MRE (MR Enterography) as initial radiological investigation in patients with low suspicion or not known IBD of the small bowel: Diagnostic outcomes

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Introduction

- MRI should be used to reduce radiation in situations where multiple imaging is required.
- Inflammatory disease of the small bowel, namely Crohn’s disease, is the clearest example of this.
- For diagnosis of small bowel pathology, there is no consensus regarding initial imaging.
- NICE guidance recommends US or MRI in conjunction with endoscopy if inflammatory markers are raised.
- Other literature has indicated that US, CT and MRI are comparable in imaging small bowel pathology.
- MRE is frequently used as a first line investigation in suspected cases of small bowel inflammatory bowel disease (IBD) in our NHS Trust.

Aim

To evaluate the relationship between the clinical history given in cases where the patient was not known to have any small bowel pathology and the diagnostic outcome of the MRE scan to ensure that resources were being used in the most appropriate, useful and cost-effective way possible.

Method

- All MRI small bowel examinations over 1 calendar year were examined.
- PACS system was searched using terms “MRI small bowel” and “2015”.
- Clinical history was examined; those with known Crohn’s disease did not undergo further analysis.
- Radiologist report was analysed in remaining cases for diagnostic outcome.
- Unclear cases were reviewed by Consultant.

Results

- Clinical history of the 495 cases was examined for evidence of known Crohn’s disease (Table 1).
- The clinical history of those with no known history of Crohn’s (n=301) was further evaluated (Figure 1).
- Almost three quarters of those with no known Crohn’s disease also did not have any past medical history of GI disease, other imaging findings or endoscopic findings.

<table>
<thead>
<tr>
<th>Clinical history</th>
<th>Number of cases</th>
<th>%</th>
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<tbody>
<tr>
<td>Known Crohn’s</td>
<td>194</td>
<td>39.2</td>
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<tr>
<td>No known Crohn’s</td>
<td>301</td>
<td>60.8</td>
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</tbody>
</table>

Table 1 - Initial evaluation of clinical history

Further breakdown of report findings (n=301)

- The relationship between clinical history and diagnostic outcome is shown in figures 3a and 3b.
- The presence of other investigative findings increase the likelihood of MRE findings.

Report findings | Number | % |
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<tbody>
<tr>
<td>Equivocal</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Positive Small Bowel Findings</td>
<td>45</td>
<td>15</td>
</tr>
<tr>
<td>No Small Bowel Findings</td>
<td>253</td>
<td>84.1</td>
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Table 2 - Diagnostic outcomes of MRE

Conclusions

- MRE diagnosed small bowel pathology in only a small proportion of cases referred.
- The likelihood of a positive finding is increased in specific subgroups, e.g. endoscopic or CT findings.
- MRE picks up a significant number of incidental findings including large bowel pathology – these patients then require further investigation.
- Faecal calprotectin was only mentioned in 1 clinical history, this should be utilised more effectively.
- US small bowel doesn’t require bowel prep, costs around a third of MRE and is comparable in sensitivity and specificity.
- As a result of this work, we are redesigning services within our NHS Trust.
- We will amend imaging referral pathways and provide dedicated US small bowel lists to facilitate appropriate and cost-effective investigations for our patients.

References