Low back pain: diagnosis and management

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Lower back pain is defined as pain in the lumbosacral area and should be classified according to the underlying mechanism. Here, the authors discuss assessment and recommended management.

KEY POINTS
- Exclude serious conditions; if red flags present refer urgently
- Assess psychosocial risk factors (yellow flags) for long-term pain and disability
- Assess severity, impact and persistent disability risk with the STarT Back Tool
- Aim to prevent chronicity by treating the patient actively at an early stage
- Most episodes are short lived
- Promote self-management with education, information and advice
- Analgesia: strong opioids are rarely necessary and should only be prescribed for short periods; a short course of benzodiazepine can be considered for paraspinal muscle spasm
- Keeping active is key; patients should stay or become physically active, and resume usual activities as soon as possible

In perhaps no other field of medicine are William Osler’s words truer today than spinal medicine, “the good physician treats the disease; the great physician treats the patient who has the disease.” Each year 50 per cent of a GP’s patient population experience an episode of low back pain (LBP). Less than 20 per cent will come forward for a consultation, but almost 50 per cent of these patients continue to be bothered with symptoms at one year. While most episodes resolve, there is a 75 per cent recurrence rate and 2–7 per cent progress to persistent chronic back pain. Patient expectation, particularly of future episodes needs to be appropriately managed. One of the key aims is to reduce long-term disability.

Classification
LBP is defined as pain in the lumbosacral area, between the bottom of the ribs and the gluteal fold. It is a symptom rather than a disease and therefore should be classified depending on the mechanism of the disease into possible serious pathology (see Table 1), inflammatory LBP, lumbar radiculopathy (sciatica) and non-specific LBP (mechanical back pain).

Non-specific low back pain
Characteristically it varies with posture and is exacerbated by movement. The heterogeneous presentation makes this a difficult area to study; as such, the evidence base is small for guiding therapies.

Serious pathology
It is important to recognise that most people with these red flags will not proceed to require urgent treatment, but urgent further investigation is usually required.

Inflammatory low back pain
Rheumatic conditions, such as ankylosing spondylitis, characteristically cause pains and stiffness (greater than 30 minutes) on waking that improve with exercise, are not relieved with rest and respond to NSAIDs. Inflammatory back pain is often missed, tends to have an insidious onset in patients less than 45 years old and follows a chronic course.

Sciatica (lumbar radiculopathy)
Not all nerve root pain presents in a classical manner and may present with just gluteal pain. The term sciatica is derived from the term pain in the hip. These would be excluded from the NICE evaluation of LBP but should be borne in mind with persistent symptoms.

Diagnosis
Multidimensional assessment is essential. In orthopaedic teaching, one is told to examine the joint above and below, so we should always remember the hips and
the brain as the two adjacent structures involved in the presentation of LBP. It is still often quoted that no specific pathology can be identified in up to 85 per cent of patients; however, more advanced understanding and investigations are often leading to more precise diagnosis when needed. Investigations in the first four to six weeks often do not provide clinical benefit unless there are red flags.

Although not advised by NICE, the American guidelines suggest considering a plain X-ray if a fracture or malignancy is suspected. NICE suggests only to offer MRI for non-specific LBP in the context of a referral for procedural intervention; however, many use this as a diagnostic tool and to exclude serious pathology. Some authorities consider that patients benefit from early limited investigation to allow cognitive reassurance, but evidence suggests that this does not improve clinical outcomes in all patients.

It is important to appropriately stratify patients into high and low risk of chronicity with psychosocial evaluation (see Table 2). Although not initially emphasised by NICE, subsequent advice has highlighted this to GP commissioners. The map of medicine LBP pathways provides sensible frameworks to follow (see Figure 1 and Table 3).

While persistent or chronic LBP is common, the disability should be low. This is usually a recurrent but non-progressive process. Excluding modifiable aetiologies and consolidating coping strategies should be considered. If there is no improvement or deterioration after initial presentation, then assess severity, impact and persistent disability risk with the STarT Back Tool (www.keele.ac.uk/sbst/startbacktool); interpretations of the results are outlined in Table 4. High anxiety and depression in the first year of physical activity, coping strategies and address these with information and education. Review work issues: when do they expect to return to work, or how are they managing or making adjustments to their role?

**Analgesia**

Overall there is poor evidence for analgesics in LBP. A recent Australian study has demonstrated that paracetamol had no greater effect than placebo. This may well lead to a review but commonly suggested analgesia include paracetamol and NSAIDs. If pain management is still inadequate, consider adding in codeine or dihydrocodeine with a laxative. Paraspinal muscle spasm may be managed with a short course (two to five days) of diazepam. One can consider a trial of an antineuropathic agent, eg amitriptyline.

Advice should be sought from a pain specialist prior to initiating and escalating chronic strong opioids. Strong opioids are rarely necessary and should only be prescribed for short periods. Some authorities state that strong opioids should not be prescribed for chronic LBP. There is no evidence for the use of SSRIs, but the use of tricyclics or serotonin norepinephrine reuptake inhibitors (SNRIs) may have a role. If pain is disturbing sleep, it is recognised that this in itself will reduce pain thresholds during the day. Addressing sleep should help recovery and coping with the symptoms.

