FAST Phase III RCT of Radiation Therapy Hypofractionation for Treatment of Early Breast Cancer: 10-Year Results (CRUKE/04/015)


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Disclosure for Dr. Brunt

• Dr. Brunt is employed as a Consultant Clinical Oncologist at University Hospitals of North Midlands, Stoke-on-Trent, UK

• Dr. Brunt has no conflicts of interest to disclose.
**Trial design**

Invasive breast cancer pT1-2 pN0; conservation surgery; age>50

N=915

**Primary endpoint:**
2-year change in photographic breast appearance

**Secondary endpoints:**
5-year change in photographic breast appearance clinical assessments of late adverse events ipsilateral local tumour control

**Randomise**

- 50 Gy in 25 # (2.0 Gy) 5 wks
- 30 Gy in 5 # (6.0 Gy) 5 wks
- 28.5 Gy in 5 # (5.7 Gy) 5 wks

**Radiation therapy**

Annual clinical assessment for 10 years

Photographs at 2 & 5 years

**Recruitment & consent**

Baseline photo pre-RT

**2018 Annual Meeting | Henry B. Gonzalez Convention Center | San Antonio**
Photographic assessment of overall change in breast appearance by 5 years

% with mild / severe change in breast appearance

- **30 Gy (69/269; 26%)**
- **28.5 Gy (52/255; 20%)**
- **50 Gy (46/256; 18%)**

**Difference (95%CI)**

- **30 Gy vs 50 Gy**
  - +7.4% (0.3, 16.7)
  - p=0.03

- **28.5 Gy vs 50 Gy**
  - +2.4% (-3.8, 10.8)
  - p=0.47

**Marked changes:** 2%, 4%, 2%
Clinical assessments of late AE in breast

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Marked</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=814</td>
<td>840</td>
<td>832</td>
<td>806</td>
<td>772</td>
</tr>
<tr>
<td></td>
<td>715</td>
<td>628</td>
<td>579</td>
<td>477</td>
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<td></td>
<td>392</td>
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</table>

Breast shrinkage

Breast induration

OR for moderate/marked shrinkage (95%CI)

30Gy vs 50Gy 1.88 (1.32, 2.67), p<0.001

28.5Gy vs 50Gy 1.11 (0.76, 1.64), p=0.59

OR for moderate/marked induration (95%CI)

2.39 (1.31, 4.35), p=0.004

1.67 (0.89, 3.16), p=0.11
Fractionation Sensitivity (α/β estimates)

Photographic change in breast appearance

\[
\alpha/\beta = 2.4\text{Gy} \ (95\% \ CI \ 0.4–4.3)
\]

Breast shrinkage (clinician assessment)

\[
\alpha/\beta = 2.4\text{Gy} \ (95\% \ CI \ 1.3–3.5)
\]

If \( \alpha/\beta = 2.4\text{Gy} \),

- 28.5Gy in 5# \( \equiv \) 52.5Gy in 2.0Gy fractions
- 30.0Gy in 5# \( \equiv \) 57.3Gy in 2.0Gy fractions
- 27.7Gy in 5# \( \equiv \) 50.0Gy in 2.0Gy fractions (calculated)
<table>
<thead>
<tr>
<th></th>
<th>50Gy/25# N=302</th>
<th>30Gy/5# N=308</th>
<th>28.5Gy/5# N=305</th>
<th>Total N=915</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local relapse</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Regional relapse</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Distant relapse</td>
<td>17</td>
<td>15</td>
<td>15</td>
<td>47</td>
</tr>
<tr>
<td>Death (breast cancer)</td>
<td>30 (7)</td>
<td>33 (8)</td>
<td>33 (10)</td>
<td>96 (25)</td>
</tr>
</tbody>
</table>

Estimate of 10-year local relapse rate: 1.3% (95%CI 0.7, 2.3%)
Conclusions

• Severe changes to normal breast tissue were rare
• Late adverse events (AEs) after 28.5Gy/5# over 5 weeks similar to 50Gy/25#
• Little change in prevalence of AEs between 5 & 10 years
• Local tumour relapse rate extremely low in all schedules
• Once-weekly 5# schedule may be considered when daily visit for 3 or 5 weeks not acceptable
• UK FAST-Forward trial is testing 5# delivered in 1 week