

REVIEW ARTICLE

CHRONIC LOW BACK PAIN: A REVIEW ON USES AND ABUSES OF MEDICARE EXPENDITURE

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Introduction

Pain complaints are a leading reason for medical visits.¹ The most common pain complaints are musculoskeletal and LBP. The prevalence and impact of back pain have led to an expanding array of tests and treatments, including injections, surgical procedures, implantable devices, and medications. Each is valuable for some patients, but use may be expanding beyond scientifically validated indications, driven by professional concern, patient advocacy, marketing, and the media.²⁻⁴

More tests and treatments do not simply reflect a greater incidence of back pain. The proportion of office visits attributed to back pain has changed little since 1990.⁵ In recent National Health Interview Surveys, approximately a quarter of US adults reported back pain during the past 3 months, broadly consistent with previous surveys.⁵

There are important implications of expanded testing and treatment for back pain. Innovation has often outpaced clinical science, leaving uncertainty about the efficacy and safety of many common treatments. Complications and even deaths related to pain management are increasing.^{6,7} Despite uncertainties, manufacturers aggressively promote new drugs and devices. However, trust in the science supporting these products is eroded by revelations of misleading advertising, allegations of kickbacks to physicians, and major investments by surgeons in the products they are investigating.^{8,9} We focus here on common management decisions in primary care related to imaging, medication, physiotherapy, manipulation and referral for injections or surgery. Our goal was not to conduct systematic reviews of each of these or to provide a treatment guide, but to summarize data on recent trends, highlight certain risks, provide conclusions from systematic reviews on efficacy, and comment on practice patterns.

Imaging for Low Back Pain

Use of lumbar magnetic resonance imaging (MRI) is increased in the Medicare population. Spine imaging rates vary dramatically across geographic regions, and surgery rates are highest where imaging rates are highest.¹⁰ In Bangladesh we have no definite information about the number of spinal MRI done. It is known from the MRI service providers that more than 100 spinal MRI is done everyday. The number is not high for a densely populated country like Bangladesh. It costs near 100 US\$ per case. Most of the patients can not afford to do it even if it is urgently needed. But when judged against guidelines, one-third to two-thirds of spinal computed tomography imaging and MRI may be inappropriate or unnecessary.¹¹⁻¹³ Many factors probably underlie the growth of imaging, including patient demand, the compelling nature of visual evidence, fear of lawsuits, and financial incentives.¹⁴⁻¹⁶

One problem with inappropriate imaging is that it may result in findings that are irrelevant but alarming. Positive findings, such as herniated disks, are common in asymptomatic people.¹⁷⁻¹⁹ In a randomized trial there was a trend toward more surgery and higher costs among patients receiving early spinal MRI than those receiving plain films, but no better clinical outcomes.²⁰ Surgeons are often biased regarding selection of patients for surgery. Six other randomized trials, involving a total of 1804 patients from primary care without features suggesting a serious underlying disease, compared some form of lumbar spine imaging with none.²¹⁻²⁶ In these studies, imaging was not associated with an advantage in subsequent pain, function, quality of life, or overall improvement.

Based on an extensive systematic review, the joint guidelines of the American College of Physicians and the American Pain Society explicitly recommend against routine imaging in patients with nonspecific low back pain (i.e. no severe or progressive

neurological deficits or evidence of serious underlying conditions).²⁷

Use of drug as pain killer

Different kind of pharmacological agents are chronically used for chronic back pain by health care providers without considering their detrimental effects. Commonly used drugs are non steroidal anti inflammatory drugs, paracetamol, opioids, GABA receptor analogues, and antidepressant. In our country NSAIDs are more commonly used than other pain killers. Chronic use of these drugs subsequently develops chronic renal failure, chronic peptic ulcer, edema, hypertension etc. Prescription opioid use is steadily increasing, overall and for musculoskeletal conditions in particular in the western country.^{4,7,28-32}