**Physical therapies**

Physical treatment may take the form of a group structured exercise programme or one to one supervised exercise programme. NICE suggests that manual therapy, acupuncture or exercise can be undertaken. It is recognised that the evidence base for all therapies is low and therefore clinicians should choose the one they expect the patient will respond to best. There is a suggestion thus to allow the patient to choose the one they feel they will respond to best.

**Chronic low back pain**

Refer for multidisciplinary assessment and intervention if pain persists (three months radicular pain and six months LBP). NICE recommends around 100 hours of a combined physical and psychological treatment programme, including a cognitive behavioural approach in those patients who have failed to respond to at least one physical therapy and have a high disability and/or significant psychological distress. Even the authors are not sure this is cost effective, and positive outcomes are often

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**Table 1.** Red flags in LBP – clinical indicators of possible serious underlying conditions requiring further medical intervention

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<th>Red flags in LBP – clinical indicators of possible serious underlying conditions requiring further medical intervention</th>
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<td><strong>Age &lt;20 or onset &gt;50 years</strong></td>
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<td><strong>Trauma</strong></td>
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<td><strong>Constant, progressive, non-mechanical pain (worst at rest)</strong></td>
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<td><strong>Previous history of carcinoma, systemic steroids, drug abuse, HIV</strong></td>
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<td><strong>Systemically unwell/weight loss</strong></td>
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<td><strong>Recent serious illness/significant infection</strong></td>
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<td><strong>Persisting severe restriction of lumbar flexion</strong></td>
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<td><strong>Structural deformity</strong></td>
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<td><strong>Cauda equina syndrome, widespread neurology, bladder or bowel dysfunction</strong></td>
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<td><strong>Inflammatory pain – night pain, morning stiffness</strong></td>
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**Table 2.** Yellow flags in LBP – psychological indicators suggesting increased risk of progression to long-term distress, pain and disability

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<td><strong>Low mood and social withdrawal</strong></td>
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<td><strong>Fear avoidance behaviour (avoiding activity due to fear of pain)</strong></td>
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<td><strong>Belief that the pain is harmful or severely disabling (catastrophisation)</strong></td>
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<td><strong>Pessimism about prognosis and negative perception of impact on quality of life</strong></td>
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<td><strong>Work issues (physically heavy work, unsociable hours, poor job satisfaction, multiple and prolonged time off work, lack of support from employer, problems at work)</strong></td>
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<td><strong>Compensation/litigation/social benefits</strong></td>
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<td><strong>Poor general health, sickness behaviours (extended rest)</strong></td>
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<td><strong>Overprotective family or lack of support</strong></td>
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Figure 1. General management of LBP

Follow up review (2–3 weeks)

- No improvement/deterioration

  - Assess severity and impact
    - STarT Back Tool

  - Moderate risk
    - Physiotherapy

  - High risk
    - Biopsychosocial support

  - Severe radicular pain
    - Consider referral to pain clinic

Follow up review (12 weeks)

- Reassess 12 weeks

- No improvement

  - Consider referral to pain clinic or spine specialist

- Improvement

  - Continue support
  - Return to work
very beneficial.

Techniques such as radiofrequency denervation of facet joints for prolapsed disc in the young can be pressed in the elderly or discectomies may have a role to play and may be small.

Surgery

Surgery for back pain in our consideration is fraught with a number of different challenges and, while appropriate for some, it is generally to be avoided if possible. This is not necessarily the case for radicular pain, where surgical decompressions in the elderly or discectomies for prolapsed disc in the young can be very beneficial.

Emerging therapies

The hypothesis of bacterial infections as a cause of LBP, although interesting requires further corroborative independent studies and antibiotics are not yet being used for widespread mechanical LBP with Modic type 1 changes.21

References


Help prevent symptoms becoming chronic

• Encourage positive thinking, self-efficacy and sense of self-control
• Positive coping strategies – achievable goals, pacing
• Recognise and reinforce progress
• Staying or becoming physically active is key along with resuming usual activities
• Monitoring and reassess

Low risk

• Excessive reliance on healthcare is often unhelpful; positively promote self-management with advice and education
• If no improvement at six weeks refer for physical therapy

Medium risk

• Refer for physical therapy
• Negotiate patient centred management
• Address concerns and discuss a work plan

High risk

• Refer for comprehensive biopsychosocial assessment and management plan
• Explain pain, identify unhelpful influences, beliefs and behaviours, address anxieties, sleep hygiene, medication adherence, set goals and problem solve; consider psychological expertise, combined physiotherapy and psychology programmes
• Negotiate patient-centered management and discuss a work plan
• Monitor and reassess

Table 3. Treatment of low back pain

Table 4. Interpretation of STarT Back Tool

Declaration of interests

None to declare.

Dr Cowen is advanced pain trainee and Dr Towlerton is a consultant in pain medicine Chelsea and Westminster Hospital NHS Foundation Trust, London

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