Research – Degenerative Lumbar Disc Disease (DLDD): Evidence Based Treatments

Brief	Evidence based treatments for ***Degenerative Lumbar Disc Disease***
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Please note:

The research and literature reviews collated by our TAB Research Team are not to be shared external to the Branch. These are for internal TAB use only and are intended to assist our advisors with their reasonable and necessary decision-making.

Delegates have access to a wide variety of comprehensive guidance material. If Delegates require further information on access or planning matters they are to call the TAPS line for advice.

The Research Team are unable to ensure that the information listed below provides an accurate & up-to-date snapshot of these matters.

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2 Summary

- There are many evidence based treatment options available which encompass non-pharmacological, pharmacological, and surgical treatments
- There appears to be no superior treatment/intervention
- Treatment is based on best evidence, physician experience and patient preference
- Treatment encompasses a multidisciplinary/multimodal approach

3 What is Degenerative Lumbar Disc Disease (DLDD)?

DLDD is a chronic degenerative condition of the lumbar spine that affects the vertebral bodies and intervertebral discs of the low back. The discs lose water content and shrink, and spurs often form as osteoarthritis develops.

Lumbar degenerative disc disease is quite common and progresses with age. The condition can cause lumbar spinal stenosis [1].

4 Symptoms

Many people do not have symptoms, but symptoms can occur at any time. Typical symptoms include pain or stiffness of the back.

If the canal around the nerves narrows, patients can experience:

- Back pain
- Leg pain
- Numbness, tingling or weakness of the legs
- Difficulty with walking and lack of balance or coordination

- Occasionally, bowel and bladder control problems may occur [1]

5 Treatment

5.1 Overview

There are many treatment options available to the clinician. No treatment has been shown to be superior, and multimodal therapy is the cornerstone of treatment. The individualisation of treatment is based on best evidence, physician experience and patient preference [2].

Australia currently has no clinical care guidelines, however they are in development [3]. Various overseas evidence based guidelines are used within Australia including those researched by the University of South Australia [4].

A recent 2020 research article published in the Australian Journal of General Practice [2] aims to assist Australian clinicians assess patients with Lower Back Pain (LBP) and formulate evidence-based treatment decisions. The article outlined first, second, and third lines of treatment. The lines of treatment encompass three treatment groups; non-pharmacological, pharmacological, and surgery.

5.2 First-line treatment

- Education
- Early return to activity
- Weight loss
- Exercise/physiotherapy
- Nonsteroidal anti-inflammatory drugs
- Tai chi/yoga/Pilates
- Paracetamol
- Acupuncture

5.3 Second-line treatment

- Multidisciplinary rehabilitation
- Psychological therapy
- Antidepressants
- Injections – facet/epidural

5.4 Third-line treatment

- Tapentadol (an opioid pain medication)

- Surgery

5.5 Non-pharmacological

5.5.1 Education

- Patient education regarding aetiology, prognosis and treatment options is paramount for treating LBP. Prognosis is favourable with long-term treatment programs focusing on symptomatic relief. Educational material may be individually useful but has not been shown to improve outcomes [5].

- Cold packs can be used in the acute inflammation phase, while hot packs can be used in the chronic muscle spasm phase. Massage can improve pain, depression and sleep in the medium term [6].

5.5.2 Exercise/Physiotherapy

- It is recommended that activity modification be done in phases. A period of light activity and avoidance of painful activities is appropriate for several days. However, bed rest is not recommended [7].

- An early return to low-stress aerobic activity and work improves pain tolerance, mood and strength in chronic LBP [8].

- Physiotherapy-directed strengthening and posture control can start after the acute period and continue indefinitely. Core exercises are more effective than general exercise for decreasing pain and increasing function [9].

5.5.3 Weight Loss

- It is important to emphasise long-term weight reduction, with a loss of ≥5% body weight reducing the prevalence of LBP [10]. Given the low-risk profile of the above treatments, they can be beneficial for all patients.

