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4

Assessment of spinal pain

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A B S T R A C T

Spinal pain or back pain is a very common symptom that can have many reasons. The most studied location is low back pain, and it is considered to be nonspecific in the majority of cases. Only a small proportion of patients have axial inflammation as the major cause of their back complaints with chronic inflammatory back pain (IBP) as the most prominent clinical feature of spondyloarthritis (SpA). The recognition of IBP and patients with axial spondyloarthritis (axSpA) is challenging in primary care, and it is important to further facilitate the early diagnosis of SpA. Proposals for improving the referral of patients with a possible diagnosis of axSpA include clinical parameters, human leukocyte antigen (HLA) B27, and imaging parameters. Imaging is crucial for the visualization, objective validation, and understanding of back pain. Numerous diseases such as degenerative disk disease, degenerative changes in the intervertebral (facet) joints and the associated ligaments, spinal instability, herniation of the intervertebral disk, and spinal stenosis have to be differentiated in interpreting imaging of the spine. The sacroiliac joints and the spine are of major importance for the diagnosis and classification of axSpA. Conventional radiographs and magnetic resonance imaging (MRI) are the most important imaging technologies for visualization of structural changes such as syndesmophytes and axial inflammation such as sacroiliitis and spondylitis.

The pathogenesis of axSpA is largely genetically determined. HLA B27 has the strongest contribution to the total genetic burden, but other major contributors such as endoplasmic reticulum aminopeptidase (ERAP)-1 and interleukin (IL)-23R have also been identified.

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Introduction

Spinal pain or back pain is a very common symptom that can have many reasons.

The most studied location is low back pain, which was recently shown to be a major issue worldwide, with the highest prevalence among female individuals and those aged 40–80 years. The mean standard error of the mean (SEM) point prevalence was estimated to be 11.9 ± 2.0%, and the 1-month prevalence was estimated to be 23.2 ± 2.9% [1].

Mostly low back pain is considered to be nonspecific [2]. Some of the most frequent causes identified include muscle tension and spasm, for example, in patients with fibromyalgia, all kinds of degeneration including disk hernia, lumbar stenosis, and osteoarthritis, and fractures, mostly in patients with osteoporosis. Only a small proportion of patients have axial inflammation as the major cause of their back complaints – many of which are identified as chronic or inflammatory back pain (IBP) [3]. This article concentrates mainly on this relatively small patient group.

The term "axial spondyloarthritis" (axSpA) covers both patients who already have radiographic changes in the sacroiliac joints (radiographic sacroiliitis) and patients who do not have such changes. Patients in the former group are diagnosed as ankylosing spondylitis (AS), while those in the latter are now classified as non-radiographic axSpA (nr-axSpA) [4]. The main clinical symptoms of patients with axSpA are pain and stiffness of the back [5], and the most characteristic symptom of axSpA is IBP [6–8]. Other symptoms and manifestations are listed in Table 1. The most relevant items and findings are part of the Assessment of SpondyloArthritis International Society (ASAS) classification criteria (Fig. 1).

The majority of patients with axSpA develop structural changes in the axial skeleton at some point in time [9], and 20–30% of patients with axSpA develop structural changes in the sacroiliac joints in the first 2 years of disease [10]. Thereafter, the rate of development of structural changes has been reported to be about 12% within 2 years [11]. New bone formation in the spine (syndesmophytes, ankylosis) will occur in the majority of patients, usually at later time points [12]. Several parameters have been identified as prognostic markers for radiographic progression in AS (Table 2).

Inflammatory back pain

The most prominent clinical feature of spondyloarthritis (SpA) is chronic IBP [7]. Patients with IBP complain about morning stiffness (about >30-min duration), insidious onset of back pain, awakening because of back pain during the second half of the night, and alternating buttock pain. Many patients report that the level of pain improves by movement rather than by resting. Patients are relatively young at onset (<45 years). IBP is characterized as a chronic back pain with >3-month duration. However, none of the single parameters mentioned earlier differentiate reliable IBP from other causes of back pain. Various attempts have been made to define a set of IBD variables criteria to serve as a screening test to identify patients with SpA. The definitions of IBP used in these criteria sets are variable, and views on the clinical usefulness, sensitivity, and specificity of the items are contradictory (Table 3). The

Table 1
Disease manifestations of axSpA.

- Sacroiliitis
- Spondylitis
- Spondylodiscitis
- Spondylarthritis
- Costovertebral arthritis
- Sternoclavicular arthritis
- Sternal osteitis
- Peripheral arthritis
- Peripheral enthesitis
- Coxitis
- Anterior uveitis
- Psoriasis
- Chronic inflammatory bowel disease