



Reflexion Article

Chronic low back pain: diagnostic approach for primary care



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ABSTRACT

Background: Low back pain is one of the main complaints in primary care reported by patients, requiring several diagnostic interventions, therapeutic approaches and even entailing disability in young adults.

Objective: To provide a clinical approach, diagnostically oriented, for patients frequently consulting primary care.

Results: Of the authors propose a clinical algorithm for the clinical assessment of the patient with chronic low back pain, also considering complementary tests (imaging, blood chemistry, etc.) for the evaluation in primary care of the patient with this pathology.

Conclusions: The proposal provided in this article helps guide the primary care physician through an approach focusing on the semiological characteristics of pain, so that they can correlate with the most frequent diagnoses, in order to refer or direct the patient according to their particular needs.

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Dolor lumbar crónico: enfoque diagnóstico para el primer nivel de atención

RESUMEN

Antecedentes: El dolor lumbar es uno de los principales motivos de consulta en el primer nivel de atención, requiere múltiples intervenciones diagnósticas, así como la adopción de conductas terapéuticas, e incluso, conlleva discapacidad en los pacientes adultos.

Objetivo: Brindar una aproximación clínica con orientación diagnóstica para el abordaje de los pacientes con un motivo de consulta frecuente en el primer nivel de atención.

Palabras clave:

Dolor de la región lumbar

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Resultados: Los autores proponen un algoritmo para el abordaje clínico del paciente con dolor lumbar crónico, orientando, además, hacia generalidades de los exámenes complementarios (química sanguínea, imágenes diagnósticas, entre otros), para evaluar en un primer nivel al paciente que acude por esta patología.

Conclusiones: La propuesta presentada en este artículo permite guiar al personal médico de primer nivel de atención a través de una aproximación enfocada en las características semiológicas del dolor, así como poder correlacionar con los diagnósticos más frecuentes, a fin de remitir o dirigir al paciente de acuerdo con las necesidades particulares correspondientes.

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Introduction

Back pain (BP), one of the main reasons for consultation at the first level of care, occurs in 60–90% of patients who seek medical care.^{1,2} These cases can lead to diagnostic and therapeutic interventions that confuse both the doctor and the patient.²⁻⁴

It is necessary to specify what is understood by chronic back pain (CBP): it appears constantly or intermittently in the lumbosacral region, lasting more than three months.⁵ It should be clarified that it is not always considered with symptomatology that is expressed every day during this period but may occur with intercurrent, attenuation with a symptomatic approach, but persistent over time.^{2,5,6}

The objective of this article is to review the semiological aspects of the approach to the patient with BP, with special emphasis on interventions focused on the individual with CBP, to offer a tool to health professionals at the first level of care, attending people who come to their services with this need.^{6,7}

The authors' intention is not to replace the institutional guidelines where they are established, but to make a clinical approach with diagnostic orientation for the management of patients with a frequent reason for consultation at the first level of care.

Epidemiological aspects

When referring to musculoskeletal pain, it is necessary to specify the anatomical location of the pain to focus its diagnostic orientation, as well as to establish the most appropriate therapeutic approaches.^{1,2,4} In this review, emphasis will be placed on those disorders that manifest with pain in the lumbosacral region.

Patients with CBP can represent ciphers as high as 90% of the reasons for consultation at the first level of care, although this corresponds to local statistics and may vary. In the U.S., it has been established that around 80% of patients who come to the clinic do so for this reason, and it is also the fifth leading cause of medical and occupational disability in the country.^{2,7} Also, it is estimated that two-thirds of adults at some point in life will have back pain; in addition, it has an equal distribution between genders and in many latitudes can become the second cause of consultation after the common cold. In Colombia, in the Copcord study, which calculates the prevalence of rheumatic disease in the country, it is considered that

in 26% of people who present non-traumatic pain, it is related to BP.⁸ Similarly, in the study conducted by Márquez et al., 84.5% of the population studied presented inflammatory BP.⁹

In the meta-analysis carried out by Hestbaek et al., about the long-term course of these patients, it was shown that more than 50% improved after the first week, while more than 90% feel better eight weeks after symptom onset; however, 42–75% of patients continue to have symptoms after 12 months. The authors conclude that BP symptoms often do not resolve on their own and persist when ignored.¹⁰ This means that the burden of disease associated with absenteeism, disabilities, treatments, and interventions could represent a high cost both for the individual and health services if there is not a properly directed approach, which could generate the request for multiple tests or interventions, both pharmacological and non-pharmacological, which could make it difficult to adequately address the characteristics of pain.