Unlike advanced cancer or postoperative pain, chronic LBP often persists for years or decades. In this setting, the efficacy and safety of long-term opioid use remain controversial. Nonetheless, more than half of “regular” prescription opioid users have back pain.³³ A systematic review concluded that, for chronic LBP, short-term advantages NSAIDs over nonopioid analgesics were modest, whereas data beyond 16 weeks were unavailable.³⁴

The Cochrane Collaboration review of opioids for chronic LBP similarly concluded that, the benefit of opioids in clinical practice for the long-term management remains questionable.³⁵ Some adverse effects of opioid use may be underappreciated, including hyperalgesia, which may result from changes in the brain, spinal cord, and peripheral nerves.³⁶⁻⁴⁰ In short, opioid use may paradoxically increase sensitivity to pain. Hypogonadism is another underappreciated consequence of chronic use, resulting in reduced testosterone levels, diminished libido, and erectile dysfunction.⁴¹⁻⁴³

The American College of Physicians/American Pain Society guidelines conclude that “opioid analgesics are an option when used judiciously in patients with acute or chronic low back pain who have severe, disabling pain that is unlikely to be controlled with acetaminophen and nonsteroidal anti-inflammatory drugs. Because of substantial risks potential benefits and harms of opioid analgesics should be carefully weighed before starting therapy. Failure to respond to a time-limited course of opioids should lead to reassessment and consideration of alternative

therapies or referral for further evaluation.”²⁷ Chronic renal failure and peptic ulcer diseases are other conditions where opioids can be used more safely than NSAIDs.

Spinal Injections

The efficacy of spinal injections is limited. Epidural corticosteroid injections may offer temporary relief of sciatica, but both European and American guidelines, based on systematic reviews, conclude they do not reduce the rate of subsequent surgery.^{44,45} This conclusion is based on multiple randomized trials comparing epidural steroid injections with placebo injections, and monitoring of subsequent surgery rates.⁴⁶⁻⁴⁹ Facet joint injections with corticosteroids seem no more effective than saline injections.^{44,50}

Despite the limited benefit of epidural injections, medicare claims analyses also demonstrated rapid increases in spinal injection rates.⁵¹ For patients with axial back pain without sciatica there is no evidence of benefit from spinal injections; however, many injections given to patients in the medicare population seemed to be for axial back pain alone.^{2,44} In Bangladesh orthopedic surgeons mainly practice epidural and facet joint steroid injection with or without fluoroscopic guide. Many of them use this costly procedure blindly without any long term follow up.

Spine Surgery

Although spine fusion surgery has a well-established role in treating fractures and deformities, 4 randomized trials indicate that its benefit is more limited when treating degenerative discs with back pain alone (no sciatica).⁵² Higher spine surgery rates are sometimes associated with worse outcomes. Multiple randomized trials suggest that adding surgical implants to bone grafting slightly improves rates of solid bone fusion but may not improve pain or function.⁵³⁻⁵⁵ Implants increase the risk of nerve injury, blood loss, overall complications, operative time, and repeat surgery. In a large study of injured workers, the rapid increase in the use of intervertebral fusion cages after 1996 was associated with increased complications but not with improved disability or reoperation rates.⁵⁶ In a recent article in *New England Journal of Medicine* on surgical versus non surgical treatment, surgery were found to provide better outcome. Patients with spinal stenosis without degenerative spondylolisthesis who

underwent surgery showed significantly greater improvement in pain, function, satisfaction, and self-rated progress than did patients who were treated nonsurgically.⁵⁷ In Bangladesh both neurosurgeons and orthopedic surgeons are doing spine surgery for PLID and in most of the time without validated indication for surgery.

