QUALITY ASSURANCE FOR CLINICAL PRACTICE IN CERVICAL CANCER BRACHYTHERAPY WITH IR-192 SOURCE: IN VIVO DOSIMETRY WITH QED DIODES

Valerio Marè, Daniele Carlotti, Michele Fiore, Lisa Vienszi, Roberta Guarnaccia, Paolo Matteucci, Aurelia Iurato, Gian Marco Petrianni, Vera Cimigliano, Marta Monacchi, Valentina Pirrozi Palmese, Paola Martucci, Rita Aiello, Edy Ippolito, Sara Ramella, Teresa Insero, Fondazione PoliClinico Campus Bio-Medico, Università Campus Bio-Medico di Roma, Medicine and Surgery, Rome, Italy

Introduction/Background To investigate the correlation between the dose predicted by the treatment planning system using three-dimensional (3D)-reconstructed CT images and the dose measured by diode detectors, under clinical condition of high-dose-rate brachytherapy of the cervix uteri.

Methodology During each application, 2 QED diode (1115000–2 and 1113000–2) are applied onto patient’s skin at bladder (on top) and rectum level (side) with a bolus of at least 6 cm in water to mimic TPS calculation conditions. A CT-based HDR with a prescribed dose per fraction of 7 to 10 Gy is calculated by the treatment planning system (Elekta Oncentra Brachy 4.5.2).

Results The preliminary measurements show a linear response for the examined detectors and a good agreement between measured and calculated doses (min: 0.4%, max 1.5%). The observed trend between treatment sessions is in agreement with the expectations, making these diodes a suitable tool for in vivo dosimetry measurements.

Conclusion An important topic in brachytherapy clinical practice consists in determining the dose to rectum and bladder, in order to correlate these data with acute and late toxicity of OARs. Preliminary results show that accuracy and reproducibility of the measurement system is sufficient for clinical routine implementation. Therefore, further measurements are needed in order to make the protocol robust.

Disclosures The authors declare no competing interests.
Introduction/Background Our aim was to analyse the PTV used for cervical external beam radiotherapy and to determine whether smaller margins could be used without affecting clinical target volume (CTV) coverage to reduce toxicity.

The significant organ motion during pelvic radiotherapy is well recognised and locally the INTERLACE protocol for IGRT using intensity modulated radiotherapy (IMRT) has been adopted with 2cm or 3cm PTV set-up margin with a ‘plan of the day’ model.

Methodology All patients receiving radical definitive radiotherapy for cervical cancer at the Royal Devon and Exeter Hospital between 1/3/2021 and 31/12/2021 were included (n=13). They received 45 gray (6/13) or 55 gray (7/13) in 25 fractions. The radiographer-led choice between 2cm or 3cm margins with daily on-set cone beam computed tomography (CBCT) was reviewed. Based on CBCT, a margin calculation was performed to determine what margin was required to cover the disease.

Results Results showed 23.1% (3/13) of patients were adequately treated with 2cm margin throughout, described as non-movers. These 3 patients could have been adequately treated with a 1.5cm margin; a 1cm margin would cover 77.3% of fractions. The remaining 10 patients required the 3cm margin for 15.9% of fractions (mean 3.9/25, range 2–8). For these patients a 1cm margin would cover 31.8% of fractions and 1.5cm 66.6%.

Conclusion In conclusion a smaller set-up margin can be utilised, particularly in ‘non-movers’, without compromising disease coverage. Reducing the PTV allows decreased dose to organs at risk, reducing likelihood of toxicity but further analysis of dosimetry and radiographer plan selection is required.

Disclosures Nil

#953 NEOADJUVANT DOSE-DENSE CHEMOTHERAPY WITH CARBOPLATIN AND PACLITAXEL IN FIGO 2018 STAGE IB1-IIA2 CERVICAL CANCER

1Simone Bruni*, 2Maria Teresa Lapresa, 3Gabriella Parma, 4Silvia Derio, 5Isabella Lorenzetti, 6Pedro Pecatori, 7Ilaria Betella, 8Gabriella Schivardi, 9Luigi De Vitis, 10Giovanni Aletti, 11Benedetta Zambetti, 12Vanna Zanagnolo, 13Angelo Maggioni, 14Cosmin Paul Sarac, 15Emil Kamenov*, 16Arwa Alothman, 17Cristin Kühn, 18Elke Hofstra, 19Jacques Beckman, 20Yu Chun Tam, 21Roland Kramer.

