and dedicated positioning equipment and evaluating MRI derived synthetic CT (sCT) of the pelvis region for PET AC and dose calculation to enable a PET/MRI-only setup. ***Materials and Methods:*** Nine patients underwent PET/MRI (Siemens Biograph mMR) scan in RT position. Each patient had a CT available and one patient was referred for RT. The PET/MRI scan protocol included multiparametric imaging with a total scan time of 35 minutes. The PET signal attenuation and CT-based attenuation correction of the dedicated RT setup including a flat table overlay, leg fixation device, flexible surface coil, and coil holders were evaluated using both phantom and clinical measurements.A deep convolutional neural network was trained to generate sCT from the corresponding Dixon MRI by including also data of sixteen patients from another ongoing study. For one patient the sCT was evaluated by measuring the mean absolute difference between the dose distributions calculated on sCT and CT. PET images reconstructed with sCT and co-registered CT were compared by the voxel-wise relative difference. ***Results:*** Phantom imaging with the RT flat table overlay revealed 2.3% reduction in total prompt. The PET photon attenuation for the phantom was up to 14.6% near to the table, which was reduced to 0.5%±3.2% using the generated hardware AC map. Comparable results were found in the patient study resulting in a 16% underestimation of SUV_{mean} without AC of the RT equipment.AI based sCT was inferred for each patient in less than 5 seconds. There was an excellent voxel-by-voxel correlation between CT and sCT ($P < 0.01$). The dosimetric analysis of the sCT-based dose planning showed a mean absolute error (MAE) of 0.12 Gy within the body contour and 0.18 Gy inside the planning target volume (PTV). PET image reconstructed with sCT compared to the one reconstructed with CT had relative differences of 6.2%±1.7% within the tumor. ***Conclusion:*** These preliminary results suggest that multiparametric PET/MRI-only can be successfully integrated in the radiotherapy workflow of patients with cervical cancer. Patient recruitment is ongoing for validation of the robustness of the setup. ***References:*** None

EPS-195

Utility of the Sentinel Lymph Node Biopsy in Breast Cancer after Neoadjuvant Chemotherapy with Negative Axillary Lymph Nodes or Node Involvement

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Aim/Introduction: To assess the usefulness of sentinel lymph node biopsy (SLNB) technique in patients with breast cancer after neoadjuvant chemotherapy (NAC). ***Materials and Methods:*** Retrospective series of 80 women with breast cancer who underwent a lymphoscintigraphy after the periareolar/peritumoral injection of 111MBq of 99mTc-nanocoloid for the detection of the sentinel lymph node post-NAC between June 2016 and April 2020. Variables such as age, carcinoma histology, molecular subtype, BRCA gene mutations, focality, axillary staging pre-NAC (clinical, US/MRI, FNA), tumor size, type of surgery, radiological response, lymphoscintigraphy result and intraoperative SLNB result (by using OSNA method) were analyzed. ***Results:*** Average age was 50 years (48% between 45-60 years). The main histological type was invasive ductal carcinoma (75), followed by infiltrating lobular carcinoma (4) and metaplastic (1). Regarding tumor characteristics we found that: 29 patients were triple-negative (36%), 19 luminal B-HER2, 13 HER2neu, 16 luminal B and 3 luminal A. BRCA1 gene mutations were detected in 3 patients. 1 tumor was multifocal and 7 multicenter. Axillary involvement pre-NAC was observed in 40 patients (50%): 4 clinically+ and US/MRI/FNA-, 7 US/MRI+ and FNA-, and 29 with axillary FNA+. 33 of them (83%) showed a tumor size <5cm (T1-T2) and the remaining 7 >5cm (T3-T4). Conservative surgery (lumpectomy/quadrantectomy) was performed in 54 patients (68%). 54% showed complete radiological response. Lymphoscintigraphy detected the SLN in 76 patients (95%). 4 were not detected despite reinjection, so an axillary lymph node dissection (ALND) was performed (3 without lymphatic invasion and 1 with 5/9 macrometastases). When evaluating SLNB result, it was observed to be: 1. Negative in 61 patients: -Axillary lymph-node preservation in 42 (69%): 1 metaplastic carcinoma. 17 triple-negative (1 of them synchronous bilateral carcinoma), 5 HER2neu (1 showed partial radiological response) and 8 luminal B-HER2. 1 multifocal and 4 multicenter. 8 patients with axillary affectation pre-NAC (1 clinically, 1 US/MRI+ and 6 FNA+) and 34 with negative axillary lymph nodes. 9 patients operated with a mastectomy. -ALND was performed in 19: they showed partial radiological response and/or suspicious lymph nodes intraoperatively (14 with lymphatic invasion pre-NAC). However, 73% without metastases. 2. Positive in 15 patients: -Axillary lymph-node preservation in 3 (20%) with micrometastases. -ALND in 12 with macrometastases: 9 showed axillary involvement pre-NAC. ***Conclusion:*** SLNB is a very useful technique in patients with NAC by avoiding a high number of unnecessary axillary lymphadenectomies, even in those with a worse prognosis, improving their quality of life. ***References:*** None

