Low back pain

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Abstract Low back pain is a leading cause of disability. It occurs in similar proportions in all cultures, interferes with quality of life and work performance, and is the most common reason for medical consultations. Few cases of back pain are due to specific causes; most cases are non-specific. Acute back pain is the most common presentation and is usually self-limiting, lasting less than three months regardless of treatment. Chronic back pain is a more difficult problem, which often has strong psychological overlay: work dissatisfaction, boredom, and a generous compensation system contribute to it. Among the diagnoses offered for chronic pain is fibromyalgia, an urban condition (the diagnosis is not made in rural settings) that does not differ materially from other instances of widespread chronic pain. Although disc protrusions detected on X-ray are often blamed, they rarely are responsible for the pain, and surgery is seldom successful at alleviating it. No single treatment is superior to others; patients prefer manipulative therapy, but studies have not demonstrated that it has any superiority over others. A WHO Advisory Panel has defined common outcome measures to be used to judge the efficacy of treatments for studies.

Keywords Low back pain/classification/etiology/therapy; Fibromyalgia; Risk factors; Treatment outcome (*source: MeSH, NLM*).
Mots clés Lombalgie/classification/étiologie/thérapeutique; Céllulalgie; Facteur risque; Evaluation résultats traitement (*source: MeSH, INSERM*).
Palabras clave Dolor de la región lumbar/clasificación/etiología/terapia; Fibromialgia; Factores de riesgo; Resultado del tratamiento (*fuente: DeCS, BIREME*).

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Voir page 675 le résumé en français. En la página 675 figura un resumen en español.

انظر صفحة 675 للاطلاع على الكلمات المفتاحية والملخص باللغة العربية

Introduction

Low back pain is neither a disease nor a diagnostic entity of any sort. The term refers to pain of variable duration in an area of the anatomy afflicted so often that it is has become a paradigm of responses to external and internal stimuli — for example, "Oh, my aching back" is an expression used to mean that a person is troubled. The incidence and prevalence of low back pain are roughly the same the world over — wherever epidemiological data have been gathered or estimates made — but such pain ranks high (often first) as a cause of disability and inability to work, as an interference with the quality of life, and as a reason for medical consultation. In many instances, however, the cause is obscure, and only in a minority of cases does a direct link to some defined organic disease exist.

This article does not deal with specific and attributable low back pain that results from trauma, osteoporotic fractures, infections, neoplasms, and other mechanical derangements — such causes can be identified and must be dealt with appropriately. In the vast majority of instances the cause of low back pain is obscure or nebulous, and these cases are the focus of concern for WHO (*1*), whose Community Oriented Programme for the Control of Rheumatic Disease showed convincingly that it is present in similar proportions in several countries. This is true even if the low back pain is unrecognized — usually because of social reasons; for example, where manual labour is the norm, the absence of one labourer because of back pain is barely noticed if another is available to do the work; in industrialized settings, however, where time and money have been spent on training an employee, absence is more likely to be noticed and substitution often is not possible. Compensation from sick funds and social security and compensation systems often results.

Two multidisciplinary publications have looked at the subject of low back pain: *Low back problems in adults* (*2*) and the report on WHO's own survey results *Low back pain initiative* (*1*). Both confirm that most people can continue to work despite their back problem but that recognition of the prevalence of these symptoms should be taken to allow effective prevention and treatment to be offered. Although acute (and under some classifications, subacute) episodes that last up to three months are the commonest presentation of low back pain — and recurrent bouts of such episodes are the norm — chronic back pain ultimately is more disabling and dispiriting because of the physical impediment it causes and its psychological effects. Chronic back pain also has been caught up in medical controversies, especially about fibromyalgia and kindred syndromes or disorders and about what work-up and treatments are appropriate. Many doctors order elaborate studies when non-specific back pain is presented, including X-rays and magnetic resonance imaging, with little guidance to treatment decisions being the result.

