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Titel des Beitrags: Recommendations for measurement of tumour vascularity with positron emission tomography in early phase clinical trials.

Abstract: The evaluation of drug pharmacodynamics and early tumour response are integral to current clinical trials of novel cancer therapeutics to explain or predict long term clinical benefit or to confirm dose selection. Tumour vascularity assessment by positron emission tomography could be viewed as a generic pharmacodynamic endpoint or tool for monitoring response to treatment. This review discusses methods for semi-quantitative and quantitative assessment of tumour vascularity. The radioligands and radiotracers range from direct physiological functional tracers like [(15)O]-water to macromolecular probes targeting integrin receptors expressed on neovascularature. Finally we make recommendations on ways to incorporate such measurements of tumour vascularity into early clinical trials of novel therapeutics. Key Points o [(15)O]-water is the gold standard for blood flow/tissue perfusion with PET o In some instances dynamic [(18)F]-FDG uptake may be used to estimate perfusion o Radiopharmaceuticals that target integrins are now being evaluated for measuring tumour vascularity.

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