over time, with increased uptake in the kidneys. Minimal accumulation of the radiolabeled peptide was observed in the heart, spleen, lungs, and muscle, with the percentage of the injected dose per gram (%ID/g) remaining below 5%. However, high uptake was observed in the liver, stomach, intestine, and thyroid. In tumor-bearing mice, tumor uptake was measured at 0.58 ± 0.25 %ID/g, with a tumor-to-muscle ratio of 1.54 ± 0.14. Preliminary molecular imaging in the healthy group confirmed in vivo biodistribution findings consistent with ex vivo data. **Conclusion:** These findings suggest that while the [99mTc]Tc(CO)3-HYIGSR complex demonstrated efficient radiolabeling, further modifications may be necessary to enhance its tumor-targeting capabilities and improve its overall diagnostic potential.

Keywords: Biodistribution, Breast, Laminin-111, Radiolabeled, Technetium-99m.

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THE ROLE OF PSMA PET/CT IN THE CHARACTERIZATION OF HEAD AND NECK SQUAMOUS CELL CARCINOMA

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A B S T R A C T

Introduction/Justification: Head and neck squamous cell carcinoma (HNSCC) is an aggressive malignancy, often diagnosed at advanced stages. The 18-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) reflects glycolytic activity in tissues and has been widely used for staging and monitoring HNSCC. However, its specificity is limited by false positives in inflammatory processes. PET/CT with prostate-specific membrane antigen (PSMA) has been investigated as an alternative to 18F-FDG due to its expression in tumor neovasculature, but its role in HNSCC remains unclear. **Objectives:** To evaluate the uptake patterns of 18F-PSMA-1007 PET/CT in HNSCC, in comparison with 18F-FDG PET/CT, aiming to explore its potential in tumor characterization, staging, and monitoring. **Materials and Methods:** Patients with advanced locoregional HNSCC, either at initial diagnosis or with tumor relapses, were enrolled in the study. Individuals who had undergone surgical tumor resection or received chemotherapy and/or radiotherapy within the last six months were excluded. All enrolled patients underwent 18F-FDG PET/CT and 18F-PSMA-1007 PET/CT imaging, with a 24-hour interval between the exams. The images were analyzed independently by two nuclear medicine physicians and one radiologist. Statistical comparisons between groups were performed using the t-test, with significance set at $P < 0.05$. **Results:** Fourteen patients (nine at initial diagnosis, five with recurrent disease) were analyzed using both PET/CT imaging modalities. The median age was 61 years (range: 49-81), with eleven males and three females. Most patients were current or former smokers and alcohol consumers, had good performance status (ECOG 0), and presented with stage IV tumors. The primary tumors were located in the oropharynx, larynx, and oral cavity, with one sinonasal tumor. Recurrences, were observed in locoregional lymph nodes, lungs, and bones. HNSCC lesions were typically characterized by FDG uptake, although most lesions also exhibited varying degrees of PSMA uptake. In primary tumors and nodal disease, the mean ± SD and median (range) SUV values obtained with FDG PET/CT at 1 hour were 25.6 ± 16.4 and 21.0 (10.7–59.8), and 11.7 ± 7.7 and 8.6 (2.7-26.4), respectively. For PSMA PET/CT, the mean ± SD and median (range) SUV values at 1 hour in primary tumors and nodal disease were 4.5 ± 1.3 and 4.3 (2.9-6.3), and 4.9 ± 2.6 and 3.9 (2.8-10.2), respectively. FDG uptake values were higher than PSMA uptake values in primary tumors ($P < 0.001$) and lymph nodes ($P = 0.01$). **Conclusion:** HNSCC lesions were more effectively detected by FDG PET/CT, highlighting its superior sensitivity for assessing tumor activity. However, PSMA uptake in most tumors suggests the coexistence of glycolytic activity and neoangiogenesis, reinforcing the value of integrating FDG and PSMA PET for tumor characterization, staging, and monitoring. The pronounced PSMA expression in certain cases supports the feasibility of theranostic PSMA-targeted therapies or anti-angiogenic treatments. Further research is needed to elucidate the relationship between PSMA expression, tumor angiogenesis, and HNSCC biology. Acknowledgements: The study was supported by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and Fundação de Apoio ao Ensino e à Pesquisa do Estado de São Paulo (Cancer Theranostics Innovation Center, CancerThera, FAPESP #2021/10265-8).

Keywords: Head and neck squamous cell carcinoma, PET CT PSMA, PETCT FDG.

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EGFR-TARGETING PEPTIDE INHIBITS HELA CELL PROLIFERATION: A NOVEL STRATEGY FOR CERVICAL CANCER THERAPY?

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A B S T R A C T

Introduction/Justification: Cervical cancer remains one of the leading causes of cancer-related mortality in women worldwide, with EGFR overexpression contributing to uncontrolled proliferation, resistance to apoptosis, and tumor progression. Despite advances in radiotherapy and chemotherapy, many patients develop resistance, highlighting the urgent need for