SPECT changes standard of care for low back pain

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Degenerative changes in the spine often cause chronic low back pain, which is commonly treated by steroid and anesthetic injections to the facet joints of the spine. SPECT pinpoints abnormal cell activity in the spine, which helps nuclear medicine physicians identify the culprits for patients’ symptoms and appropriately select the patients with low back pain who would benefit the most from facet joint injections, said principal investigator Dr. Spiros G. Pneumaticos, an assistant professor of orthopedic surgery at Baylor College of Medicine in Houston. Physicians have had no reliable way until now to determine which patients will actually benefit from these injections. The study showed that patients respond well to treatment when injected at the site of abnormalities seen on SPECT. Conversely, patients with a negative SPECT have a much smaller chance of improving (Radiology 2006; 238: 693-698).

Injections can be a good short-term treatment alternative in some patients, but they won't help all. In addition, they are relatively expensive, and can cause complications. Patients with negative SPECT should be spared this treatment, Pneumaticos said.

Pneumaticos and colleagues studied 47 patients with low back pain scheduled for facet joint injection. Patients were randomly divided into two groups: One underwent technetium 99m-methylene diphosphonate bone SPECT prior to injection (A) and another did not (B). Patients showing positive SPECT results underwent focalized treatment in the lumbar spine area highlighted by scintigraphy (subgroup A1). Patients showing no facet joint abnormality on SPECT (A2) as well as those in group B received injections as indicated by the referring physicians. Patients in subgroup A1 showed a significantly higher reduction in pain than the other patients after one month of treatment. Only 27 facets in this subgroup required injection compared with the 60 facets the referring physicians recommended. The overall Medicare cost reduction per patient was $326.

As opposed to x-ray-based imaging, which shows only structural abnormalities, bone scans can show disease activity. SPECT can guide physicians to the right place and eliminate unnecessary procedures, said Dr. Abbas Alavi, chief of nuclear medicine at the Hospital of the University of Pennsylvania in Philadelphia.

Identifying the cause of pain in the lower back is a challenging, multimillion dollar healthcare task. Many studies don't show any evidence and some times yield false-positive results that have no relation to the cause of pain. The potential economic implications from using specific imaging agents are huge, Alavi said.

"In the future, we will probably use inflammatory agents as well, such as FDG, for this purpose. So that's going to be another important element in looking at patients with low back pain, any type of spine problem, or, for that matter, any degenerative diseases elsewhere," he said.

Disclosures:

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