For arbitrary classification purposes, chronic pain generally is defined as pain that has persisted beyond normal tissue healing time (or about three months) (*3*) — it is not merely acute pain that has lasted longer than would be

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expected for an acute episode (*4*). Treatment for chronic back pain remains notoriously difficult, and no single panacea has emerged. Often, surgery is offered as an ultimately desperate last measure, but almost always it is unjustifiable and usually fails to provide permanent relief.

Specific physical causes and non-specific back pain

Acute and subacute back pain

A minority of cases of back pain result from physical causes. Trauma to the back caused by a motor vehicle crash or a fall among young people and lesser traumas, osteoporosis with fractures, or prolonged corticosteroid use among older people are antecedents to back pain of known origin in most instances. Relatively less common vertebral infections and tumours or their metastases account for most of the remainder. Specific causes account for less than 20% of cases of back pain: the probability that a particular case of back pain has a specific cause is only 0.2% (*2*). So-called "red flags" — symptoms and signs that point to a specific cause — are well delineated in *Low back pain initiative* (*1*).

Non-specific back pain is thus a major problem for diagnosis and treatment. Studies in the United Kingdom identified back pain as the most common cause of disability in young adults (*5*): the survey implicated back pain in more than 100 million work days lost per year. A survey in Sweden suggested that low back pain increased the number of work days lost from 7 million in 1980 to four times that (28 million) by 1987 (*6*); however, social compensation systems might account for some of this increase. Jayson's group found that 35–37% of workers experienced back pain in the month before their survey, with a peak in the incidence seen among those aged 49–59 years (*7*).

People with low back pain often turn to medical consultations and drug therapies, but they also use a variety of alternative approaches (Box 1) (*1*). Regardless of the treatment, most cases of acute back pain improve. At the time, people in such cases may credit the improvement to the interventions — some of which clearly are more popular and even seemingly more effective than others (e.g. chiropractic and other manipulative treatments in which the laying on of hands and the person-to-person interaction during the treatment may account for some of the salutary results).

Risk factors

Contrary to popular belief, the erect posture of humans depends on the normal curvatures of the spine — and such curvatures are not thus the cause of back pain. Obesity that results in a heavy paunch, and pregnancy in its later stages, can, however, distort the curvature of the spine and result in back pain. In the case of pregnancy, the pain usually ameliorates once the child is delivered. Some activities — such as jogging and running on cement roads rather than cinder tracks, heavy lifting, and prolonged sitting (especially in cars, trucks, and poorly designed chairs) — can provoke back pain. Nevertheless, strong psychological factors do play a role.

Chronic back pain

Psychological factors are even more important in people with chronic back pain. Dissatisfaction with a work situation, a supervisor, or a dead-end job and boredom contribute greatly to the onset and persistence of back pain (*8*). As already mentioned, liberal compensation systems play a role in prolonging such pain — not because of malingering, but rather because compensation leads to the now common perception that back pain is an injury. Curiously, it is classified thus in the industrial setting, in which workers' compensation systems or sick-funds come into play (*8*).

Under the former WHO classification, back pain would be considered as a disability, and the social, design, and architectural barriers would be its handicaps (*9*). Other activities often blamed — weight, lumbar lordosis, height, body mass index, and discrepancy between leg lengths — may not play a major role (*2*). As stated, job dissatisfaction seems to be an important factor, but that, too, may reflect the pattern of reporting rather than actual causation (*8*). Disc herniation and spinal canal narrowing are so common as to be shown by imaging in most of the population in their later years, and in most cases, such conditions are not responsible for the pain. They often are cited as reasons for surgery, but only rarely are operations successful in alleviating the pain definitively (*10*).