EPS-196

Impact Of Sentinel Lymph Node Biopsy In Breast Cancer Patients Treated With Neoadjuvant Chemotherapy

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Aim/Introduction: To analyze how many of the patients undergoing neoadjuvant chemotherapy (NCT) may benefit from SLNB, as well as the impact on patient management, especially in those with early axillary involvement. ***Materials and Methods:*** We included patients with breast carcinoma candidates to NCT discussed at the Tumor Committee of our hospital (April/2017-August/2019). All of them were subjected to clinical assessment, ultrasound and, if appropriate, histological analysis, axillary pre and post-NCT. Sentinel lymph node detection was performed after periareolar injection of [99mTc]Tc-nanocoloid (74 MBq) the day before surgery. In some cases, blue dye was injected and/or a pre-NPC metal clip was placed in the affected node. ***Results:*** Sixty-two patients were included. NCT achieved a complete breast response in 12 patients, partial in 46 and non-response in 4. Initially, 31 patients were classified as N0 and 31 as N+ (28 N1 and 3 N2), achieving a complete axillary response in 58% of N+ (18). SLNB was performed in 49 patients (79%; 100% in N0 and 58% in N+ from baseline). The gamma detection rate of the sentinel lymph node was 91.8% (93.5% in N0 and 88.9% in N+). 28 lymphadenectomies were undergone (45.2%; 22.5% in N0 and 67.7% in N+), 11 due to positive SLNB (5 N0 and 6 N1), 13 owing to lack of axillary response and 4 caused by the non-localization of the sentinel lymph node. SLNB was performed in 58% of N+ patients, of which 44.4% were negative, avoiding lymphadenectomy. Metal clip and/or blue dye techniques were used in 31 cases (50%). ***Conclusion:*** SLNB is viable in a high percentage of patients with previous NCT, with a high detection rate, even in patients with early affected axilla, avoiding lymphadenectomy to patients who achieve a complete response of the axillary lymph node. ***References:*** None

EPS-197

Tumor Recurrence at 5 Years in Patients with Breast Cancer, Previous Surgery Treatment and Sentinel Lymph Node Biopsy

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Aim/Introduction: To assess the probability of tumor recurrence at 5 years in patients with personal history of breast cancer in whom sentinel lymph node biopsy (SLNB) was performed. ***Materials and Methods:*** Retrospective series of 123 patients with breast cancer who underwent lymphoscintigraphy to detect the SLN and subsequent intraoperative exeresis between January 2014 and December 2014. Variables such as age, sex, SLNB result, tumor recurrence at 5 years and exitus until January 2020 were analyzed. Data were also collected from patients with disease recurrence: age, sex, histology and tumor size, if triple-negative (negative estrogen and progesterone receptors and also negative HER2), percentage of nuclei with positive staining in tumor cells (Ki-67 score), SLNB result and location of recurrence. ***Results:*** 122 women and 1 man with average age of 55 years were studied. SLNB was negative in 76 patients (62%). Recurrence was detected in 6 patients, all of them women with mean age of 60 years. Regarding tumor characteristics in this group: histological types found were invasive ductal carcinoma (IDC) in 5 patients and carcinosarcoma in 1, and an average size of 20mm. 33% of them were triple-negative and showed Ki-67 percentage score of 70-80%. When evaluating SLNB result, it was observed to be: 1. Negative in 2 of the relapsed patients: 1 showed distant recurrence at 3 years in the liver, and 1 presented new lesion in the contralateral breast at 2 years (second SLNB also negative). 2. Positive in 4 patients, with axillary lymph node dissection (ALND) performed: 2 showed local recurrence (surgical site) and 2 presented distant disease (1 in the liver and 1 had a mass with superior vena cava thrombosis). Therefore, the recurrence of disease at 5 years is 5% in our sample (6/123): 33% (2/6) with previous negative sentinel lymph node biopsy; 66% (4/6) with positive SLNB and ALND. Until January 2020, 6 of the 123 patients deceased, but just 3 due to recurrence. ***Conclusion:*** The recurrence of the disease at 5 years is not relevant in patients undergoing sentinel lymph node biopsy. However, there is a higher incidence in those who showed positive SLNB and ALND was performed, probably due to some prognostic factors such as tumour size, histology, hormone receptors expression, or Ki-67 score. ***References:*** None

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Honorary Member Award, Marie Curie Award, Plenary 4: Highlights Lecture, Closing

Friday, October 30, 2020, 17:05 - 18:25 Channel 1

OP-1003

Honorary Member Award

OP-1005

Marie Curie Award

OP-1006

Plenary 4: Highlights Lecture

A. Chiti*; Humanitas University, Nuclear Medicine, Milan, ITALY.*

OP-1007

Plenary 4: Highlights Lecture

R. Hustinx*; Centre hospitalier Universitaire de Liège, Service de Médecine Nucléaire, Liege, BELGIUM.*