statistically significant for developing LBP
- Disc extrusions most clinically important new imaging finding.
- Diagnosis of depression** was strongest predictor of developing LBP (> than any imaging finding)

Jarvik. JJ Spine 2005

Chou. JAMA August 2010 (maladaptive behaviors, non-organic signs, low general health status, psychiatric comorbidities, high functional impairment levels).



Lets Move On





Treatment for Some Low Back Pain Syndromes



Muscle Dysfunction Low Back Pain


- Oral medications: (NSAIDs, Muscle relaxants, TCAs, narcotics-short term)
- Trigger point injections
- Treat underlying conditions and associated symptoms (e.g., insomnia)
- Postural Education- simple changes in daily mechanics can make a world of difference.
- Refer to Physical Therapy
- Acupuncture referral -German Acupuncture Trials-Arch. Intern. Med 2007 Sep. 24 167(17):1892-8







Rest \neq Treatment

Change from Physician Centric
treatment to
Patient Centric self management




Pharmacotherapy for LBP

- Tylenol – 3000 mg/ day -ATC
- NSAIDS / Toradol IM in the office
- Steroid Tapers–start 60 mg (Medrol Dose Pak too low)
- TCAs; Nortriptyline 10 – 50 mg at HS
- Gabapentin 300-1800 mg / Pregabalin 50-300 mg
- Opiates for a short course – *5 days or less
- Muscle Relaxants: Flexeril/Robaxin/Zanaflex/Baclofen

JAMA. 2018;319(9):872-882.

- March 6, 2018
- **Effect of Opioid vs Nonopioid Medications on Pain-Related Function in Patients With Chronic Back Pain or Hip or Knee Osteoarthritis Pain**
The SPACE Randomized Clinical Trial
- **Conclusions and Relevance** Treatment with opioids was not superior to treatment with nonopioid medications for improving pain-related function over 12 months. Results do not support initiation of opioid therapy for moderate to severe chronic back pain or hip or knee osteoarthritis pain.



Physical Therapy

- Stabilization exercises; patients find their neutral spine which may have a flexion or extension component
- Core Strengthening- exercise ball
- Abdominal strengthening
- Mechanical evaluations
 - * Posture/Body Mechanics
 - * Therapeutic Movements
 - * Strength and Stabilization





Osteoarthritis Low Back Pain

- X-ray for diagnosis
- Meds: Tylenol, NSAIDs, Narcotics?
- Aerobic exercise promotes less pain, anxiety, depression, and weight loss.
- Walking is a good start /Aquatic Therapy, Yoga
- Physical Therapy
- Physical Medicine to help diagnose/ injection therapies



Severe Spinal Stenosis


- Conservative or Surgical Management
 - 50% of patients will have some improvement after nonoperative treatment
- 60%-80% improved with decompressive surgery at one year.
 - 17% reoperation rate at 4-6 years
- Surgical intervention for intolerable pain or progressive neurologic symptoms. (can only walk 1-2 blocks)
- Majority of patients will improve with surgery but will have residual symptoms- set realistic expectations (continued LBP)

*Simotas, Clin. Ortho. 2001
*Amundsen, Spine. 2000
*Athiviratham Clin. Ortho. 2007



Discogenic Low Back Pain


- X-ray can show DDD
- Physical therapy-McKenzie based approach
- Weight loss
- Medical management of pain.
- MRI if considering more interventional therapies.
- Non-surgical Spinal Decompression
 - Madigan, Journal American Academy Orthopedic Surgeons. 2009 17:102-111
 - Macario, Pain practice, 2006 171-178



Fusion For LBP



- Usually for internal disc derangement and/or segmental instability
- No high powered randomized controls trial of fusion vs. conservative care. Variable results with different studies.
- 40-60 % failure rate*
- Failed Back Surgery Syndrome
- Degenerative Spondylolisthesis rarely exceeds 40% slippage –10% require surgery**

*Moller, Spine 2000 ** Besswein, CL Ortho, 2001



Lumbar Radicular Syndrome


- Causes: HNP, Stenosis, Traumatic, Metabolic
- TX: oral steroids (start high), NSAIDS, muscle relaxants, anxiolytics, opioids, TCAs, gabapentin/Lyrica
- Physical therapy –if not too hot
- Refer to PM&R/PNM for ESI (please get X-ray before referral)
- MRI: Severe symptoms, mod./severe weakness

EPIDURAL STEROIDS

- Epidural steroids are an **effective** treatment option for radicular pain and radiculopathy
- Assess results after each ESI. No science for 3 inj.
- Transforaminal injections under fluoroscopy are more exact.

