Acute Low Back Pain Workshop

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GPCME
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Key points

- Acute LBP is common; most patients recover fully in 3 months
- Serious causes are rare and can be excluded with careful history & examination
- Imaging is not required in absence of red flags
- An exact diagnosis is often not possible, nor needed for management
- Beliefs, attitudes and fear about pain contribute to chronicity & should be addressed
- Management includes reassurance, education & staying active
- Adequate analgesia
An algorithm for acute LBP

Fig. 1. An algorithm for the management of acute low back pain.
Is it truly low back pain?

Using a pain map
Low back pain terminology

- **Lumbar spinal pain**

![Diagram showing T12 and S1 spinous processes and lumbar erector spinae muscles.](image-url)
SURFACE ANATOMY
Low back pain terminology

- Sacral spinal pain

S1 spinous process
PSIS and PSIS
Sacroccocygeal joint
What is not low back pain?

Flank / loin pain
  Visceral

Gluteal pain
  Local causes

“Sciatica” (radicular pain)
  Not LBP
  Lower limb pain
  Causes are different
  Mechanisms of pain are different
Acute LBP

- Acute: 0 to 6 weeks
- Subacute: 6 to 12 weeks
- Chronic: > 12 weeks
Prevalence, natural history

- Acute LBP (ALBP) is common
- In any given year, 1/3 of adults affected
- 1/3 of these seek treatment
- Most acute LBP resolves within 2 weeks
- 70-90% recover fully <3 months
- Relapse is common
- Up to 10% develop chronic pain & disability
Assessment

Differentiate:

1. Serious pathology (red flag conditions)
2. Radicular nerve involvement
3. Non-specific back pain
Red flag conditions

- Fracture
  - Major trauma
  - Minor trauma associated with osteoporosis
  - age >50
  - corticosteroid use
Red flag conditions

- **Cancer**

  - Weight loss \( LR = 2.5 \)
  - Age > 50yo \( LR = 2.7 \)
  - PAST HISTORY \( LR = 15.5 \)
  - Failure to improve \( LR = 3.1 \)
  - Prolonged pain \( LR = 2.6 \)
  - ESR >50 \( LR = 15.3 \)
  - Haematocrit <30% \( LR = 15 \)
  - Nocturnal pain
Red flag conditions

- **Infection**
  - Fever
  - LR 13-41
  - History of: skin infection, iv catheters, UTI
Red flag conditions

- Ankylosing spondylitis

  Chest expansion <2.5cm LR 9.0

  4 out of 5 of:

  - morning stiffness LR 6.3
    - improved with exercise
  - onset <40 yo
  - slow onset
  - duration >3 months
History

- Onset and duration of pain
- Site and radiation
- Precipitating and relieving factors
- Severity and disability
- Neurological deficit
- Symptoms of systemic illness
Onset and duration

- Pain triggered by specific event
- Spontaneous onset
- Onset during normal activity
- Significant trauma (fracture)
Site of pain and radiation

- Back pain only
- With leg pain
  - somatic referred pain
  - radicular pain
  - determine dominant pain, LBP or leg pain
- Leg pain dominant
  - Probably radicular
(somatic) referred or radicular pain?
Somatic pain

- Pain evoked by noxious stimulation of nerve endings innervating spinal structures:
  - discs
  - zygapophysial/facet joints
  - sacroiliac joints
  - dura
  - ligaments
  - muscles

Pain can be felt locally and/or referred
Referred pain

- Stimulation of peripheral endings of nociceptive afferent fibers
- Pain perceived in a region innervated by nerves other than the ones that innervate the actual source of pain
Radicular pain

**Neurogenic pain**

Stimulation or irritation of the nerve roots or dorsal root ganglion of a spinal nerve
<table>
<thead>
<tr>
<th>FEATURE</th>
<th>RADICULAR PAIN</th>
<th>SOMATIC REFERRED PAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution</td>
<td>entire length of lower limb, but below knee &gt; above knee.</td>
<td>Anywhere in lower limb, but Proximal &gt; distal.</td>
</tr>
<tr>
<td>Pattern</td>
<td>narrow band, travelling quasi segmental but not related to dermatomes; not distinguishable by segment</td>
<td>wide area, Relatively fixed in location quasi segmental but not dermatomal; not distinguishable by segment. Boundaries difficult to define, but Centroid identifiable.</td>
</tr>
<tr>
<td>Quality</td>
<td>shooting, lancinating, perhaps like an electric shock</td>
<td>dull, aching, Perhaps like an expanding pressure</td>
</tr>
<tr>
<td>Depth</td>
<td>deep as well as superficial.</td>
<td>deep only, lacks any cutaneous quality</td>
</tr>
</tbody>
</table>

Table LR.2.10. The distinguishing features of lumbar radicular pain and somatic referred pain.
Sacroiliac joint pain

