SPECT/CT reveals best treatment for low back pain

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Low back pain is not only excruciating but also debilitating for countless sufferers. Unfortunately, not everyone responds to treatment. A molecular imaging scan in addition to a conventional bone scan can provide the necessary information about the physiological health of the spine to select the most appropriate pain-killing treatment protocol, say researchers at the Society of Nuclear Medicine and Molecular Imaging's 2014 Annual Meeting.

Conventional imaging methods including X-ray, computed tomography and even magnetic resonance imaging show the structure of the bone, but the source of the pain is often not directly related to obvious structural changes. A hybrid molecular imaging approach called single photon emission computed tomography, combined with computed tomography (SPECT/CT), is able to go beyond structure to pinpoint the subtle physiological processes causing the pain—inflammation or infection, for example. With more clinical certainty, interventionalists can offer a range of treatments to relieve their patients' suffering.

"Low back pain is an extremely common problem that affects most people at some point in their life," said Suruchi Jain, co-author of the study conducted at the Sanjay Gandhi Institute of Medical Sciences in Lucknow, India. "Inclusion of SPECT/CT with conventional bone scan could help reduce unnecessary treatments and provide vital information for the proper management of patients in pain."

The aim of the study was to compare the difference in pain relief

following clinical pain management between two groups of patients.

A total of 80 adults between the ages of 20 and 80 years of age were included in the randomized, double-blind trial. One group underwent conventional bone scans with the addition of SPECT/CT, and a second group acted as a control, with no imaging provided prior to intervention. Patients were evaluated on a scale according to percentage of pain relief compared to their baseline level prior to treatment.

Patients with 50 percent or greater pain relief were much more likely to be in the bone scan group. A total of 28 patients in the bone scan group achieved between 70 and 100 percent pain relief, compared to only 10 subjects in that range in the control group. Clinical diagnosis was altered for 23 out of 40 patients in the bone scan group, and three new conditions were unveiled as a result of the bone scan. This evidence could improve access to SPECT/CT for these patients.

"The findings of this study suggest that incorporation of a bone scan with SPECT/CT in work-ups of low backache patients could lead to more widespread use of this nuclear medicine procedure in the future by increasing the confidence level of pain-treating physicians prior to interventions, thus improving their outcome," Jain said.

More information: Scientific Paper 91: Suruchi Jain, Sanjay Gambhir, Prasanta Pradhan, Murthy Siddegowda, Nuclear Medicine, Sanjay Gandhi Institute of Medical Sciences, Lucknow, India; Anuj jain, Anil Agrawal, Anaesthesiology, Sanjay Gandhi Institute of Medical Sciences, Lucknow, India,"Effect of inclusion of bone scan with SPECT/CT in the workup of low back pain patients prior to interventional procedure," SNMMI's 61th Annual Meeting, June 7

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