*Cuckler, JBJS-1985; Bogduk, Spine Care-1995; Carotte, NEJM-1997; AHCPR-guidelines
* Parr, Pain Physician 2009 12:163-188



Disc Surgery

- 99% of LBP/leg pain is non-surgical
- HNP with Radiculopathy 85%-90% + is **non-surgical**
- Surgery is best for radiculopathy due to nerve compression (MRI/CT confirmed) with severe symptoms or significant neurologic deficit **recalcitrant** to conservative therapy > 4-6 weeks


* Weinstein, SPORT Study JAMA, 2006



Comparison of Surgical and Non-surgical Treatment Outcomes


<u>Good Results With Surgery</u>		<u>Good Results Without Surgery</u>	
• 1 Year	92%	1 Year	79%
• 4 Years	82%	4 Years	88%
• 10 Years	85%	10 Years	94%

*Maine Study. Spine-1996



Injection Therapies Pain Management

- Facet Injections
- Sacroiliac Joint Injections
- Radiofrequency Neurotomy of facets and isolated nerves (Median branch)
- Botulinum Toxin Therapy
- Acupuncture






American College of Physicians
Recommendations: **acute/subacute**

- Clinicians should inform patients with acute/subacute LBP they have a favorable outcome and to remain active
- Avoid potentially harmful and costly tests and treatments.
- Nonpharmacologic treatments; superficial heat, massage, acupuncture, spinal manipulation, physical therapy.
- Pharmacologic NSAIDs, Tylenol, Muscle Relaxants.






American College of Physicians
Recommendations: **Chronic LBP**


- For Chronic LBP initially select **nonpharmacologic** treatments with exercise, multidisciplinary rehabilitation, acupuncture, stress reduction/relaxation tech., yoga, tai chi, cognitive behavioral therapy, spinal manipulation.

• Clinical Guidelines Committee of the American College of Physicians
Feb. 2017




American College of Physicians
Recommendations: Chronic LBP with **Inadequate Response to nonpharmacologic therapy**

- First line medications; Tylenol, NSADs
- Second line medications; tramadol (Ultram 500-100mg, duloxetine (Cymbalta 20-60 mg)
- *Consider opioids as an option in patients who have failed above treatments and only if the potential benefits outweigh the risks and setting realistic benefits.*



STarT Back Screening Tool


- Patient name: _____ Date: _____
- Thinking about the **last 2 weeks** tick your response to the following questions:
- **Disagree** Agree
- 0 1
- 1 My back pain has **spread down my leg(s)** at some time in the last 2 weeks ☐ ☐
- 2 I have had pain in the **shoulder or neck** at some time in the last 2 weeks ☐ ☐
- 3 I have only **walked short distances** because of my back pain ☐ ☐
- 4 In the last 2 weeks, I have **dressed more slowly** than usual because of back pain ☐ ☐
- 5 It's not really safe for a person with a condition like mine to be physically active ☐ ☐
- 6 **Worrying thoughts** have been going through my mind a lot of the time ☐ ☐
- 7 I feel that **my back pain is terrible** and it's **never going to get any better** ☐ ☐
- 8 In general I have **not enjoyed** all the things I used to enjoy ☐ ☐
- 9 Overall, how **bothersome** has your back pain been in the **last 2 weeks**?
- Not at all/ Slightly/ Moderately/ Very much/ Extremely
- **Total score (all 9):** _____ **Sub Score (Q5-9):** _____



STarT Back Screening Tool

- **0-3 or less** Brief PCP office – one time- physical therapy visit focusing on education, Home exercise handouts, Reassurance about natural history of LBP, Why imaging can be counterproductive, Encourage mobility and active rehabilitation. (Prevent fear avoidance of activity behavior)
- **3-4** Recommendation to PCP for Formal Physical Therapy referral, Consider Lumbar spine Xrays especially if PMR referral being contemplated. Consider PM&R referral for more advanced imaging recommendations, and Injection therapies.
- **5-7** PM&R referral if LBP never evaluated by PM&R in the past Pain Management referral for more advanced medical management and cognitive behavioral program.

• The Keele STarT Back Screening Tool- Keele University 01/08/07



The best treatment for LBP and sciatic distribution pain, is to keep your patients active and restore good physical and mental health.