

The cost-effectiveness of Magnetic Resonance Imaging (MRI) for investigation of the knee joint

Submission date 25/04/2003	Recruitment status No longer recruiting	☐ Prospectively registered
		☐ Protocol
Registration date 25/04/2003	Overall study status Completed	☐ Statistical analysis plan
		☒ Results
Last Edited 02/09/2009	Condition category Musculoskeletal Diseases	☐ Individual participant data

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
HTA 93/26/16

Study information

Scientific Title

Study objectives

This study considered the role of Magnetic Resonance Imaging (MRI) in the diagnosis of knee injuries in a District General Hospital (DGH) setting. The principal objective was to identify whether the use of MRI had a major impact on the clinical management of patients presenting with chronic knee problems, in whom surgery was being considered, whether it reduced overall costs and whether it improved patient outcome.

In addition, the research:

1. Explored the 'diagnostic accuracy' of initial clinical investigation of the knee by an orthopaedic trainee, consultant knee specialist and consultant radiologist
2. Considered the variability and diagnostic accuracy of interpretations of knee MRI investigations between radiologists
3. Measured the strength of preference for the potential diagnostic/therapeutic impact of knee MRI (i.e. the avoidance of surgery)

Ethics approval required

Old ethics approval format

Ethics approval(s)

Not provided at time of registration

Primary study design

Interventional

Study design

Single centre, randomised controlled trial

Study type(s)

Screening

Health condition(s) or problem(s) studied

Musculoskeletal injury

Interventions

The research was based on a single-centre randomised controlled trial conducted at Kent and Canterbury Hospital.

Patients were randomised to:

1. Investigation using an MRI scan (MRI trial arm), or
2. Investigation using arthroscopy (no-MRI trial arm)

Investigation of diagnostic accuracy:

For the investigation of diagnostic accuracy of initial clinical investigation, the sample comprised 114 patients recruited in a separate study conducted at St Thomas Hospital. The sample was drawn from patients presenting at the Accident and emergency Department with an acute knee injury. All study patients received an MRI scan, but initial diagnosis was made without access to the scan or the radiologists report. After 12 months, all clinical notes and MRI scans of study patients were reviewed and a final reference standard diagnosis for each patient was reached. Comparison was made between the diagnosis recorded by each clinician (i.e. orthopaedic trainee, knee specialist and consultant radiologist) and the reference diagnosis.

Investigation of the generalisability of results:

For this substudy, the MRI images from 80 patients (recruited at St Thomas Hospital) were interpreted independently by seven consultant radiologists at DGHs and the St Thomas Hospital MRI radiologist. For each area of the knee, the level of agreement (measured using weighted kappa) between the responses of the eight radiologists and the reference standard diagnosis was assessed.

Investigation of preferences:

The investigation of potential patient preferences for the diagnostic/therapeutic impact of MRI was explored using a discrete choice conjoint measurement research design. Choices involved selecting between two alternative scenarios described using four attributes, and data were collected from 585 undergraduate sports science students and analysed using a random-effects probit model.

Intervention Type

Other

Phase

Not Specified

Primary outcome(s)

The study investigated the benefits of knee MRI at two levels:

1. Diagnostic/therapeutic impact (i.e. avoidance of surgery)
2. Patient outcome (using the 36-item Short Form questionnaire [SF-36] and the EuroQoL quality-of-life measurement instruments [EQ-5D]); quality of life was assessed at baseline and at 6 and 12 months

Costs were assessed from the perspectives of the NHS and patients. All analyses were by intention to treat.

Key secondary outcome(s)

No secondary outcome measures

Completion date

31/12/1998

Eligibility

Key inclusion criteria

Patients attending with knee problems in whom surgery was being considered were recruited from routine orthopaedic clinics.

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Not Specified

Sex

All

Key exclusion criteria

No exclusion criteria

Date of first enrolment

01/01/1996

Date of final enrolment

31/12/1998

Locations**Countries of recruitment**

United Kingdom

England

Study participating centre

Health Services Management Centre

Birmingham

United Kingdom

B15 2RT

Sponsor information**Organisation**

Department of Health (UK)

ROR

<https://ror.org/03sbpja79>

Funder(s)**Funder type**

Government

Funder Name

NIHR Health Technology Assessment Programme - HTA (UK)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/03/2004		Yes	No
Other publications	HTA monograph	01/12/2001		Yes	No