HET HAVIKSOOG

In deze rubriek bespreekt het Haviksoog een opmerkelijke wetenschappelijke publicatie van ZOL-medewerkers of -artsen uit de afgelopen maanden.

Seminar

Low back pain

Nebojsa Nick Knezevic, Kenneth D Candido, Johan W S Vlaeyen, Jan Van Zundert, Steven P Cohen

Published Online June 8, 2021 https://doi.org/10.1016/S0140-6736(21)00733-9

Low back pain covers a spectrum of different types of pain (eg, nociceptive, neuropathic and nociplastic, or non-specific) that frequently overlap. The elements comprising the lumbar spine (eg, soft tissue, vertebrae, zygapophyseal and sacroiliac joints, intervertebral discs, and neurovascular structures) are prone to different stressors, and each of these, alone or in combination, can contribute to low back pain. Due to numerous factors related to low back pain, and the low specificity of imaging and diagnostic injections, diagnostic methods for this condition continue to be a subject of controversy. The biopsychosocial model posits low back pain to be a dynamic interaction between social, psychological, and biological factors that can both predispose to and result from injury, and should be considered when devising interdisciplinary treatment plans. Prevention of low back pain is recognised as a pivotal challenge in high-risk populations to help tackle high health-care costs related to therapy and rehabilitation. To a large extent, therapy depends on pain classification, and usually starts with self-care and pharmacotherapy in combination with non-pharmacological methods, such as physical therapies and psychological treatments in appropriate patients. For refractory low back pain, a wide range of non-surgical (eg, epidural steroid injections and pain) and surgical neuropathic pain, and radiofrequency ablation and intra-articular steroid injections for mechanical causes) treatment options are (eg, decompression for neuropathic pain, disc replacement, and fusion for mechanical causes) and given the available in carefully selected patients. Most treatment options address only single, solitary causes and given the complex nature of low back pain, a multimodal interdisciplinary approach is necessary. Although globally recognised as an important health and socioeconomic challenge with an expected increase in prevalence, low back pain continues to have tremendous potential for improvement in both diagnostic and therapeutic aspects. Future research on low back pain should focus on improving the accuracy and objectivity of diagnostic assessments, and devising treatment algorithms that consider unique biological, psychological, and social factors. High-quality comparative-effectiveness and randomised controlled trials with longer follow-up periods that aim to establish the efficacy and cost-effectiveness of low back pain management are warranted.

Introduction

Low back pain covers a spectrum of different types of pain, including nociceptive pain, neuropathic (radicular) pain, and nociplastic pain, and in some cases, pain that travels down the legs, and in some cases, nociplastic pain, which is caused by amplification of pain in the CNS, often falling under the umbrella of non-specific low back pain. Frequently, these pain subtypes overlap (eg, a patient with a herniated disc who has back pain can have radicular pain and diffuse symptoms outside pathoanatomical referral patterns).

The low back is anatomically defined as extending from the 12th rib to the iliac crest, and although low back pain often coexists and is conflated with buttock pain, the buttock [illegible] is anatomically distinct and comprises a regi[illegible] iliac crest to the gluteal folds. Most peop[illegible] le of acute low back pain is [illegible] usually self-limiting. [illegible] have found [illegible] mechanical [illegible] frequent re[illegible] lumbar ra[illegible] will have [illegible] back pai[illegible] enomp[illegible] factors; [illegible] partly explains the poor correlation with pathology and symptoms,[illegible] and why interventions that have no effect on degenerative processes (eg, psychological therapies or acupuncture) can have profound effects on pain and quality of life, whereas interventions that address pathology (eg, surgery) often do not provide benefit. This notion was eloquently described by Melzack and Casey[illegible] in their landmark classification of pain into sensory–discriminative, affective–motivational, and cognitive–evaluative components. It forms the basis for a multimodal, precision medicine approach to low back pain, and is a foundation for the biopsychosocial model.[illegible]

Search strategy and selection criteria

We searched MEDLINE, Cochrane Library, and Google Scholar using the key words "back pain", "spine OR spinal pain", [illegible] the qualifiers "low OR lumbar", "radicular", [illegible] "neurogenic", "mechanical", "axial", "buttock", [illegible] combination with the terms [illegible] clinical presentation", [illegible] "prevention".

