Spinal anesthesia vs. sedation. Our standard in cervical cancer brachytherapy

M. Federico[1], S. Torres Pozas[1], B. Pinar Sendeño[1], J. Furelos Leon[2], P. Fustero Fustero[1], A. Rodriguez Perez[2], P. Lara Jimenez[1]
[1] *Hospital De Gran Canaria Dr. Negrin, Radioterapia, Spain*
[2] *Hospital De Gran Canaria Dr. Negrin, Anestesia, Spain*

Introduction. Cervical cancer (CC) brachytherapy is performed under patient sedation, general or spinal anesthesia depending on centers tradition. No data have been reported demonstrating superiority of one the three approaches. Present work analyzes dosimetric results of application performed under spinal anesthesia or sedation.
Material and methods. 26 consecutive patients with histologically proven CC (FIGO IB to IIIB) underwent radio-chemotherapy and 3D MR/CT-based IGABT with Fletcher or Utrecht type applicators (Nucletron). 15 patients (group A) received overall 62 BT application under spinal anesthesia, remaining 11 patients (group B) received overall 47 application under sedation. Rectum, Bladder and Sigmoid were drawn on CT (all by MF) according GEC-ESTRO guidelines. Vaginal packaging (VP) was contoured on CT images from lower pelvic bone margin up to the cervix (including applicator). For the present study standard point A plan of 7 Gy was applied to all cases and different OARs DVH parameters analyzed.
Results. Median age was 51 (44 in group A and 56 in group B). Median VP volume was significantly different between group A or B (116 cm^3 vs. 54). Overall VP volume was strongly correlated 0.0001). Rectum D2cc was 4 Gy (group A) and 5.3 Gy$\leq$ to Rectum and Bladder D2cc (p, group B). Bladder D2cc was 5.6 Gy and 6.6 Gy respectively. The VP volume showed a trend to decrease with patients' age. Also analyzing results by age cohort, spinal anesthesia was superior to sedation: Group A > 50 years: VP = 76.54 cm^3; Rectum D2cc 4.83 Gy; Bladder D2cc 6.12. Group A < 50 years: VP = 129.7 cm^3; Rectum D2cc 2.62 Gy; Bladder D2cc 5.38. Group B > 50 years: VP = 47 cm^3; Rectum D2cc 5.92 Gy; Bladder D2cc 6.72. Group B < 50 years: VP = 76 cm^3; Rectum D2cc 3.53 Gy; Bladder D2cc 5.3.
Conclusion. BT insertion under spinal anesthesia allows optimal vaginal packaging thus reducing dose to OARs.

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Targeted intraoperative radiotherapy (IORT) with intrabeam in breast-conserving surgery

L. Rivero Alemán[1], B. Pinar Sedeño[2], D. Macias Verde[3], M. Miralles[1], R. Gianchandani[1], A. Cabezón Pons[2], M. Lloret Saez-bravo[2], P. Lara Jimenez[2]
[1] *Hospital De Gran Canaria Dr. Negrin, Cirugía/Unidad de Mama, Spain*
[2] *Hospital De Gran Canaria Dr. Negrin, Oncología Radioterápica, Spain*
[3] *Hospital De Gran Canaria Dr. Negrin, Fisica Medica, Spain*

After breast-conserving surgery, 90% of local recurrences occur within the index quadrant despite the presence of multicentric cancers elsewhere in the breast. Thus, restriction of radiation therapy to the tumour bed during surgery might be adequate for selected patients The Intrabeam (Carl Zeiss) (IB) is an electronic brachytherapy device that can be used to deliver low energy X-rays (50 kV) to a lumpectomy cavity at the time of lumpectomy for breast cancer. The randomized phase III TARGiT trial demonstrated similar recurrence rates to whole breast irradiation (WBI) and a lower overall toxicity profile on short-term follow-up.
Aim. There is not reported experience with IB for breast cancer in Spain. We present the first and limited experience in this setting evaluating prospects of use of IB in Spain: (1) has been described an increased clinically relevant RBE (mean RBE values of 50-kV X-rays from Intrabeam were 1.26–1.42). Total dose given 20 Gy at surface applicator. (2) For selected patients, a single dose of radiotherapy delivered at the time of surgery by use of targeted intraoperative radiotherapy should be considered as an alternative to external beam radiotherapy delivered over several weeks. (3) Lumpectomy and Targit boost combined with external beam radiotherapy results in very low local recurrence rate due to accurate localization and the immediacy of the treatment. Targit boost might be superior to an external beam boost in its efficacy. (4) Cost reduction both in economical, personal and quality of life compared with WBI. (5) Other tumour locations are also suitable for this treatment.
Conclusion. While a variety of APBI techniques are currently available for clinical use, our early experience with IORT shows it is well tolerated with low morbidity. Delivery of IORT adds moderate operative time (mean 30 min) and require creating subcutaneous tissue flaps.

