

CT Perfusion Reference Phantom (Hadasit)

code: 11-2010-92

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Need:

It is of extreme importance to monitor non-invasively the effect of anti-cancer therapy on tumors. Proliferation of cancer cells causes angiogenesis that increase the perfusion to the tissue. Radiotherapy, chemotherapy or thermotherapy can cause death or damage to the cells and decrease the blood flow and perfusion to the tissue. No change in the blood is a predictor of failed treatment whereas reduced flow is predictive of biological response of cancer cells. CT provides anatomical measurements for follow-up but a tumor of the same size or volume may have different blood flow that would have different prognostic implications. The ability to generate perfusion parameters from CT data is complicated as the later are dependent on multiple parameters including ones that are scan-related and ones that are patient-related.

Innovation:

We provide a reference value that will reliably represent the changes in perfusion measured by CT, enabling comparison of different times of perfusion parameters for the same patient. The proposed device is an external perfusion phantom. Having a good external reference will improve the accuracy of the CT exam. The idea is to have an external phantom with known and controlled parameters (profile of flow/perfusion rate diameters) that are in the same range of perfusion parameters as the tissues around the tumor. When CT is performed the measured parameters from the tumor would be compared to that of the phantom.

Indications/Applications:

Monitoring anti-cancer therapy on tumors.

Competitive Advantages:

No other technology offers calibration of perfusion parameters during CT exam.

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