

Low-dose CT scanning improves assessment of ankylosing spondylitis patients

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The results of a study presented today at the Annual European Congress of Rheumatology (EULAR) 2017 showed that low dose computed tomography (LD-CT) is more sensitive than conventional radiographs (X-rays) in the monitoring of disease progression in patients with Ankylosing Spondylitis (AS).

LD-CT, using a newly developed scoring method for assessing bone formation in AS patients, had previously been shown to be reliable and sensitive, with good consistency between different individuals interpreting the images.

In this latest study, designed to further validate LD-CT, a comparison of its ability to demonstrate the formation of new bony growths (known as syndesmophytes) and / or an increase in size of these syndesmophytes, showed that LD-CT consistently detected more AS patients with these signs of [disease progression](#) than conventional X-rays.

"Standard dose computed tomography is a sensitive method for assessing structural changes in the spine in patients with AS," said lead author Dr. Anoenk de Koning from the Leiden University Medical Centre, Leiden, Netherlands. "However, its clinical utility has been limited due to its use of relatively high doses of ionising radiation."

"Our findings support the use of LD-CT as a sensitive method for the assessment of new or growing syndesmophytes in future clinical research without exposing patients to high doses of radiation," she concluded.

Comparing the percentage of patients with newly formed syndesmophytes, growth of existing syndesmophytes and the combination of both, scored by two separate investigators and as a consensus score, LD-CT detected more patients with progression in all comparisons. This was especially apparent where there was a higher number of new or growing syndesmophytes per patient.

With the strictest comparison of the consensus score for both LD-CT and X-rays, 30% of the patients showed bony proliferation (newly formed and growth) at 3 or more sites on LD-CT, compared with only 6% on conventional X-rays.

Patients were recruited from the SIAS (Sensitive Imaging of Axial Spondyloarthritis) cohort from Leiden, the Netherlands and Herne, Germany. 50 AS patients were included based on modified New York criteria, the presence of one or more syndesmophytes on either the cervical and / or lumbar spine seen on X-ray, and one or more inflammatory lesions on an MRI of their whole spine.

Each of these patients had conventional X-rays of the lateral cervical and lumbar spine and LD-CT of the entire spine at baseline and two years. Two investigators independently assessed the images in separate sessions. Images were paired per patient, blinded to time order, patient information, and the result of the other imaging technique.

For LD-CT, syndesmophytes were scored in the coronal and sagittal planes for all "quadrants" per view, thus scoring 8 "quadrants" per vertebral unit. The formation of new syndesmophytes, growth of existing syndesmophytes and the combination of both was calculated per quadrant. Syndesmophytes were scored as absent (score 0),

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