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Telephone overview of patients with prostate implant LDR in Castilla y León

P. Alonso Martínez, E. Perez García, P. Diezhandino García, M. Garavis Vicente, M. Fernandez Castro, B. Martín Gil, F. Cuadrillero Rodriguez, F. López-lara Martín
Hospital Clínico Universitario de Valladolid, Oncología Radioterápica, Spain

Introduction. Castilla y León is the largest Spanish region and has a low population density, which does not allow the creation of highly specialized equipment throughout its territory, so many such services are centralized in a regional referral center. This means that, to attend these services, patients have to travel considerable distances, with the cost and inconvenience that entails, both for the patient and for the administration and society in general.

Objectives. This initiative seeks to avoid unnecessary travel for patients to follow-up consultation after implantation oncologist prostate and improve the safety of treatments to ensure monitoring of potential adverse effects from the personnel of the unit and facilitate the implementation of controls necessary analytical papers, thus an important economic and social savings for both the patient and the sanitary institution: SACyL.
Methods. Through a structured telephone interview necessary data is collected from each patient who adheres to the system at the same time providing the necessary information for the proper development of the process, while maintaining good communication with your doctor and nurse reference.
Results. After a brief experience unofficial phone tracking system, this has convinced both patients and clinicians and managers what is intended by officially implement the radiotherapy unit of the University Hospital of Valladolid in the first half of 2013.
Conclusions. Provide the user with access to health services with a minimum cost and inconvenience should be a core objective in their care, so that the professionals involved have in their hand designing novel strategies to pursue this goal, while maintaining and even increasing the quality of the attention given to the user and significantly reducing the costs of it.

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Uncertainties in manual/automatic applicator reconstruction in cervical cancer IGABT

S. Torres Pozas[1], M. Federico[2], J. Pérez Molina[3], J. Martí Asenjo[3], B. Pinar Sendeño[2], E. Ruíz Egea[3], R. Martín Oliva[3], P. Lara Jiménez[2]
[1] *Instituto Canario de Investigación del Cáncer (ICIC), Spain*
[2] *Hospital Universitario de Gran Canaria Dr. Negrín, Radiation Oncology, Spain*
[3] *Hospital Universitario de Gran Canaria Dr. Negrín, Medical Physics, Spain*

Purpose. To evaluate the uncertainties introduced in DVH parameters with different MR/CT compatible applicator reconstruction methods.
Material and methods. For 12 patients with cervical cancer treated with MR based brachytherapy, DVH parameters for the High Risk CTV (V100, D90) and Organ At Risk (D2cc for Rectum, Sigmoid and Bladder) were analysed. We investigated deviations in dose parameters due to applicator reconstruction uncertainties for three different reconstruction methods: (a) Manual (Man.), based in a housemade template with applicator geometry and source channel positions. (b) Automatic (Aut.), reconstruction with the 3D applicator library implemented in Oncentra Masterplan 4.1 (Nucletron B.V., Veenendaal, Netherlands). (c) CT based (CT), the HRCTV contoured in the MR image set, is transferred to the CT image set by a rigid registration based in the applicator coordinates. The source channels are then reconstructed in CT with the aid of the radiopaque dummie.
Results. The mean differences between the MR HR-CTV and 4.2%, with a median value of $\pm 0.7\,cm^3$ ($-3.2 \pm$ the transferred HR-CTV was $-0.5\,cm^3$). Relative mean difference in DVH parameters between Aut. and Man. (2.6%), with a median of $0.1\% \pm$ D90HRCTV = (0.15(methods was respectively: $2.8\% \pm$ D 2cc(Sigmoid) = (1.6(1.1%) with a median of $1.3\% \pm$ V100HRCTV = (-0.32(D(1.6%) with a median of $0.0\% \pm$ D 2cc(Rectum) = (-0.1(with a median of 1.3%. 3.1%) with a median of -0.9%. Comparing the MR based $\pm 2\,cm^3$ (Bladder) = (-1.4 methods (Aut. and Man.) with the CT method both are similar, the mean difference 4.5%) with a median of 1.1%.
Conclusion. The uncertainties $\pm$ in D90 was (0.4) introduced by the applicator reconstruction method are acceptable, and similar between the methods. The main difference appear in the Aut. method, which is less time consuming and error prone.

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