

Supplementary Information 2 - Dosimetry supplement

Primary tumour iodine avidity in relation to uptake in persistent metastatic disease in papillary and poorly differentiated thyroid cancer
Endocrine

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Methods

Lesional dosimetry was performed when deemed clinically relevant, but was not part of the study protocol. Dosimetry was performed by dose kernel-convolution on SPECT data acquired at three time points. Targets were delineated by a radiologist based primarily on CT data. The time-activity curves were integrated as mono-exponentials. Activity concentrations in targets were corrected with recovery coefficients, established for each SPECT/CT-system by standard phantom measurements.

Results

In two patients (#2 and #9 in Table 2), post-therapeutic dosimetry was conducted to calculate absorbed doses to metastatic lesions. A lesion in the bronchus of #2 received less than 5 Gy from an administration of 7.4 GBq iodine-131 and was classified as non-avid; radiology of the metastasis is shown in Figure 4a and 4b. In #9, skeletal metastases received cumulated absorbed doses of more than 100 Gy from two administrations of a total of 11.1 GBq iodine-131 and the metastases were classified as iodine avid, see Figure 3c and 3d.

These results were in line with high/low avidity on images and with the tumour-to-background ratio.