In the literature, different risk factors have been identified^{2,3,6} that must be analyzed in the situation of each patient, to outline the possible alternatives, both etiological and therapeutic. It is necessary to understand that these risk factors may represent an element that generates CBP, such as age, malnutrition due to excess, psychosocial and occupational factors, as well as job satisfaction.

Anamnesis of chronic back pain

To carry out an adequate diagnostic orientation, the first available tool is the anamnesis, defined as the art of a conversation aimed at obtaining as much information as possible, before continuing with the physical examination. Since the purpose of this writing is to strengthen the clinical tools for approaching patients with CBP, Table 1 summarizes the components that must be identified when collecting information from the patient.

It is important, before delving further into the subject, to clarify that, regardless of the time of evolution, there are some warning signs in patients with BP whose underlying cause requires extensive early study. This is because such signs generally occur in individuals with complex clinical situations. Below is a summary of these alarm signals, also called red flags,¹ for the early identification of situations that clinically require extensive study and early referral to specialized medicine.

Table 1 – Anamnesis according to pain features.

Category	Subcategory	Specifier
1. Time of evolution	A. Acute	Less than 4 weeks
	B. Subacute	4 to 12 weeks
	C. Chronic	More than 12 weeks
2. Location of pain	A. Cervical	
	B. Thoracic	
	C. Lumbar	
	D. Sacrum	
3. Severity	A. Visual analog scale (0–10)	
	B. Pain characteristics: i) intermittent, ii) stabbing, iii) electrical, iv) constant	
	C. Interference with daily activities	
4. Pain schedule	A. Morning	
	B. Evening	
	C. Constant	
	D. Intermittent	
5. Pain aggravating or mitigating factors	A. Relationship with walking and resting	
	B. Position changes (lying down, sitting to standing)	
	C. Changes with incline and declination	
	D. Flexion and extension movements of the back	
6. Irradiation	A. Relationship to a dermatome	
7. Deficit	A. Motor	i. Paresis
	B. Sensitive	i. Paresthesia
		ii. Dysesthesia (tickling)
	iii. Numbness of the area or extremity	
	C. Urinary or fecal incontinence	i. Urgency
		ii. Increase in frequency
8. Risk factors	A. Age	
	B. Educational level	
	C. Psychosocial factors	i. Anxiety
		ii. Depression
	iii. Pain-related behavior (lifestyle modifications)	
	D. Occupation	
	E. Body mass index	
9. Background	A. Oncological disease	
	B. Recent or current infection	
	C. Osteoporosis and history of other fractures	
	D. Endocrine disorders	
	E. Previous spinal surgery	
10. Pain classification	A. Mechanical pain	
	B. Inflammatory pain	

Warning signs in patients with chronic back pain

- 1 Age over 50 years
- 2 Duration greater than one month
- 3 Systemic symptoms:
 - Fever
 - Shaking chills
 - Night sweats
 - Fatigue
 - Hyporexia
 - Weight loss (unintentional)
- 4 History of oncological disease
- 5 Pain that worsens with rest or wakes up at night (night pain)
- 6 Recent or current infection, especially of the skin or urinary tract
- 7 Immunosuppression
- 8 Failure of previous treatment
- 9 Prolonged use of corticosteroids or diagnosis of osteoporosis
- 10 History of trauma (blows, falls, etc.)
- 11 Intravenous drug use

Once the anamnesis is completed, a physical examination is performed. There is a clear recommendation, both in the semiology texts and in the Clinics of North America,⁷ to carry out the examination barefoot, with a gown, and assessing bony structures such as the posterior pelvis, thoracic and lumbar spine, to avoid overlooking characteristic features that could help guide the etiological diagnosis of CBP.

Clinical approach to the patient with chronic back pain

Once the respective investigations have been carried out from semiology in the patient with CBP, their approach can be

Table 2 – Clinical differences between mechanical and inflammatory back pain.

Characteristic	Inflammatory back pain	Mechanical back pain
Age at onset	<40 years	Any age
Onset	Insidious	Acute
Duration of symptoms	>3 months	<4 weeks
Morning stiffness	>60 min	<30 min
Night pain	Frequent	Absent
Effect of exercise	Improves	Worsens
Sacroiliac joint pain	Frequent	Absent
Lumbar mobility	Loss in all planes	Abnormal flexion
Neurological involvement	Unusual	Possible
Alternating buttock pain	Frequent	Absent

Source: Adapted from Sieper et al.^{12,13}.

oriented. A first division to consider is whether the CBP is radiated,^{1,4,6} which would be used as the first starting point in the development of the diagnostic tree. Next, it is important to find out if BP is due to a mechanical or inflammatory cause. Table 2 summarizes aspects related to the clinical characteristics that allow differentiation of each of the previously described conditions.

