Magnetic resonance imaging of the lumbar spine

The relation between abnormalities in the lumbar spine and low back pain is controversial. We examined the prevalence of abnormal findings on magnetic resonance imaging (MRI) scans of the lumbar spine in people without back pain. METHODS:

We performed MRI examinations on 98 asymptomatic people. The scans were read independently by two neuroradiologists who did not know the clinical status of the subjects. To reduce the possibility of bias in interpreting the studies, abnormal MRI scans from 27 people with back pain were mixed randomly with the scans from the asymptomatic people. We used the following standardized terms to classify the five intervertebral disks in the lumbosacral spine: normal, bulge (circumferential symmetric extension of the disk beyond the interspace), protrusion (focal or asymmetric extension of the disk beyond the interspace), and extrusion (more extreme extension of the disk beyond the interspace). Nonintervertebral disk abnormalities, such as facet arthropathy, were also documented. RESULTS:

Thirty-six percent of the 98 asymptomatic subjects had normal disks at all levels. With the results of the two readings averaged, 52 percent of the subjects had a bulge at at least one level, 27 percent had a protrusion, and 1 percent had an extrusion. Thirty-eight percent had an abnormality of more than one intervertebral disk. The prevalence of bulges, but not of protrusions, increased with age. The most common nonintervertebral disk abnormalities were Schmorl's nodes (herniation of the disk into the vertebral-body end plate), found in 19 percent of the subjects; annular defects (disruption of the outer fibrous ring of the disk), in 14 percent; and facet arthropathy (degenerative disease of the posterior articular processes of the vertebrae), in 8 percent. The findings were similar in men and women. CONCLUSIONS:

On MRI examination of the lumbar spine, many people without back pain have disk bulges or protrusions but not extrusions. Given the high prevalence of these findings and of back pain, the discovery by MRI of bulges or protrusions in people with low back pain may frequently be coincidental [1)].

1)

Jensen MC, Brant-Zawadzki MN, Obuchowski N, Modic MT, Malkasian D, Ross JS. Magnetic resonance imaging of the lumbar spine in people without back pain. N Engl J Med. 1994 Jul 14;331(2):69-73. PubMed PMID: 8208267.