

Requests for lower-back MRIs often unnecessary, research shows

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More than half of lower-back MRIs ordered at two Canadian hospitals were either inappropriate or of questionable value for patients. And family doctors were more apt to order these unnecessary tests compared to other specialists, demonstrates newly published medical research from Alberta and Ontario teams. The findings are important because in some parts of the country, MRI tests for the lower back account for about one-third of all MRI requests. Across the country, wait times for MRIs are long and patient access is limited.

The findings were published online in the peer-reviewed journal, *JAMA Internal Medicine*, earlier today. The lead author is Derek Emery, a U of A researcher in the Faculty of Medicine & Dentistry and a neuroradiologist. His co-authors included: Tom Feasby from the University of Calgary, Alan Forster and Naghmeh Mojaverian from the University of Ottawa and Kaveh Shojania from the University of Toronto.

The research, which was led by the U of A and U of C, found more than 50 per cent of the lumbar spine or lower-back MRIs had questionable value or were deemed inappropriate. However, the study found requests for head MRIs in patients with headaches were appropriate 83 per cent of the time. The researchers used best evidence and expert opinion to determine whether the scans were appropriate. MRIs for the back are usually done to determine the cause of back pain, while head MRIs in this study were done to identify the cause of headaches.

"It is commonly believed that MRI is overused and this is the first time its use has been rigorously measured," says Emery. "The results tell us that we should not assume there is overuse in any given area without measuring. We were surprised by the results about head MRIs – we thought the rate of inappropriate use would have been much higher but the results showed otherwise."

Tom Feasby, a neurologist at the U of C and member of the Institute for Public Health and the Hotchkiss Brain Institute, added: "We had suspected that MRI scans might be overused but we had to do the study to be sure. We wanted to gather evidence to help make the health system safer and more effective." Emery said the study results indicate MRI use of the lower back may need to be reined in since the requests for these tests have rocketed in recent years.

"MRI is a limited resource in Alberta, so if the number of inappropriate MRIs can be reduced, there will be more capacity to perform MRIs on patients who really need them. This is all about improving patient care, imaging those patients who will benefit and not imaging those who will not. It is important to note that we did not measure underuse of MRIs. There are many patients who would benefit from MRIs who are not being imaged due to lack of access."

When it came to lower back MRIs, about 34 per cent of those tests ordered by [family doctors](#) were considered appropriate. MRIs ordered by neurologists and orthopedic surgeons had value in less than 50 per cent of the cases examined, while neurosurgeons had a higher rate of pegging a test's value – at 75 per cent.

These findings demonstrate doctors may need to be better educated about when it's appropriate to order an MRI, Emery says. Creating a tool that could give doctors instant feedback when submitting a request for an MRI on behalf of a patient would also be beneficial. Both of these

solutions are currently being examined to help reduce overuse of lower-back MRIs, he said.

"I think we need to provide better tools to doctors to help them determine when imaging of the lower back is likely to help," says Emery, who is an associate professor in the departments of radiology and diagnostic imaging, and biomedical engineering at the U of A.

The research teams looked at requests for MRI imaging of the lumbar spine and head at the University of Alberta Hospital and The Ottawa Hospital. They looked at outpatient requisitions for MRIs at the Edmonton site from the spring of 2008 to the fall of 2009, while requisitions from the eastern Canada site were reviewed from the fall of 2008 to the spring of 2010. In total, 2,000 MRI imaging requests were reviewed – 500 for the head and 500 for the spine at each site.

The research was funded by the Canadian Institutes of Health Research who "congratulated Dr. Feasby, Dr. Emery, and their teams on the publication of these important research findings," said Jane Aubin, CIHR's Chief Scientific Officer and Vice-President of Research and Knowledge Translation.

"Under Canada's Strategy for Patient-Oriented Research, we are seeking to bring research evidence to the front lines of health care, and these findings are poised to do just that."

Provided by University of Alberta Faculty of Medicine & Dentistry

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