Fibromyalgia

Chronic back pain is often one part of a wider problem of chronic pain. Although the symptoms of chronic back pain seem to be present in similar proportions in all cultures, they are labelled as fibromyalgia chiefly in urban areas in industrialized nations. The label fibromyalgia has been applied to the end of a distribution curve in which amplification of symptoms and strong social and psychological maladjustments play a major role (*11*). Some patients are unfortunate enough to be labelled as having fibromyalgia, and some physicians, support groups, and, in some countries, lawyers then help to "medicalize" the pain and predict an ultimately poor prognosis. This contentious term defines self-reported symptoms and some consequences shared with others not so diagnosed. Fibromyalgia is the current label in a series of conditions — hysterical epidemics of the mediaeval period, railway spine of the nineteenth century (*12*), and neurasthenia — that culminates in a group of disorders that now threaten to overwhelm the medical and compensation systems, especially in developed countries (Box 2) (*13, 14*).

Box 1. **Alternative approaches to low back pain** (*1*)

- Chiropractic "adjustment"
- Osteopathic manipulation
- Yoga
- Acupuncture
- Spa therapy and other forms of moist heat and physical therapy
- Herbals

Box 2. **Current popular diagnoses for low back pain** (*13, 14*)

- Fibromyalgia
- Chronic fatigue syndrome
- Chronic Lyme disease
- Gulf War illnesses (possibly)
- Breast implant diseases

Box 3. **'Symptoms' associated with fibromyalgia** (*17*)

- Memory impairment
- Irritability
- Poor concentration (grouped as cognitive dysfunction)
- Sleep disturbances

Box 4. **WHO's analgesic ladder** (*24*)

- Non-opioid analgesics with adjuvant therapy where needed
- Addition of weak opioid
- Where necessary, a stronger opioid in addition to the non-opioid and adjuvant therapy

Box 5. **WHO recommended outcome measures for low back pain** (*1*)

- The following measures to be included in all studies to be reported (but not necessarily for consultations by individual patients):
- Appropriate history and physical examination
- Modified Schober test of spinal mobility
- Measurement of pain on a visual analogue scale
- Oswestry disability questionnaire
- Modified Zung questionnaire
- Modified somatic perception questionnaire.

Additional measures may be included in studies (such as the Waddell indices for chronic disability and impairment, pain index and drawing, etc), but for the purposes of reporting series and for meta-analyses, such studies should be considered basic, as the questionnaires have been translated into several languages and validated on back-translation.

Although classification criteria were promulgated for study purposes (*15*), these have been taken as diagnostic criteria by some and thus seem to validate the diagnosis. Fibromyalgia is, however, an example of a *meme* disorder (*16*) — an infectious disease not caused by a microorganism but by imitative behaviour. Associated symptoms are self reported and thus not subject to verification (Box 3) (*17*), and other "symptoms" have been imputed, so that the name given to the symptoms depends on the preponderance of associated features reported. No real working definition of fibromyalgia has been formulated, however, so that patients thus diagnosed do not differ materially from others who have widespread chronic pain. This subgroup, however, is more likely to display socially maladaptive traits.

Fibromyalgia has become a lucrative industry. The symptoms, just like back pain, occur in similar numbers of people across all cultures, but the symptoms do not become "fibromyalgia" unless so termed by a doctor. The so-called tender points that are said to be diagnostic can result from learned behaviour (*18*) and, in any case, contribute to the circular reasoning that is the basis of the diagnosis. Fortunately, this term and its cognates are falling into disrepute, but not before they have placed excessive burdens on sickness compensation systems and disability pensions in various countries. Fibromyalgia thus reflects the anonymity and social displacement that sociologists have long described — the transition from community (in Toennies's term, *Gemeinschaft)* to society (*Gesellschaft*) (*19*) — and has become part of the spectrum of chronic back pain. Fibromyalgia is diagnosed almost exclusively in women, perhaps because of the industrial component discussed above (chronic back pain in general has an almost equal gender distribution).

Without disputing that chronic pain exists, several recent books have demolished effectively the construct of fibromyalgia (*12, 20, 21*). That does not deny the very real experience of the person who has the pain, but indicts a medical terminology that aggravates the psychosocial factors that make it so prominent (*22*).

