IMAGING in ankylosing spondylitis

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Ankylosing spondylitis (AS) is the prototype of the spondyloarthritides (SpA) which comprise also psoriatic SpA, reactive SpA, SpA associated with chronic inflammatory bowel diseases and undifferentiated SpA. AS is a disease subset but also a possible outcome of SpA. The most frequent clinical symptom is inflammatory back pain which is most often due to sacroiliitis. Other sites of inflammation at the spine are the vertebral bodies, the discs and the entheses. The gold standard approach for imaging in AS is by conventional radiography. Sacroiliac changes as assessed by pelvic x-rays are internationally used to diagnose and classify patients with AS. Over the last years accumulating evidence has been created to show that acute sacroiliitis, spondylitis and spondylodiscitis can be diagnosed better and earlier by using magnetic resonance imaging (MRI). Spinal inflammation can be nicely demonstrated by MRI techniques using either the fat saturating STIR technique or by application of the contrast agent gadolinium-DTPA. This is especially useful in early and active disease, in young women and in children and for the differential diagnosis of septic sacroiliitis or spondylitis. However, also chronic changes can be seen by MRI. This may be especially useful for the thoracic spine which is not well assessed by radiography.

Because of the efficacy of the novel biologic agents directed against TNFα such as infliximab and etanercept in SpA there is need for sensitive spinal imaging techni-ques. Assessments of acute and chronic changes need to be differentiated. There is increasing evidence that spinal MRI can demonstrate changes in spinal inflammation already after 6 and 12 weeks.

The best available scoring method for structural changes in clinical trials is the modified SASSS which is based on lateral x-rays of the cervical and the lumbar spine. This method has been shown to be sensitive to change over 2 years. Disadvantages of the modified SASSS are that the thoracic spine and the zygapophyseal joints are not assessed. For assessment of inflammation with spinal MRIs there are mainly two scoring methods which have been published: the ASspiMRI-a score and the SpARCC. For chronic changes the ASspiMRI-c has been validated. There is an ongoing initiative by ASAS and OMERACT in which a group of experts is trying to develop and agree on an optimal method.