Physiotherapy and manipulation

Thermotherapy and exercise may not be helpful or even be harmful in acute severe painful condition. But in sub acute and chronic cases thermotherapy and exercises are found to be safe and beneficial. Specific electrotherapy should be given for a limited period. Habituation with long term use of electrotherapy can be detrimental. Therapeutic exercise in a prescribed form helps strengthening the para spinal muscles. Spinal manipulation therapy has possible adverse consequences. In a study, comparing physiotherapy treatment with GP treatment, physiotherapy (PT) treatment had better primary outcome. The differences were significant (relative risk: 1.4; 95% CI: 1.1;1.8). At 1-year follow up, there was no statistical difference between groups (PT vs GP-only) in percentage of visits to neurosurgeon or orthopedic surgeon (8% vs 10%) or percentage who underwent surgery for lumbar radicular symptoms. (6% vs 4%). There was also no statistical difference in quality adjusted life years (QALYs) between the 2 groups at the end of the year. A statistical difference in QALYs was found at 6 weeks, which favored the GP-only group.⁵⁸

Outcome of management

All these costly treatment procedures that include imaging, opioid prescriptions, injections, and fusion surgery might be justified if there were substantial improvements in patient outcomes. Even in successful trials of these treatments, though, most patients continue to experience some pain and dysfunction. Population-level data on back-related dysfunction are sparse. However, despite a rise in costs related to spine problems, the US Medical Expenditure Panel Survey showed that self-reported functional limitations, mental health, work limitations, and social limitations were worse among people reporting such problems in 2005 than in 1997.³¹

Most of the poor people in Bangladesh are hard working manual laborer. They suffer pain, work with

pain and tolerate pain until they are completely disabled. They can hardly afford a specialist. Primary health care providers prescribe them a lot of NSAIDs and other pain killer. They also write a lot of investigation including imaging but they rarely provide them with a preventive guideline. Surgeons often prefer a surgical intervention. Patients also have poor compliance with the treatment and change the physicians frequently. They cost a lot without significant benefit.

Coordination of care

There are no “magic bullets” for chronic back pain, and expecting a cure from a drug, injection, or operation is generally wishful thinking. These approaches overlooking the psychosocial, occupational and lifestyle dimensions of chronic pain may undermine this wishful thinking. Although evidence remains incomplete and the magnitude of benefits may be modest, data support the benefits of interventions that promote patient involvement and activity (e.g., graded exercise programs and group support).⁵⁹⁻⁶³ These non surgical multidimensional intervention also have the advantage of facing minimum risks.

Chronic back pain, like diabetes or asthma, is a condition which we can treat, give comfort but rarely cure. As with other chronic conditions, care of chronic back pain may benefit from sustained commitment from health care providers; involvement of patients as partners in their care; education in self-care strategies; coordination of care; and involvement of community resources to promote exercise, provide social support, and facilitate a return to work.^{64,65} Patients need realistic expectations despite product marketing, media reports, and medical rhetoric that promise a pain-free life.

Each treatment and test discussed here has a role in managing back pain, but the evidence for judicious use remains inadequate. Greater involvement in research about therapies and devices may be necessary to provide independent assessments. Initiatives in comparative effectiveness research would be particularly welcome in this regard. Research emphasis should shift from studying fine points of procedural technique to determining who benefits most. Instead of measuring only technical success (solid bony fusion or properly placed injection), research should clarify a treatment’s safety and its effects on pain, function, and return to

work. Serious complications and unclear benefits highlight the need for more rigorous approval and better post-marketing surveillance of both drugs and devices for treating pain. Without stronger evidence, insurers may reasonably question coverage of newer drugs, devices, and procedures.⁶⁶

Conclusion

Controversies persist and will remain so regarding the treatment procedure. There is no unique system for all patients. Selection of a patient for an investigation or a particular line of treatment should be individualized. It may be difficult for both patients and care providers to accept that time appear to be the best therapy for LBP. Clinicians should certainly encourage appropriate activity and recommend paracetamol/acetaminophen to improve symptoms of acute low back pain, but it appears that giving the body time to recover is the key element of treatment. This need to wait requires prescriptive restraint, regarding aggressive treatment over simple one. We suggest a need for a more conservative treatment and preventive guidelines. We also recommend creating health awareness among primary health care providers and sufferers of chronic low back pain.

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