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previously reported for FDG (mean 2.2 versus 1.2), likely due to the higher image contrast for ^{68}Ga -DOTATOC than for FDG. DDG yielded significantly higher SUV_{max} values as compared to non-gated images. **References:** None

OP-613

Predictive value of multiparametric PET/MR in patients with head and neck squamous cell carcinoma treated with chemoradiotherapy

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Aim/Introduction: The aim of the study was to evaluate the predictive value of the pretreatment, simultaneously acquired PET/MR based metabolic, and diffusion parameters of head and neck squamous cell carcinoma treated with chemoradiotherapy (CRT). **Materials and Methods:** Retrospective evaluation was performed using pretreatment and post CRT PET/MR image datasets of 68 histologically proven head and neck cancer patients. PET SUV_{max} , SUV_{peak} , MTV and TLG parameters and MR ADC_{mean} values were calculated using pretreatment imaging data. Therapeutic response was evaluated using posttreatment scans, two patient subgroups were created according to the presence or absence of viable tumor. For statistical analysis, Spearman's correlation and Wilcoxon's test were used. **Results:** After completing the CRT, a viable residual tumor was detected in 36/68 (53%) cases, while 32/68 (47%) patients showed complete remission. Significant correlation was not found between the pretreatment ADC_{mean} parameter and the therapeutic success ($p = 0.88$). The PET parameters, SUV_{max} and SUV_{peak} , MTV, and TLG were statistically significantly different between the two patient subgroups ($p = 0.032$, $p = 0.01$, $p < 0.0001$, $p = 0.0004$). **Conclusion:** Our preliminary result suggests that MR ADC_{mean} data originating from pretreatment PET/MR is not useful for therapeutic response prediction, while the evaluated PET parameters (SUV_{max} , SUV_{peak} , MTV, and TLG) seems to be more promising for that purpose, thus their inclusion to risk stratification may also be of additional value. **References:**

OP-614

Comprehensive Review of Zr-89 Immuno-PET in Emerging Clinical Use: What the Technologist Needs to Know

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¹Advanced Molecular Imaging and Therapy, LLC, Glen Burnie, MD, UNITED STATES OF AMERICA; ²Advanced Molecular Imaging and Therapy, Glen Burnie, MD, UNITED STATES OF AMERICA.

Aim/Introduction: The modern paradigm of medical oncology therapy is personalized treatment planning based on molecular and genomic characteristics. Molecular histopathology is a current standard of care for guiding therapy regimens. Emergence of Zr-89 immuno-PET agents introduces the opportunity for an evolution to in vivo, whole-tumor, whole-body molecular diagnostics. The half-life of Zr-89 (78.41 hours) allows for various types of immuno-PET tracers, with different characteristics. Technologists need to understand the washout characteristics of types of immuno-PET tracers and their safety considerations, as well as radiation safety considerations related to Zr-89 emission properties (approximately 23% positron and 77% gamma at 909 keV). **Materials and Methods:** Comprehensive literature review using pubmed with the search term "Zr AND 89 AND immuno AND PET" was performed. Review articles were excluded. Remaining resulting articles were included and evaluated for molecular tracer utilized, administration technique, imaging technique, and patient safety considerations from the nuclear medicine technologist's perspective. **Results:** There were 107 articles identified meeting the search criteria. There were 11 review articles identified and excluded leaving 96 articles for evaluation. Articles were categorized by those describing studies in human subjects, by specific Zr-89 immuno-PET tracer, and by physical, technical, and safety aspects for human use. Specific aspects of each Zr-89 Immuno-PET agent in current human use were assessed and detailed from the technologist's perspective. **Conclusion:** Zr-89 immuno-PET is an important emerging area of molecular imaging in oncology, yet the technologist community still has limited exposure to this diverse category of radiotracer in humans in everyday clinical practice. This comprehensive review is intended to provide a single source of information for technologists to better understand Zr-89 immuno-PET agents and their practical considerations related to image quality and safety at the point of care. **References:** 107 Literature articles meetings search criteria can be provided as a supplemental upon request.

OP-615

Clinical Usefulness of ^{99m}Tc -DMSA SPECT/CT in Evaluating Focal Defects in Transplanted Kidneys

B. Ferreira, A. Parthipun;
Royal Free London, NHS Foundation Trust,
London, UNITED KINGDOM.

Aim/Introduction: There are several imaging modalities at our disposal in order to aid the diagnosis of complications in transplanted kidneys (e.g. ultrasonography, magnetic

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