5.5.4 Psychological therapy

- Psychological therapy, such as cognitive behaviour therapy and progressive relaxation, has been shown to result in a moderate improvement in pain [10, 11].

5.5.5 Multidisciplinary rehabilitation

- Multidisciplinary rehabilitation combines psychological therapy, physical therapy, occupational therapy and social work. A systematic review of 41 trials of patients with LBP for longer than three months found rehabilitation improves pain and disability in the short- and long-term when compared with usual treatment [12]. This can be considered for patients with difficult-to-treat chronic LBP.

5.5.6 Acupuncture and Chiropractic

- Acupuncture and chiropractic and spinal manipulation are treatments that differ greatly in how they are performed, making effectiveness difficult to assess. A systematic review found acupuncture superior to placebo in the short term [13]. There was no reliable difference in pain or function when compared with active conventional treatment for chronic LBP. Adverse effects are often mild and transitory, such as bleeding, swelling or light-headedness. Acupuncture can be considered as part of a treatment regimen at the patient's request.

- Chiropractic interventions do not appear to be beneficial for chronic LBP when compared with standard treatment [13]. A systematic review found a small benefit for spinal manipulation when compared with placebo, but it is not superior to conventional treatment [14]. Given the rare but catastrophic risk from disc herniation leading to cauda equina syndrome (1:1 million), caution should be exercised before recommending spinal manipulation.

5.5.7 Orthoses

- No reliable evidence is available to support the routine use of orthoses, braces, corsets, prolotherapy or magnets in LBP [15].

5.6 Pharmacological

5.6.1 Paracetamol

- Paracetamol, nonsteroidal anti-inflammatory drugs (NSAIDs), muscle relaxants and antidepressants can be used to treat LBP because of their low-risk profile [2].

- Paracetamol is a relatively safe medication for mild-to-moderate chronic LBP. However, paracetamol does not appear to be beneficial for patient with acute LBP when used in isolation. A Cochrane review showed that NSAIDs are more effective than placebo for reducing pain and disability without increased adverse events [16].

- While there is no difference in efficacy between NSAIDs, cyclooxygenase-2 (COX-2) inhibitors are effective and have fewer side effects when compared with traditional NSAIDs [2].

- Tramadol and tapentadol are opiate-like medications that can be used cautiously in patients with severe LBP. A systematic review of tramadol found mild improvement in short-term pain and function when compared with placebo [17]. Recent review articles have suggested that tapentadol is safe and efficacious in the treatment of chronic LBP [18, 19].

- It is recommended that opiate medication be used sparingly and only for acute, difficult-to-control pain. It is associated with serious adverse effects, drug misuse, dependency and variable efficacy. A large meta-analysis of 20 randomised controlled trials examined the effects of opiates on chronic LBP [20].

5.6.2 Antidepressants

Antidepressants can be used in cases of chronic LBP. A systemic review showed reduced pain but no difference in global outcome with antidepressants when compared with placebo [17]. Efficacy is improved if the patient has concomitant depression. Tricyclic antidepressants appear to work better than serotonin reuptake inhibitors [21].

5.7 Surgery

Surgery for LBP can be considered for patients who have unremitting pain and functional limitation for >1 year. Patients should maximise a comprehensive non-operative treatment regimen. Motion-preserving disc arthroplasty theoretically reduces stress and subsequent degeneration at adjacent levels. However, spinal degeneration is most commonly treated with a fusion procedure. This can be achieved by laying a bone graft posterolaterally or in the disc space, with or without instrumentation. Interbody fusion involves fusing the disc space from the front (anterior lumbar interbody fusion), side (oblique or direct lateral lumbar interbody fusion) or posterior (posterolateral or transforaminal interbody fusion). Studies have reported varied clinical success rates from 40% to 90% [22, 23]. Inconsistent results may be due to variable surgical indications, pathologies and surgical treatments. Patient selection is paramount for improving clinical outcomes [2].

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