Treatment

Cognitive behavioural therapy (*15*) and physical fitness may have the most to offer in terms of treatment, although studies that suggest this are not conclusive. Drug therapy (*23*) offers temporary relief, especially for acute back pain, but it is rarely of material benefit in people with chronic back pain. Paracetamol and non-steroidal anti-inflammatory drugs bring the pain to a tolerable level, but they probably should not be taken for long periods of time (the self-medication directions usually restrict use to 12 days). Narcotics alone or in combination are no longer shunned, but they also cannot be administered over long periods, as the risks of habituation and addiction grow over time. WHO's analgesic ladder (*24*), originally developed for the treatment of cancer pain, is applicable here (Box 4).

Bed rest, supportive corsets, and braces, which used to be prescribed almost routinely, are no longer advocated for back pain, as they are thought to prevent the muscles from providing the necessary structural support. "Back schools" — in which posture, exercises, and other training for the back are taught — have limited value, especially for chronic pain, but they do have a potential role in education (*2*). Corticosteroids should be avoided — even by injection — as placebo injections seem to work just as well as active injections, and neither give more than temporary relief. Small doses of tricyclic antidepressants (mood elevators) given up to an hour before bedtime can help regulate the sleep cycle, which seems to help in some cases. Psychotropic drugs are otherwise of no avail, and muscle relaxants also have limited roles (*15*).

Spas, moist heat, and (sometimes) cold cabinets, which were introduced in Japan but which are used in some rehabilitation centres in Western countries, may be useful, but most treatments have not been validated, as responses notoriously are difficult to interpret. In an attempt to assess treatment decisions, WHO's low back pain initiative recommended outcome measures that would standardize evaluations (*1*) (Box 5).

The spread of chiropractic and other manipulative treatments worldwide has won many adherents to this treatment (*2*), who perceive that it works better than others. This hypothesis was recently put to the test (*25*) and, although the respondents still favoured such approaches (chiropractic adjustment, osteopathic manipulation, and physical therapy) — perhaps because of the time spent and the laying on

of hands — meta-analysis cannot confirm the superiority of manipulative treatments (or, for that matter, of acupuncture and massage (*26*)) over other forms of therapy, or even time as a healer (*25*), which substantiates the contentions of WHO's document (*1*). In most instances, manipulative treatments are more expensive than others (apart from surgery) and not more helpful to outcome (*26*).

Cure is the aim, but it may be difficult to achieve. Ability to live with the pain — "getting on with one's life" — with minimal restrictions imposed by the pain is a more realistic goal. For those purposes, understanding the person and constellation within which the pain occurs is an important first step from which to derive others. Explanations and education; physical conditioning; maintenance of activities whenever possible; appropriate physical and mental relaxation; mood improvement and improvements in self-image that lead to greater confidence and social functioning and to socioeconomic enhancement; and avoidance of relapses are all at least as important as mere prescription-writing. When people consult physicians and take on the role of patient, they may ask for a diagnosis and for help, but the unspoken questions remain, "What will become of me? What does my future hold in store?" Prognosis remains one of the more difficult problems in medicine, as our knowledge of the future is based in part on past experience and studies of groups, and it need not apply to the individual who is seeking help (*27*). As Aubrey Menen states in his irreverent retelling of the *Ramayana*, "a thorough knowledge of the past could lead a profound scholar to predict the future course of history with great accuracy provided that it does not turn out quite differently" (*28*).

Outcome measures

The primary task of the expert advisory panel of WHO that worked on the low back pain initiative was to try to determine how to assess improvement of back pain, by defining outcome measures relevant to all cultures (*1*). The purpose of the deliberations was to ensure uniformity of reporting, and, to that end, the extant examinations and tests were evaluated and applied in studies in various parts of the world, translated into local languages, and back-translated to assure that the import of the questions was not lost. The basic measures need to be included in comparative studies, but investigators obviously are free to add others if they wish. The history of the complaint and the physical examination were determined to be central: the only additional physical measure considered useful was a modified Schober test of spinal mobility. Other favourite examination techniques failed universality. In addition, for the purpose of studies, severity of pain should be measured with a visual analogue scale (preferably one with a single line rather than with demarcations that would give rise to regressions to the mean). The Oswestry disability questionnaire, a modified Zung questionnaire, and a modified somatic perception questionnaire were considered appropriate measurements after 21 other commonly-used assessments were found to lack universality. Studies were carried out on all six continents to ascertain their applicability. Although these recommendations survived the panel's deliberations, other possible inclusions recommended were the Waddell disability indices of chronic disability and physical impairment. Obviously, this array was intended not for routine office examinations but to be restricted to epidemiological and other group surveys. Missing from these recommendations were biochemical and electrodiagnostic tests, which were left to the discretion of those designing individual studies.

