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**18F-FES and 18F-FDG micro-PET/CT imaging for the evaluation of nanovectorized radiotherapy with 188Re in a murine model of endometrial cancer.**

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**Abstract:**  
Aim: To evaluate changes in tumour glycolysis measured by positron emission tomography (PET) with [18F]fluorodeoxyglucose ([18F]-FDG) and in steroid hormone receptor expression measured by PET with 16α-[18F]fluoro-17β-oestradiol ([18F]-FES) following internal radiotherapy with nanoparticles loaded with rhenium-188 (LNC-188Re-SSS) in a preclinical murine model of human endometrial cancer. Materials and methods: Ishikawa endometrial carcinoma cell lines were implanted subcutaneously in nude mice (n=10). D28 after inoculation, mice (n=5) were treated with an intra-tumor injection of LNC-188Re-SSS. Treatment efficiency in the LNC-188Re-SSS group was compared to control group (n=5) in term of tumour growth assessed by clinical palpation and micro-PET/CT imaging. For each mouse, two [18F]-FDG and two [18F]-FES micro-PET/CT were performed on separate imaging days, at baseline before therapy, and two weeks later. Results: Fourteen days after treatment with LNC-188Re-SSS, tumour progression was significantly inhibited compared to the control group (p<0.006). [18F]-FDG uptake remained stable in the treated group (p=0.9) and was significantly lower than in control group (p=0.03), in which [18F]-FDG tumour uptake increased significantly (p=0.003). An excellent correlation was observed between [18F]-FDG tumour uptake and tumour volume (r=0.88, p=0.0016). At baseline focal [18F]-FES uptake corresponding to the known subcutaneous tumour were observed in both group of mice, and after treatment no significant [18F]-FES uptake difference was observed between the treated and untreated groups (p=0.75). The [18F]-FES tumor uptake was not correlated with the tumour volume (r=0.1613, p=0.68). A significant correlation was found between tumour ERα-score, measured by immunohistochemistry, and [18F]-FES uptake (r=0.6821, p=0.043). Conclusion: Because after treatment, significant changes in tumour uptake was observed only with [18F]FDG and not with [18F]-FES, [18F]-FES does not appear to be able to monitor the therapeutic effect of internal radiation with LNC-188Re-SSS.

**Author Disclosure Information:**  
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Disclosures (Complete):

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