- Consider if:
  - pain entirely caudal to L5
  - normal neurology
  - sacroiliac provocation tests
    - FABER test (Flexion ABduction External Rotation)
    - POSH test (POsterior SHeer) = thigh thrust test
    - Laslett et al. (Australian J of Physiotherapy 2003 Vol 49)
      - Distraction test
      - Thigh thrust test
      - Gaenslen’s test
      - Compression test
      - Sacral thrust test
        (3 or more positive: kappa 0.52-0.88; LR 4-6)

(chronic cases: consider if XR normal & MRI normal discs)
Precipitating & relieving factors

- **Mechanical LBP**
  - better at rest
  - worse with activity

- **Inflammatory spondyloarthropathy**
  - pain at rest
  - better with activity

- **Disc disorders**
  - worse with flexion e.g. prolonged sitting

- **Spinal stenosis & facet joint disorders**
  - worse with extension
Severity & disability

- VAS (Visual Analogue Scale)
- NRS (Numerical Rating Scale)

- Effect on ADLs
  - e.g. sleeping, sitting, standing, walking, driving, work, sports

- Sleep – nocturnal pain ?red flag

- Functional/disability scale – short OMPSQ
  (short Orebro Musculoskeletal Pain Screening Questionnaire)
Neurological deficit

Radiculopathy refers to neurological deficit with nerve root lesions (is not synonymous with radicular pain)

i.e. leg numbness
weakness
impaired reflexes

tends to be associated with radicular pain
Neurological deficit

Cauda equina syndrome
result of compression of the neural elements below the end of the spinal cord (L1-2 level)

causing: severe LBP
bilateral leg symptoms: pain, weakness impairing gait → paralysis, sensory changes
Saddle anaesthesia, perineal numbness
Urinary dysfunction: retention, difficulty starting/ stopping stream, overflow incontinence
Reduced bladder and urethral sensation
Bowel disturbance: incontinence, constipation, reduced anal tone on PR
Sexual dysfunction

Refer urgently to hospital for assessment, MRI, surgical spinal decompression, to prevent permanent neurological damage
Symptoms of systemic illness

- Loss of appetite
- Weight loss
- Fever, night sweats
- Fatigue
Examination

1. To identify serious pathology
2. Radicular features
3. Non-specific LBP

Pain behaviour, posture, gait
ROM – lumbar, SLR, femoral nerve stretch, hips
Neurological
Tenderness
Sacroiliac joint pain

- Pain with normal pelvic alignment
due to: sprain, sacroiliitis, fracture, tumour

- Pain with pelvic malalignment/SIJ dysfunction
due to: sprain
Pelvic malalignment / SIJ dysfunction

- height of iliac crests, PSIS, ASIS
- leg length difference (LLD) (apparent LLD vs true LLD)
  - supine
  - long-sitting position
- asymmetry pelvic landmarks:
  - PSIS, ASIS
  - ischial tuberosities
  - symphysis pubis
- provocation tests
- treatment – SIJ mobilisation (for anterior innominate)
Examination

Standing
observation: pain behaviour, posture, gait, spinal curvature, symmetry, iliac crests, skin folds, pelvic shift, wasting

movement: lumbar ROM

Supine
LLD, SLR, hips, SIJ stress tests
Neurological: reflexes, power, sensation

Prone
femoral nerve stretch, tenderness, gluteal muscles

Sidelying
gluteal muscles, perineal sensation, anal sphincter tone
Features of radicular irritation

- Leg pain > back pain
- Narrow band of pain in lower leg or foot (in segmental NOT dermatomal distribution)
- Numbness and paraesthesia in dermatomal distribution
- Reduced leg reflexes
- Positive SLR (L4-S1 roots)
- Positive FNS (L2-L4 roots)
- Segmental weakness
- Impulse pain – coughing, sneezing
Investigations

- Red flags
  - major trauma or minor trauma with osteoporosis -> x-ray

  Unrelenting pain, worse at night
  Age <20 years, or new back pain age >50 years
  History of cancer
  Systemic symptoms eg fever, weight loss
  IV drug use
  Immunosuppression or steroids

  → x-ray, FBC, CRP, alk phos, Calcium, PSA, referral

Sphincter disturbance
Gait disturbance, progressive neurological deficit
Saddle anaesthesia

→ ?cauda equina → refer hospital for emergency assessment
Investigations

- Non-serious conditions
  = 95% of LBP
  non-specific LBP

- X-ray
  most non-specific LBP does not require x-ray
  false positive findings
  consider radiation exposure
  if no improvement after 4 weeks
Non-specific LBP does not require MRI for:
- Unresolving radicular pain
- Chronic LBP
FEW CHANGES IN MANAGEMENT RECOMMENDATIONS OVER TIME

Overall the recommendations in the current guidelines regarding diagnosis and treatment of low back pain did not change substantially compared to the guidelines issued about a decade ago. May illustrate the lack of new evidence showing better results with new diagnostic and therapeutic approaches and/or new evidence showing the inefficacy of existing interventions. A less nihilistic view could be that already a decade ago the most valid recommendations for the management of low back pain were identified.

much more effort should now be given to implementation of guidelines.

