



Review

Back pain in the elderly: A review



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ABSTRACT

Low back pain is a common symptom in the older person. Whilst the majority of cases are thought to be mechanical or idiopathic and benign in nature, its multiple potential causes and concerns regarding missed diagnosis of less common but more serious underlying pathological diagnoses mean many physicians find the assessment, investigation and treatment of chronic low back pain in older adults challenging. This narrative review describes the classification of low back pain in older adults, discusses both mechanical and sinister causes of pain, highlights the appropriate use of medical imaging and provides an overview of surgical and non-surgical management of these patients.

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1. Introduction

Chronic low back pain (LBP) is recognised as a complex, challenging condition with widespread adverse consequences for patients including physical disability, disturbed sleep, psychosocial

disruption and increased use of healthcare resources [1]. In young patients, low back pain has been shown to be a major problem irrespective of country of origin with a point prevalence of $11.9 \pm 2\%$ and a one month prevalence of $23.2 \pm 2.9\%$ [2]. In older adults it is recognised as one of the most common, poorly understood and potentially disabling conditions to affect community dwelling elderly persons with 36% experiencing an episode each year. Of those experiencing an episode of pain, 21% report moderate to severe pain that occurs frequently [3]. In the US, it is estimated that up to 6 million older persons suffer from recurrent low back pain

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[4]. Features that predict the severity of back pain in elderly persons on their first presentation to a physician include female gender, Afro Caribbean origin and low educational status [5]. The prevalence of low back pain in the older population mean it is a commonly encountered clinical scenario for all clinicians irrespective of area of speciality.

Whilst the majority of cases are thought to be mechanical or idiopathic and benign in nature, its multiple potential causes and concerns regarding missed diagnosis of less common but more serious underlying pathological diagnoses mean many physicians find the assessment, investigation and treatment of chronic low back pain in older adults challenging. As many age related comorbidities commonly exist in these patients independent of their LBP, the unique impact of the back pain itself can be difficult to elucidate. Accurate assessment is important to identify physical and psychosocial factors that contribute to the pain. In addition, factors that contribute an individual's difficulty in compensating for physical problems should be identified. The aim of this editorial is to discuss the causes, assessment, appropriate investigations and treatment strategies in older persons with low back pain.

2. Methods

A narrative literature review was performed using PubMed and the key search terms “Low back pain”, “Mechanical back pain”, “Red Flags”, “Cauda Equina Syndrome” “Seniors”, “Older Persons” and “The elderly”.

2.1. The classification of low back pain

Specific definitive anatomic diagnoses are the exception rather than the rule in those with low back pain. In most patients, symptoms resolve within one week and few have serious persistent symptoms after six to eight weeks [6]. In those with persistent symptoms low back pain can usefully be thought of as occurring due to

- a) simple mechanical low back pain,
- b) low back pain with radiculopathy,
- c) serious pathological low back pain,
- d) visceral disease masquerading as spine pathology.

2.1.1. Mechanical low back pain

‘Mechanical low back pain’ in which the symptoms by definition cannot be ascribed to a single pathology (e.g. infection, tumour, fracture) will vary with posture, activity, time and treatment. Identifying the pain generator in mechanical low back pain is difficult and can lead to considerable confusion. The important issue is distinguishing the benign mechanical causes of low back pain from the more serious pathological causes that do require immediate treatment. A medical diagnosis is imperative to enable the clinician to arrive at a suitable treatment for the pain.

There are many different causes of mechanical low back pain. In the older person, degenerative age related changes can mean potentially multiple pain generators. Low back pain should be considered multifactorial including mechanical, psychological and neurophysiological components and therefore determining a single pain causing structure can be difficult. Often, a single structure cannot be confirmed as the cause of the pain in the face of complex social, emotional and physiological confounders. Within this condition, spondylosis, facet joint degeneration, sacroiliac joint pain and degenerative spondylolisthesis should be considered. Degenerative spondylosis is a term that refers to the degenerative changes that can affect the discs, vertebral bodies and associated joints of the lumbar spine [7–9]. Large studies of osteoarthritis have identified

the ageing process to be the largest risk factor for osteoarthritis in the spine. An autopsy study of 600 discs by Miller et al. [10] noted an increase in disc degeneration from 16% at age 20 to 98% at age 70 years based on macroscopic degeneration. This finding has been reproduced in other studies [11] indicating that degenerative change is almost ubiquitous in the older person. Whilst degenerative change is omnipresent in the older person, back pain itself is not, thus highlighting the confusion from attributing degenerative changes seen on imaging as being the primary pain generator. Facet joint degeneration and hypertrophy lead to pain increased by extension and homolateral flexion or rotation movements. The pain can be described as sharp and localised, with some deep, ill-defined pain extending into the buttocks or the back of the thighs. There is an absence of neurological deficits and nerve root tension signs [12]. Degenerative sacroiliac joint pain can present in a similar fashion to facet joint syndrome with localised low back pain that radiates to the posterior thigh typically made worse by walking a relieved by lying down [13]. Reproduction of symptoms on examination can be difficult which perhaps explains why this diagnosis is commonly overlooked. Spondylolysis refers to a fatigue fracture of the pars interarticularis, and spondylolisthesis refers to the forward slippage of a vertebrae on the one below it. Non spondylolytic spondylolisthesis is common in older persons and commonly occurs at L4/5 in association with degenerative change in the intervertebral and facet joints. It leads to localised low back pain aggravated by extension and relieved by rest. In this situation it is also possible for the older patient to present with radiculopathy secondary to nerve entrapment, and stenotic symptoms due to the forward slippage and narrowing of the central canal [14].

2.1.2. Low back pain with radiculopathy

In lumbar disc herniation the nucleus pulposus presses against the annulus causing the disc to bulge outwards. As this process continues the nucleus can herniate completely through the annulus placing pressure on the spinal meninges and nerve roots as well as releasing chemicals that can irritate the surrounding nerves causing inflammation and pain [15]. With ageing, discs gradually dry out, and lose strength and resilience. Despite this, a recent large study indicates that the incidence of lumbar disc herniation decreases with age, particularly in those over the age of 80 and in females [16] with the authors suggesting that the volume and inflammatory potential of the nucleus decreases with age. Spinal stenosis can also present with back pain and radiculopathy. It is commonly secondary to degenerative change at multiple levels where the combination of bony overgrowth, hypertrophy of soft tissue structures such as the ligamentum flavum, facet capsule, and a bulging disc can lead to classic symptoms of neurogenic claudication with a sensation of numbness and heaviness in the legs with exertion [17] that is relieved by rest or leaning forward on a shopping trolley or chair. In contrast, stenosis in the lateral recess or in the vertebral foramen itself can lead to an insidious onset of radicular leg pain [18].

2.1.3. Pathological conditions affecting the lumbar spine

2.1.3.1. Osteoporotic fractures.

Vertebral compression fractures occur in 25% of all postmenopausal women with the prevalence of this condition steadily increases with advancing age, reaching 40% in women 80 years of age [19]. Over 700,000 vertebral compression fractures occur each year in the US outnumbering the combined incidence of hip and wrist fractures combined [6]. Surprisingly, only one third about one third of vertebral fractures are actually diagnosed [20] because many older persons consider back pain symptoms as “arthritis” or a normal part of ageing. Therefore, compression fracture should be suspected in any patient older than 50 years with acute onset of sudden low back pain. Patients will often complain of focal, deep midline pain. Diffuse paravertebral

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