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Multimodality In-Vivo Molecular and Advanced oncologic Imaging : Human
Metrics/Applications where is the Animal Model Validation?

EDUCATIONAL OBJECTIVES

- Review the current literature on animal studies using MR spectroscopy perfusion, permeability and diffusion imaging in oncology

- Evaluate what validation is necessary to translate these techniques to the bedside
- Determine how to overcome some of the challenges which prevent these techniques from becoming surrogate endpoints for regulatory bodies in clinical trials

PRESENTATION SUMMARY:

In-vivo molecular and advanced oncologic Imaging in humans has progressed significantly over the last decade. However there are still many challenges facing the translation of these techniques to the beside. Among the challenges are standardization of some of these techniques as well as the validation of what it is we are imaging or measuring with some of these quantitative techniques. Metabolic imaging with MR spectroscopy and physiologic imaging with diffusion, perfusion and permeability imaging are currently being investigated as biomarkers for early diagnosis, predicting biology, predicting outcome in response to specific therapies and to monitor therapeutic efficacy. The pathway to clinical and regulatory acceptance of MRI biomarkers has many hurdles. Imaging of animal models of cancer has and will for some time play a vital role in the validation of numerous MRI biomarkers. We determine the current status of molecular and advanced oncologic animal imaging by reviewing the literature and what is required to translate these tools to the bedside and provide acceptable endpoints for clinical studies of tumor therapeutics.

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