Fig. 1 depicts the proposed algorithm for evaluating subjects with CBP in the primary care consultation, integrating both anamnestic elements and the physical examination performed within the previously stated considerations.

Once the first orientation of the possible clinical scenario related to CBP has been carried out, it is important to establish what would be the measures related to the expansion of diagnostic certainty, as well as what other interventions would be indicated according to what was identified in the previous scheme. In this sense, based on what was published by the Clinics of North America,⁷ Table 3 summarizes the conduct of diagnostic support and other necessary interventions at the time of the initial approach to the patient with CBP.

It is always very important to consider non-musculoskeletal causes for the approach of the patient who refers CBP, which is explained by nociception and shared innervation pathways at the dermatomal level with structures other than muscles or tendons. Hence, the vital importance of considering the anamnesis as a fundamental element for approaching the patient's condition, which may correspond to genitourinary (nephrolithiasis, pyelonephritis, prostatitis, endometriosis, or ovarian cysts), gastrointestinal (esophagitis, gastritis, cholelithiasis, pancreatitis, diverticulitis, or intra-abdominal infection), cardiovascular (abdominal aneurysm, cardiac ischemia, or infarction), or neurological conditions (intramedullary spinal tumor).

Discussion

The current proposal seeks to facilitate the approach of the first level of care professional concerning the diagnosis of a

frequent and complex entity such as CBP, in such a way that it allows an etiological approach and thus optimizes the referral of the patient to the specialist, with rational use of diagnostic aids,^{6,11} after the clinical criteria have been used for the characterization according to the particularity of the patient.

Although there are clinical practice guidelines (CPG) for the diagnosis and treatment of CBP, in general, they lack appropriate algorithms to identify the disease, and this was the motivation for developing this proposal. For this reason, we wish to highlight the following points for healthcare personnel who care for patients with CBP:

- 1 CBP, defined as pain that appears constantly or intermittently in the lumbosacral region, with a duration greater than three months, not explained by an apparent reason, at first sight, is one of the main causes of consultation in the first level of care, various specialties, and even in emergency services. Therefore, its diagnosis and assertive approach are essential to avoid diagnostic errors, delays in adequate treatment, and high costs for health systems.
- 2 This article offers a review of the semiological aspects for the approach to the patient with BP, with special emphasis on focused interventions to provide a tool to health professionals at the first level of care when dealing with people who come to their services with this need.
- 3 The prevalence of CBP can range, according to the different series, between 60 and 90% of the reasons for consultation at the first level of care. On the other hand, it constitutes between the third and fifth cause of medical and work disability in the different series described, which has a great impact on quality of life, functional and work disability and a burden on health and costs for health systems.
- 4 This proposal emphasizes the semiological characteristics of CBP, as well as other essential clinical aspects to better guide the diagnostic approach, which avoids the generation/request of multiple tests or interventions, both pharmacological and non-pharmacological, which could hinder or mask an adequate approach to CBP.
- 5 Emphasis is also placed on the early recognition of clinical situations that involve a significant risk to the patient's health, through the rapid detection of warning signs or *red flags* for the early identification of situations that clinically require extensive study and early referral to the specialists.
- 6 Finally, it is necessary to point out that the appropriate evaluation in the anamnesis and the focused physical examination at diagnosing CBP represent a highly relevant factor to avoid the excessive use of images that may become unnecessary when they are not indicated.

Conclusion

This reflexive review, with the proposal presented in this article, seeks to guide primary care medical personnel in an approach oriented to the semiological characteristics of CBP, as well as to correlate with the most frequent diagnoses, so

Table 3 – Diagnostic clues in patients with chronic back pain.

