

Magnetic resonance imaging of the lumbar spine: direct access for general practitioners

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SUMMARY

At the Cardiff Royal Infirmary we have offered general practitioners (GPs) direct access for magnetic resonance imaging (MRI) of the lumbar spine for sciatica or suspected spinal claudication since January 1993. We compared referrals for MRI from GPs and hospital outpatient doctors, and assessed GP patient management following the scan report. No difference in the diagnostic rates for disc herniation and spinal stenosis were found. GP direct access shortens investigation time, potentially reduces waiting lists, and allows GPs to make more informed management decisions.

Keywords: magnetic resonance imaging; spinal disorders; general practitioners.

Introduction

THE use of MRI for the investigation of back pathology is now well established for hospital specialists, but no published data are available on its use by GPs. The service is offered for investigation of patients with a history of sciatica or suspected spinal claudication. We compared GP and hospital outpatient referrals, and obtained data on GP patient management following receipt of the MRI scan report.

Methods

The reports of all hospital outpatient referrals for MRI of the lumbar spine, and of those patients directly referred by GPs between January 1993 and December 1994, were retrospectively reviewed. Those with a history of previous surgery or chemonucleolysis, trauma, and paediatric cases were excluded. Radiology reports were reviewed and classified as follows:

- 'Disc herniation...
 - (a)...corresponding with symptoms': disc herniation compressing, displacing, or touching the nerve root on the appropriate side.
 - (b)...not corresponding with symptoms': disc herniation compressing a nerve root but either on the opposite side to symptoms or at a disc level not clinically suspected. (Also included were patients with disc herniation causing no root compression or spinal stenosis.)
- Spinal stenosis.
- Spondylosis/degeneration: osteophytes not causing nerve root compression or spinal stenosis, degenerate discs without herniation.

- Normal scans.
- 'Other abnormalities', which included vertebral metastases, spondylolisthesis, Scheuermans disease, and scoliosis.

GPs were contacted in writing and by telephone to assess whether patients were managed conservatively with rest, analgesia, or physiotherapy, or were referred to a hospital specialist within three months of the scan.

Results

Results are summarized in Table 1. Ninety-five per cent of outpatient referrals were from orthopaedic clinics. Analysis of radiology reports showed no difference in the numbers between the two groups with 'disc herniation corresponding with symptoms', spinal stenosis, normal scans, and those with 'other abnormalities'. There were significantly more patients with spondylosis/degeneration in the GP-referred group ($P<0.01$). Further information was available on 397 of the 457 patients referred by GPs for an MRI scan (86.9% response rate).

Discussion

MRI is a highly sensitive tool used for detecting lumbar spine disease, including intervertebral disc herniation.¹ The Royal College of Radiologists has recommended that, whenever possible, family doctors should have the same rights of access to radiological facilities as hospital consultants.^{2,3} Their recently published guidelines for doctors on the use of the X-ray department recommend MRI as the investigation of choice in patients with acute back pain with suspected disc herniation after a six-week delay.⁴ A more recent College document reiterates this, and suggests 'the concept that expensive investigations should be limited to consultants is not sustainable.'⁵

Our results show that there is no significant difference between GP-referred patients and those from outpatients' clinics on scan findings of disc herniation, spinal stenosis, and normal scans. Most GP patients with normal scans or spondylosis/degeneration were managed conservatively, unlike those who were referred with a 'disc herniation corresponding with symptoms' (chi-square test for disc herniation versus spondylosis: $P<0.0001$; disc herniation versus normal: $P<0.0001$). The results suggest that GP referral patterns are influenced by reported findings at MRI. Although GP-referred patients waited, on average, six days longer than outpatient clinics for an MRI scan, a waiting time of 19 days is still relatively short compared to waiting times of many months to see outpatient clinicians. The cause of the longer waits for GP patients is uncertain, but may relate to problems being directly discussed with a radiologist rather than simply being recorded on the request form mailed by the GP. There are several potential advantages to direct access MRI scanning. Prompt investigation allows GPs to make appropriate and informed management decisions. For those patients who are referred, the availability of the MRI scan result at consultation permits rapid assessment and avoids a follow-up appointment to discuss results, as would be necessary if the MRI were requested at the first outpatient attendance. The availability of a scan report could also assist hospital specialists in prioritizing outpatient appointments and reviewing the urgent cases more quickly.

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Table 1. General practitioner versus hospital outpatient referrals and general practitioner patient management following MRI result.

	GP referral for MRI	Outpatient referral for MRI	GP vs outpatient referrals	GP management following scan	
	number (%)	number (%)	P value	Hospital referral no. (%)	Conservatively managed no. (%)
Sex: male	244 (53)	234 (54)	NS(#)		
female	215 (47)	201 (46)	NS(#)		
Mean age (years)	42	44	P<0.025*		
Mean waiting (days)	19	13	P<0.001*		
1a. Disc herniation corresponding with symptoms	182 (39.8)	165 (37.9)	NS(#)	113 (72.9)	42 (27.1)
1b. Disc herniation not corresponding with symptoms	46 (10.1)	55 (12.6)	NS(#)	20 (47.6)	22 (52.4)
2. Spinal stenosis	20 (4.4)	20 (4.6)	NS(#)	11 (57.9)	8 (42.1)
3. Spondylosis/degeneration	114 (24.9)	77 (17.7)	P<0.01(#)	27 (27)	73 (73)
4. Normal	57 (12.5)	68 (15.6)	NS(#)	17 (34)	33 (66)
5. 'Other abnormalities'	38 (8.3)	50 (11.5)	NS(#)	12 (38.7)	19 (61.3)
Total	457	435		200	197

NS = No significant difference; * t-test; # chi-square test.

The cost of direct access MRI to the GP may vary because of differences in local pricing structures. It may cost less to refer the patient to an outpatient clinic than for a direct MRI scan, as the charge to the fundholder is for an outpatient consultation whether or not the patient subsequently has an MRI scan. This reflects price rather than true cost to the health service, and should be corrected as contracting and pricing become more sophisticated. A full cost-benefit analysis, to include patient management and outcome once referred to hospital specialists after direct-access GP MRI, is beyond the scope of this paper.

Although GPs were comparable to outpatient doctors in diagnosing disc herniation and spinal stenosis, they referred significantly more patients with spondylosis/degeneration for MRI. The reason for this is not clear, and it may be that our current protocol does not tend to filter out these patients. Further studies are needed to improve protocols so that patients with spondylosis/degeneration as the main finding are not referred.

The National Health Service Executive has stated that primary care should be comprehensive and should become the gatekeeper to secondary care.⁶ We conclude that GP direct access for MRI of the lumbar spine is a viable proposition if driven by protocols and used appropriately.

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