Comparison of anatomical findings in integrated total pelvic floor ultrasound with defaecation MRI in pelvic floor defaecatory dysfunction #347

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**Background**

- Pelvic floor defaecatory dysfunction may be investigated with defaecatory imaging which allows functional and anatomical assessment.
- Total pelvic floor ultrasound (TPFUSS) (transperineal, transvaginal, endoanal) may provide a cheap, portable alternative.
- Previous series compare TPFUSS with defaecation proctography.

**Aim**

- This is the first study to date to compare TPFUSS with defaecatory MRI (D-MRI).

**Table 1: The advantages and disadvantages of each modality**

<table>
<thead>
<tr>
<th>Modality</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defaecation proctogram</td>
<td>Accessible</td>
<td>Radiation</td>
</tr>
<tr>
<td>Defaecation MRI</td>
<td>No radiation</td>
<td>May overestimate pathology</td>
</tr>
<tr>
<td>Total pelvic floor ultrasound</td>
<td>Cheap, safe, portable</td>
<td>Inaccessible</td>
</tr>
<tr>
<td></td>
<td>Multicompartment assessment</td>
<td>Underestimates pathology</td>
</tr>
</tbody>
</table>

**Materials and Methods**

- 68 consecutive women (mean age 60, mean time between tests 4 months) who had undergone both TPFUSS and D-MRI between 2009—2015
- Dynamic images blinded reviewed (AH/CG)
- Rectocoele (=2cm MRI, =1cm TPFUSS), Intussusception (grade I—V)
- Enterocele & cystocele (grade 1 - 3)

**Results**

- Mean size of rectocoele on MRI was 2.9cm (median 2.8cm range 2 - 5).
- Mean size on TPFUSS was 2.2cm (median 2cm, range 1 - 4).
- Weak positive correlation between rectocoele size (R 0.4).
- Fair agreement between measurements (intra-class correlation coefficient 0.41) and the mean difference was 0.01.
- However, 95% of the differences in rectocoele size lay between 2.8 and 2.78 (95% limits of agreement). The difference for an individual would be between 2.8 and 2.78.

**Table 2: Accuracy and agreement of TPFUSS when compared to D-MRI. PPV/ NPV - positive/negative predictive value.**

<table>
<thead>
<tr>
<th>Number seen on D-MRI</th>
<th>Number seen on TPFUSS</th>
<th>Number seen on both</th>
<th>PPV of TPFUSS</th>
<th>NPV of TPFUSS</th>
<th>Agreement (kappa)</th>
<th>Correlation between TPFUSS and D-MRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectocoele</td>
<td>26</td>
<td>49</td>
<td>21</td>
<td>47%</td>
<td>78%</td>
<td>0.12</td>
</tr>
<tr>
<td>Intussusception</td>
<td>24</td>
<td>19</td>
<td>15</td>
<td>79%</td>
<td>80%</td>
<td>0.53</td>
</tr>
<tr>
<td>Enterocele</td>
<td>23</td>
<td>24</td>
<td>15</td>
<td>63%</td>
<td>82%</td>
<td>0.45</td>
</tr>
<tr>
<td>Cystocele</td>
<td>49</td>
<td>35</td>
<td>32</td>
<td>91%</td>
<td>48%</td>
<td>0.40</td>
</tr>
</tbody>
</table>

**Interpretation of Results**

- There are differences in the pathology identified on TPFUSS and D-MRI.
- TPFUSS overcalls rectocoele and under calls cystocele compared to MRI.
- If TPFUSS is normal, then rectocoele, intussusception and enterocele are unlikely to be present on defaecation MRI.
- A cystocele and to a lesser extent intussusception, seen on TPFUSS are likely to be seen on MRI.
- Measurements of rectocoele are not comparable.

**Conclusion**

Though there are differences in the pathology identified on TPFUSS and defaecatory MRI, TPFUSS can be useful for the initial assessment of women with pelvic floor defaecatory dysfunction.

If no pathology is seen during screening TPFUSS then defaecatory MRI is unlikely to be of further benefit.