Seminar

algorithms. The structures constituting the lumbar spine include muscles, fascia, ligaments, tendons, facet joints, neurovascular elements, vertebrae, and intervertebral discs, all of which are susceptible to biochemical, degenerative, and traumatic stressors (figure 1).[9] The discs, which are 70–80% aqueous, are composed of an outer annulus fibrosus and inner nucleus pulposus. Intervertebral discs absorb shock, preserve spinal movements, and distribute axial and torsional forces. During healing, neovascularisation occurs and minute sensory nerves can penetrate the disrupted annulus and nucleus pulposus, leading to mechanical and chemical sensitisation.[9] Although MRI is highly sensitive for detecting disc pathology, a systematic review found conflicting evidence that endplate signal changes were associated with low back pain and activity limitations.[10] Another systematic review found only a modest correlation between disc space narrowing and low back pain in 26 107 patients.[11] Similar to other sources of mechanical pain, discogenic pain can extend into the upper and occasionally lower legs in a non-dermatomal pattern.

discs. Unlike referred pain from joints, muscles, and discs, the pain typically radiates in a dermatomal distribution. Herniated nucleus pulposus is the most common cause of radicular pain, although affects 60 years of age. Spinal stenosis is the leading cause. Spinal stenosis is most common at the L4–L5 level and can result from facet joint and ligamentum flavum hypertrophy, congenitally short pedicles, and spondylolisthesis.[8] Spinal stenosis can cause chronic mechanical compression resulting in axonal injury or nerve root ischaemia. Of note, however, is that both herniated nucleus pulposus and spinal stenosis are radiological diagnoses, and that not all people with stenosis and herniations have pain. From a radiological perspective, absolute central lumbar stenosis refers to anteroposterior spinal canal diameter smaller than 10 mm, whereas foraminal stenosis relates to a neuroforaminal diameter smaller than 3 mm.[8] A herniated disc is diagnosed when the nucleus pulposus extends beyond the normal confines of the circumference. Spinal stenosis often coexists with other conditions (eg, hypertrophied facet joints causing foraminal narrowing) including herniated disc, with one study reporting a 21% co-prevalence rate.[8] Because most herniated discs are substantially degenerated and the causes of spinal stenosis can also cause axial pain, most, but not all, cases of lumbar radicular pain co-occur with back pain.[8]

Radicular pain

Low back pain that extends into the leg, usually below the knee (radicular pain), can result from mechanical nerve root compression and chemical irritation from various inflammatory mediators that leak out of degenerated

Figure 1: Sagittal view of lumbar spine showing potential pain generators

www.thelancet.com Published online June 8, 2021 https://doi.org/10.1016/S0140-6736(21)00733-9

Begin juni werd een 'structured review' met als onderwerp 'lage rugpijn' gepubliceerd in het befaamde tijdschrift 'The Lancet'. Dit artikel is tot stand gekomen dankzij een multidisciplinaire samenwerking tussen anesthesisten, chirurgen en psychologen uit de Verenigde Staten (Chicago, Baltimore, Bethesda), Nederland (Maastricht) en België (KUL en ZOL). Vanuit ZOL en KUL waren respectievelijk prof. dr. Jan Van Zundert (anesthesie) en prof. Johan Vlaeyen (psychologie) actief betrokken.

Dat de prevalentie van lage rugpijn sterk toeneemt, vooral door de vergrijzing van de bevolking, is een publiek geheim. Hoewel lage rugpijn wereldwijd wordt erkend als een belangrijke gezondheids- en sociaaleconomische uitdaging is er nog een enorm potentieel voor verbetering, zowel diagnostisch als therapeutisch.

Lage rugpijn omvat een spectrum van elkaar overlappende soorten pijn aangezien verschillende elementen van de lumbale wervelzuil, zoals weke delen, wervels, tussenwervelschijven, sacro-iliacale gewrichten etc. vatbaar kunnen zijn voor verschillende stressoren. Elke oorzaak afzonderlijk of een combinatie ervan, kan bijdragen tot lage rugpijn. Dit maakt zowel de diagnose als de uiteindelijke behandeling uiteraard niet eenvoudiger.

Daarenboven is de lage specificiteit van de diagnostische methodes, inclusief medische beeldvorming, verantwoordelijk voor veel controverse rond dit onderwerp.

De auteurs pleiten voor een multidisciplinaire aanpak van dit probleem met oog voor een verbetering van de nauwkeurigheid en de objectiviteit van de diagnostische testen en de ontwikkeling van behandelingsalgoritmen waarbij niet alleen biologische factoren maar ook de psychologische en socio-economische factoren in rekening worden gebracht.

Zoals steeds pleiten ook deze auteurs voor meer goed uitgevoerde prospectieve gerandomizeerde studies, liefst met een langdurige follow-up periode, om een beter idee te krijgen van de werkzaamheid en kosteneffectiviteit van de behandeling van lage rugpijn.

Dit artikel geeft in ieder geval een mooi beeld van de complexiteit en nood aan multidisciplinaire samenwerking bij de aanpak van dit probleem. ■