Disclosure

• I have no actual or potential conflict of interest in relation to this presentation
Background

• RetroEMBRACE (12 centres, 852 patients) and EMBRACE (26 centres, 1416 patients) collected and analysed clinical and dosimetric data for cervical cancer patients

• There were no centres from Australia or New Zealand participating in these studies
It’s even noted in publications...

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Review Article
The EMBRACE II study: The outcome and prospect of two decades of evolution within the GEC-ESTRO GYN working group and the EMBRACE studies

Richard Potter a, 1, Kari Tanderup b, 1, 2, Christian Kirisits a, Astrid de Leeuw c, Kathrin Kirchheiner a, Remi Nout d, Li Tee Tan e, Christine Haie-Meder f, Umesh Mahantshetty g, Barbara Segedin h, Peter Hoskin i, Kjersti Bruheim i, Bhavana Rai k, Fleur Huang l, m, Erik van Limbergen n, Max Schmid a, Nicole Nesvacil a, Alina Sturdza a … Ina Jürgenliemk-Schulz c
It’s even noted in publications...

Abstract

The publication of the GEC-ESTRO recommendations one decade ago was a significant step forward for reaching international consensus on adaptive target definition and dose reporting in image guided adaptive brachytherapy (IGABT) in locally advanced cervical cancer. Since then, IGABT has been spreading, particularly in Europe, North America and Asia, and the guidelines have proved their broad acceptance and applicability in clinical practice. However, a unified approach to volume contouring and reporting does not imply a unified administration of treatment, and currently both external beam radiotherapy (EBRT) and IGABT are delivered using a large variety of techniques and prescription/fractionation schedules.

1. Development of image guided adaptive brachytherapy: The GEC-ESTRO GYN working group and network

IGABT (with repetitive MRI regarded as the gold standard) is increasingly replacing 2D brachytherapy throughout the world, especially in Europe [5] and North America [6], but also in many places in Asia [7,8].
But recognised in others...

Patterns of practice survey for brachytherapy for cervix cancer in Australia and New Zealand

Karen Lim, Sylvia van Dyk, Pearly Khaw, Jacqueline Veera, Linda Mileshkin, Lucy Ohanessian, Michelle Harrison and Shalini K Vinod
Objective

Review:
- treatment practices
- clinical patient information
- dosimetric data

from departments in Australia and New Zealand
Method

• In 2015, all centres performing GYN brachytherapy in Aus/NZ invited to participate

• Provided worksheet to be completed for a cross-section of de-identified cervical cancer patients treated in the department
Data requested

• Patient: age, diagnosis, FIGO stage
• External Beam: technique, dose, fractions
• Brachytherapy: timing of treatment, # fractions, fractions per day/week, dose per fraction, where dose prescribed to, imaging used, applicator used, HR-CTV (volume, dimensions, D90, D98, D100), Bladder/Rectum (D2cc, D0.1cc, ICRU), Sigmoid D2cc, Vaginal point dose, TRAK
• Follow-up: weeks since treatment, local recurrence, distant disease, complications
Analysis

• Data analysed for trends/statistics

• Outliers contacted to provide additional information in order to better classify results
Results

- 70% of departments provided data

Patient demographics

- Average age 49.9 years (range: 25 to 88 years)
- > 50% squamous cell carcinoma of cervix of FIGO stage IIB
Results

Timing of HDR

> 85% of treatments given post-EBRT
> 50% of patients had 45 Gy in 25 fx for EBRT
Results

Fractions per patient

- > 95% treated once daily
- 68% treated in 3 fractions
  - Evenly split between 1 or 2 fractions/week
Results

Applicator used

- **Tandem & Ovoids**: 51%
- **Tandem & Ring**: 20%
- **Interstitial Ring**: 13%
- **Interstitial Ovoids**: 11%
- **Tandem & Cylinder**: 3%
- **Custom**: 2%

- Nearly ¼ treated with combined interstitial/intracavitary
• 68% of departments use some form of MRI during treatment planning
Results

Prescribed to

- HR CTV D90: 44%
- Point A: 16%
- Target Volume: 40%

How often is plan optimised

- Every fraction: 53%
- Once per week: 14%
- First fraction only: 21%

- Almost 80% of departments perform multiple planning sessions for each patient
## Results

* Doses given as total EQD<sub>2</sub>

<table>
<thead>
<tr>
<th></th>
<th>Average across all depts</th>
<th>St. Dev</th>
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<tbody>
<tr>
<td>HR-CTV vol (cc)</td>
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<tr>
<td>Point A (Gy*)</td>
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**EMBRACE II recommendations**

- HR-CTV D90 > 85 Gy
- Bladder D2cc < 90 Gy
- Rectum D2cc < 75 Gy
- Sigmoid D2cc < 70 Gy
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Results

Outcomes

• > 95% had no local recurrence during follow up (range: 0 to 630 weeks)
• 80% also had no distant disease
• > 80% had no complications
  – Diarrhoea most common complication
  – Bowel obstruction and incontinence also listed
Conclusion

• Australian and New Zealand centres have “embraced” volumetric planning and advanced imaging
• HR-CTV volumes are slightly smaller than those in publications from other countries
• Almost all depts performing volumetric planning are meeting recommended dose levels for the HR-CTV and OAR
• Clinical outcomes in Australia and New Zealand are very good
Thank you