In the past decade many countries have issued (updated) clinical guidelines for the management of low back pain. In general these guidelines provide similar advice on the management of low back pain.

AN UPDATED OVERVIEW OF CLINICAL GUIDELINES FOR THE MANAGEMENT OF NON-SPECIFIC LOW BACK PAIN IN PRIMARY CARE
BART W. KOES, MAURITS VAN TULDER, CHUNG-WEI CHRISTINE LIN, LUCIANA G. MACEDO, JAMES MCAULEY, CHRIS MAHER

Management

- Address fears: fear about pain can be disabling and contributes to disability and chronicity.

- Determine beliefs and attitudes regarding condition and pain:
  - Feelings: what are your concerns?
  - Ideas: what do you understand is the cause of your back pain?
  - Function: how is it affecting you?
  - Expectations: what do you think is needed to help?
Yellow flags

- Factors associated with poorer prognosis
- Belief that back pain is harmful and potentially severely disabling
  - “I hurt”, “I can’t move”, “I can’t work” and “I’m scared”
- Avoiding behaviours for fear of damaging back
- PH chronic pain, somatisation, preoccupation with health
- Negative attitudes and outlook; tendency towards lowered mood and social withdrawal
- Expectation that passive treatments will help more than active participation
Management

- Provide reassurance
  - offer biological model of the pain
    - e.g. sprained ligaments, muscles, disc; takes days to weeks to heal; gradual return to activity
    - no sign of serious disease
  - most acute LBP gets better
    - most resolves < 2 weeks
    - 70-90% < 3 months
    - relapses possible; overall recovery
Management

pain occurring with movement does not indicate ongoing damage; therefore light activity not harmful

muscle tension and spasm can be relieved with stretching and light activity
Management

- Encourage activity
  - stay active despite pain rather than waiting for pain to settle completely
  - continue normal activities if possible
  - continue work:
    - speeds recovery, reduces recurrences
    - selected duties rather than off work
    - if unfit for work, RTW ASAP; do not wait until pain-free
  - teach simple stretches or refer physiotherapy for exercises
  - walking, swimming/aquajogging
  - bedrest is harmful; delays recovery
Management

- Analgesia (lacks evidence; mainly empirical)
  provide adequate analgesia to assist mobilisation
  paracetamol, 1g four times daily
  Add: NSAID eg ibuprofen 400mg qid
  Add: codeine 30-60mg 4 hourly, or
  tramadol 50mg 6 hourly
  laxatives
  muscle relaxants
  tricyclics not indicated

- Heat (some evidence for heatwraps)
- Manual therapy – to encourage activity
Management

- Review regularly (few days to weekly) to:
  - develop relationship with patient
  - monitor progress
  - reinforce active participation
  - reassure
  - assess for red/yellow flags

- After 4 to 6 weeks:
  - if not resolving
    - x-ray, bloods
  - refer for specialist assessment
Radicular pain

- 50% resolve < 4 weeks
- 90% start to improve < 6 weeks, resolve < 12 weeks
- no need for x-rays
- adequate analgesia

- If no improvement over 4-6 weeks → x-ray
  refer specialist assessment
  MRI
  TFI (TransForaminal Injection of steroid)
Chronic Low back pain

Validated sources of CLBP:

- **lumbar intervertebral discs** - prevalence 40%

- **zygapophysial joints (Z joints) = facet joints**
  10 - 15% younger injured workers; 40% older non-injured population

- **Sacroiliac joints** - 15 - 20%
Procedures for investigation of chronic LBP
(ISIS protocol)

- provocation discography
- zygapophysial (facet) joint blocks
- sacroiliac joint blocks
Chronic Low back pain

- Intervertebral disc diagnosis
  rehabilitation exercises
  activity modification
  surgery

- Facet joint
  intra-articular injections
  medial branch nerve blocks -> radiofrequency neurotomy

- Sacroiliac joint
  pelvic mobilisation
  intra-articular injections

- Chronic Pain Syndrome/centrally mediated pain/central sensitisation
  explanation
  medication
  exercise
  psychological management
Key points

- Acute LBP is common; most patients recover in 3 months
- Serious causes are rare; excluded with careful history & examination
- No imaging if no red flags
- Exact diagnosis often not possible, nor needed
- Beliefs, attitudes and fear about pain contribute to chronicity & should be addressed
- Management includes reassurance, education & staying active
- Adequate analgesia
THE END

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NZ Association
Musculoskeletal Medicine
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