As might be expected, disc protrusion — often blamed, often operated on — correlated poorly with symptoms, and roentgenograms thus were not included in the recommendations (*29*). When the index of suspicion for tumour or infection is high, some basic blood tests — such as blood counts, erythrocyte sedimentation rates, or C-reactive protein levels — can help; specialized imaging and electrodiagnostic tests are reserved for recalcitrant cases. As a leading researcher, Deyo (*10*) recommended that when the target condition of a given test is unlikely, the predictive value of the test should be taken into account before conclusions of causation are reached. In particular, plain radiography of the spine yields little information, and the risk of exposure to radiation outweighs the benefit of the data provided by such tests. According to Nachemson (*6*), findings such as disc space narrowing, osteoarthritis of facet joints and subluxations, disc calcifications, Schmorl's nodes, sacralization, and less than moderate scoliosis do not explain back pain, and even spondylolysis, severe lordosis, and severe lumbar scoliosis are of questionable association. These conclusions run counter to accepted received wisdom, but only if a history of street drug use, litigation, and the usual signs of tumour or infection are present or spondylolisthesis, osteoporosis, ankylosing spondylitis, and kyphosis of whatever origin are suspected are radiographs of the spine helpful. Many of the treatment interventions currently in use thus also add little to the ultimate prognosis.

Conclusions

Back pain is not a disease but a constellation of symptoms that usually is acute and self-limited. Coping with back pain is the biggest obstacle to improvement, and heroic treatments that ultimately fail to help and may even be harmful should be avoided. Prolongation of such pain may be iatrogenic in many instances — particularly if the undefined term "fibromyalgia" is cited. Hadler posits that coping with inadequacies exacerbated by a hostile environment and aggravated by legal and compensation issues not only complicate our understanding of back pain but often prevent appropriate treatment and a good prognosis (*30*). Back pain is both a major cause of temporary disability and a challenge to medical and surgical treatment decisions. It strains compensation systems and is frequently misinterpreted, especially in the industrial context. Studies that use the outcome measures recommended by the panel of WHO's low back pain initiative should go far in clarifying the appropriate approach to this ubiquitous syndrome of regional pain. ■

Conflicts of interest: none declared.

Résumé

Lombalgie

La lombalgie est une cause importante d'incapacité. Elle se manifeste à part égale quelle que soit la culture, altérant la qualité de la vie et le rendement professionnel, et elle est le motif de consultation médicale le plus courant. La lombalgie, à quelques exceptions près, n'a pas de cause spécifique. La lombalgie aiguë est la plus répandue et elle guérit généralement d'elle-même, en moins de trois mois, avec ou sans traitement. La lombalgie chronique est plus problématique, souvent fortement influencée par des facteurs psychologiques – frustration professionnelle et ennui – que renforce la largesse du système d'indemnisation. Un diagnostic posé en cas de douleurs chroniques est la fibromyalgie - affection urbaine (ce diagnostic n'est pas posé en zone rurale) essentiellement comparable aux autres douleurs chroniques répandues. La hernie discale mise en évidence par la radiographie, souvent incriminée, est rarement responsable des douleurs et la chirurgie est généralement sans effet. Tous les traitements se valent ; les malades préfèrent les manipulations, bien qu'aucune étude n'ait établi leur supériorité. Un groupe d'experts de l'OMS a défini des paramètres communs à utiliser pour mesurer l'efficacité des traitements, qui reposent sur les résultats obtenus.