Etiology	Key signs	Images	Further studies
Muscle spasm	General pain or localized spasms in the lower back; may radiate to the posterior buttock or thigh; worsens with activity or bending	None	None
Disc herniation	Back pain with irradiation in dermatome to the lower limb; decreases with standing and worsens when sitting; may be associated with motor/sensory deficit	Symptoms >1 month, progressive; magnetic resonance imaging (MRI) indicated	None
Lumbar spondylosis	Widespread back pain that worsens on waking; improves during the day; pain fluctuates with activity and worsens with extension	Symptoms <1 month: X-rays (XR) indicated	None
Spinal stenosis with neurogenic claudication	Back pain with radiculopathy that worsens with extension/standing and improves with flexion/sitting; may be accompanied by motor or sensory changes	Symptoms >1 month, progressive, MRI indicated	None
Spondylolisthesis	Back pain that may radiate to one or both legs; increases with flexion and extension; may be accompanied by sensory or motor changes	Symptoms >1 month, progressive or severe: simple XR (dog sign)	None
Spondylolysis	One of the most common causes of back pain in infants and adolescents	Symptoms >1 month, progressive, simple XR is indicated	None
Axial spondyloarthritis	More common in young men; morning stiffness; back pain that radiates to the gluteal region and improves with exercise	XR of the anterior-posterior pelvis or MRI of the sacroiliac joints	ESR, CRP, HLA-B27
Infection: epidural abscess with or without osteomyelitis	Severe pain; insidious onset with ambiguous characteristics; night pain; presence of constitutional symptoms; history of recent infection; radicular symptoms/motor or sensory changes may be present	Plain XR and MRI	Blood cell count, ESR, PCR
Tumor disease	History of cancer with recent onset of back pain; unexplained weight loss; age >50 years; radiculopathy or motor/sensory changes may be present	Plain XR and MRI	Blood cell count, ESR, CRP, PTH, TSH, SPEP, urinalysis, UPEP
Cauda equina syndrome	Urinary retention or fecal incontinence; decreased rectal sphincter tone; saddle anesthesia; may be accompanied by paresis	MRI	Evoked potentials
Conus medullaris syndrome	Similar to cauda equina, but usually accompanied by signs of upper motor neuron injury (hyperreflexia, clonus, etc.)	MRI	None
Vertebral compression due to fracture (pathological)	History of osteoporosis or long-term use of corticosteroids; seniors	Plain XR	1,25-dihydroxyvitamin D3. Bone densitometry + morphometry
Trauma	Findings dependent on the severity of the injury; may be accompanied by motor or sensory changes	Lumbosacral radiographs, computed tomography (CT), MRI	None

Source: Adapted from Clinics of North America 2016.

ESR: Erythrocyte sedimentation rate; CRP: C-reactive protein; PCR: polymerase chain reaction; TSH: Thyroid stimulating hormone; PTH: Parathyroid hormone; SPEP: Serum protein electrophoresis; UPEP: Urine protein electrophoresis.

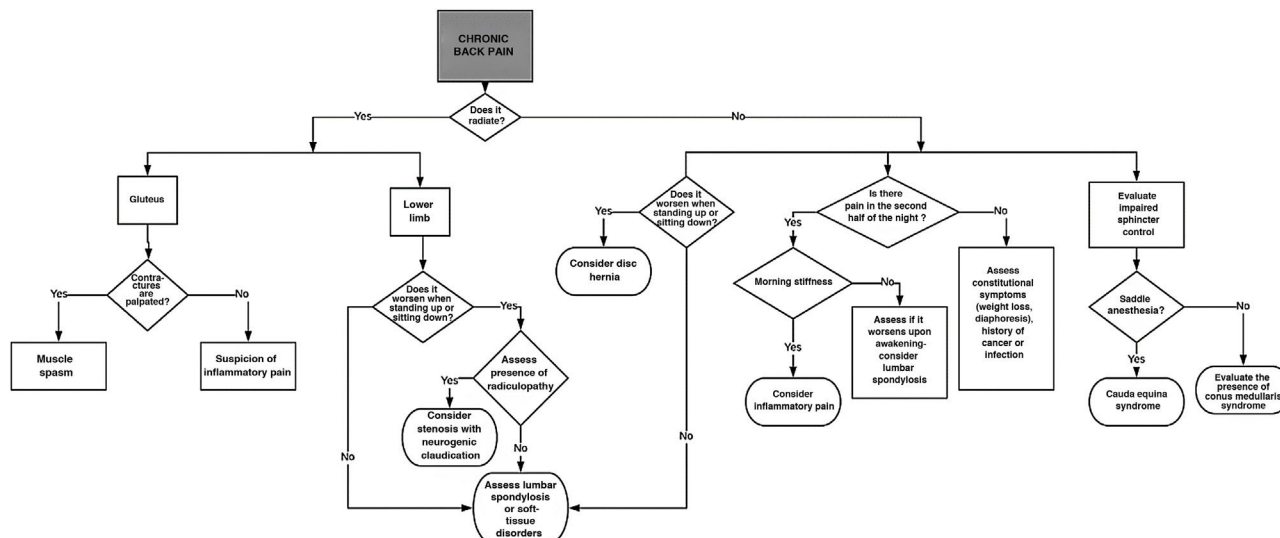


Figure 1 – Algorithm for the assessment of patients with chronic back pain.

the patient can be referred or directed according to their needs and correlate and complement with CPG on this topic.

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This work has not received any funding.

Conflict of interests

Pedro Santos-Moreno declares that he has received fees as a speaker, consultant, and research grants from Abbott, Abbvie, Bristol, Biopas, Lilly, Novartis, Pfizer, and Roche.

Julián Andrés Sucerquia-Quintero declares that he is an employee of Novartis Laboratories.

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