Gynecologic Cancer Center, Christliches Klinikum Unna, Unna, Germany; 2 Clinic for Haematology and Oncology, Christliches Klinikum Unna, Unna, Germany; 3 Institute of Pathology, Ruhr-Universität Bochum, Bochum, Germany; 4Institute of Pathology, Ruhr-Universität Bochum, Bochum, Germany; 5Radiox Clinic for Radiotherapy, Unna, Germany

Introduction/Background In FIGO stages IB1-IIB and IIA1 cervical cancer with suspected cervical stromal ring disruption on preoperative evaluation, radical surgery is indicated even though there is an increased risk of adjuvant chemoradiotherapy (CCRT). While exclusive CCRT represents the gold standard for FIGO stages IB3/IIA2, subgroup analysis restricted to these stages of studies comparing CCRT vs neoadjuvant chemotherapy (NACT) showed similar outcomes between the two groups. The primary aim of this study is to evaluate the role of dose-dense NACT with carboplatin and paclitaxel in patients with FIGO stage IB1-IIB/IIA1 with preoperative stromal ring disruption or IB3-IIA2.

Methodology Patients with FIGO stages IB1-IIA2 undergoing dose-dense NACT at the European Institute of Oncology, Milan from 07/2014 to 12/2022 were retrospectively identified. They received weekly dose-dense carboplatin + paclitaxel for 6–9 cycles followed by radical surgery or CCRT, depending on radiologic response as assessed by RECIST criteria. Predictors of radiologic response to NACT and follow-up data were evaluated with appropriate statistical analysis.

Abstract #953 Table 1 Univariate analysis of predictors of response to dose-dense at imaging (n=64).

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Total (%)</th>
<th>No response to imaging (atrophy/progression) (%)</th>
<th>Progress to imaging (atrophy/progression) (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age years, mean (SD)</td>
<td>40.2 (17.9)</td>
<td>40.2 (17.9)</td>
<td>40.2 (17.9)</td>
<td>0.86</td>
</tr>
<tr>
<td>Hysterectomy, n (%)</td>
<td>80 (95.3)</td>
<td>80 (95.3)</td>
<td>80 (95.3)</td>
<td>0.59</td>
</tr>
<tr>
<td>Squamous histotype</td>
<td>40 (47.6%)</td>
<td>40 (47.6%)</td>
<td>40 (47.6%)</td>
<td>0.22</td>
</tr>
<tr>
<td>1</td>
<td>1 (1.2%)</td>
<td>1 (1.2%)</td>
<td>1 (1.2%)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1 (1.2%)</td>
<td>1 (1.2%)</td>
<td>1 (1.2%)</td>
<td>0.73</td>
</tr>
<tr>
<td>3</td>
<td>1 (1.2%)</td>
<td>1 (1.2%)</td>
<td>1 (1.2%)</td>
<td>0.73</td>
</tr>
</tbody>
</table>

Results A total of 64 patients meeting inclusion criteria were included. Radiological response to NACT were the following: 10(15.6%) complete response, 41(64.0%) partial response, 11 (17.0%) stable disease, and 2(3.1%) progressive disease. None of the evaluated factors were associated with radiological response to NACT (table 1). After multidisciplinary team discussion, 6 (9.4%) patients were deemed inoperable and received CCRT. Among the remaining 58 (90.6%) patients undergoing surgery, 14 (24.1%) underwent CCRT, 2 (3.4%) radiotherapy alone, and 7 (12.1%) chemoradiotherapy alone, while the remaining 35 (60.3%) were observed. Overall, NACT followed by surgery allowed us to avoid radiotherapy in 42 (65.6%) patients. Among them, during a median follow-up time of 52 months (range 6–94), 5 (11.3%) patients experienced a recurrence.

Conclusion Dose-dense NACT achieved a good response rate and could be considered an alternative approach, especially in young patients desiring to avoid radiotherapy.

Disclosures No conflict of interest for all the authors

#987 CASE REPORT OF G3 SQUAMOUS CELL CERVICAL CANCER IN PREGNANCY

1Cosmin Paul Sarac, 2Emil Kamenov*, 3Anwa Alkhothe, 4Cristin Kühn, 5Elke Hofstra, 6Jacques Beckman, 7Yu Chun Tam, 8Roland Kramer. Gynecologic Cancer Center, Christliches Klinikum Unna, Unna, Germany; 9Clinic for Haematology and Oncology, Christliches Klinikum Unna, Unna, Germany; 10Radiology Clinic, Christliches Klinikum Unna, Unna, Germany; 11Institute of Pathology, Ruhr-Universität Bochum, Bochum, Germany; 12Radiox Clinic for Radiotherapy, Unna, Germany

Introduction/Background Cervical cancer is the most common cancer diagnosed in pregnancy with an estimated incidence between 2–4/100000 pregnancies. Squamous cell variant accounts for 80% of the cases. According to the literature approximately 30% of women diagnosed with cervical cancer are in the reproductive age, whereas 3% of cervical cancers are diagnosed during pregnancy. At the time of the diagnosis...