Resumen

Lumbalgia

El dolor lumbar es una causa importante de discapacidad. Ocurre en proporciones similares en todas las culturas, perturba la calidad de vida y el desempeño del trabajo, y es el motivo más frecuente de consulta médica. Pocos casos de dolor de espalda se deben a causas específicas; la mayoría son inespecíficos. El dolor de espalda agudo es la presentación más común y generalmente desaparece espontáneamente antes de tres meses, con independencia del tratamiento. La lumbalgia crónica constituye un problema más complicado, que a menudo se acompaña de un marcado componente psicológico: insatisfacción en el trabajo, aburrimiento y un sistema de indemnización generoso. El dolor crónico es diagnosticado a veces como fibromialgia, una dolencia circunscrita a los entornos urbanos (pues no se diagnostica en medios rurales) y que no difiere materialmente de otras formas de dolor crónico generalizado. Aunque los síntomas se suelen atribuir a las protrusiones discales detectadas radiográficamente, rara vez es ésa la causa del dolor, que por lo general no se ve aliviado por la cirugía. Ningún tratamiento único es superior a los otros; los pacientes prefieren la terapia manipuladora, pero los estudios realizados no han demostrado que esa opción sea mejor que las otras. Un cuadro de expertos de la OMS definió diversas medidas de resultado comunes para calibrar la eficacia de los tratamientos en los estudios.

ملخص

آلام أسفل الظهر

تتصدَّر آلام أسفل الظهر مقدمة أسباب العجز، ويتكرَّر حدوثها بنسب متساوية في جميع المجتمعات، وتؤثـــر في جودة الحياة وأداء الأعمال، وتُعَدُّ أكثر أسباب الاستشارات الطبية شيوعاً. والقليل من هذه الحالات ناجم عن أسباب نوعية، وأغلبها ناجم عن أسباب غير نوعية. ويُعَدُّ ألم الظهر الحاد أكثر صور الآلام الظهرية شيوعاً، وهو عادةً يزول تلقائياً، ولا يدوم أكثر من ثلاثة شهور بغض النظر عن المعالجة. أما آلام أسفر الظهر المزمنة فتشكِّل مشكلات أكثر صعوبة، ويغلب أن يكون لها تأثيرات نفسية قوية مثل الخيبة في العمل والضجر وإلى جانب الخسائر الكبيرة التي يتكبدَّها نظام التعويض. ومن بين مجموعة التشخيصات التي يوصـــف بها ألم الظهـــر «آلام الألياف العضلية»، ويستخدم هذا التشخيص في المدن ولا يستخدم في الأرياف وهو لا يختلف اختلافاً واضحاً عن الحالات الأخرى من آلام الظهر المزمنة الواسعة الانتشار، ورغم إلقاء اللوم في غالب الأحيان على تبارز القرص بين الفقرات الذي يكشف بالتصوير الشعاعي إلا أن تبارز القرص بين الفقرات لا يؤدي إلى الآلام الظهرية إلا في أحوال نادرة، ويندر أن تنجح الجراحة في تخفيف تلك الآلام، وليس هناك تدبير علاجي يتفوق على غيره من التدابير العلاجية، ويحال المرضى عادة إلى المعالجة الفيزيائية، إلا أن الدراسات لم تظهر أي تفوق لتلك المعالجة الفيزيائية على غيرها من المعالجات. لقد عرَّف الفريق الاستشاري لمنظمة الصحة العالمية بعض الإجراءات والتدابير للنتائج الشائعة التي ينبغي أن تستخدم للحكم على فعالية التدابير العلاجية في الدراسات المجراة حول آلام الظهر.

الكلمات المفتاحية: آلام أسفل الظهر، تصنيف آلام أسفل الظهر، سببيَّات آلام أسفل الظهر، معالجة آلام أسفل الظهر، آلام الألياف العضلية، عوامل الاختطار، حصائل المعالجة.

(المصدر: رؤوس الموضوعات الطبية – منظمة الصحة العالمية – إقليم شرق المتوسط)

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