Research Opportunities for Nuclear Medicine Technologists

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The rapid evolution of hybrid imaging technologies such as PET/CT, SPECT/CT, and PET/MRI have been instrumental in promoting pharmaceutical company sponsored research activities in Molecular Imaging. Clinical Trials are an important platform that promote the growing use of translational research in Molecular Imaging, especially in the context of cancer research and neuro science research such as dementia, Alzheimer’s disease and Parkinson’s disease.

Clinical Trials can be sponsored by pharmaceutical companies, can be investigator initiated or an initiative of cooperative/collaborative trial groups. They are usually conducted to evaluate the sensitivity, specificity, diagnostic yield and cost effectiveness of Nuclear Medicine and PET/CT imaging. Study protocols are formulated by these groups in collaboration with principal investigators and associate investigators. The role of Nuclear Medicine Technologists (NMT) in clinical trials has grown to the extent that senior technologists can be associate investigators in clinical trials. This is testament to the fact that the role of NMTs in conducting clinical trials in Nuclear Medicine and PET is significant.

An imaging charter usually accompanies the study protocol, describing specific details of the imaging and processing protocol and data transfer requirements. Strict adherence to the study protocol and scanning protocol is mandated. It is recommended that NMT’s involved with clinical trials complete and maintain a valid Certificate of Good Clinical Practice (GCP) that helps understand principles of study design, conduct, accurate recording and reporting of clinical investigations carried out in human subjects to assess the safety or performance of medical devices for regulatory purposes.

With the advent of new ligands such as 18F-Fluoro Di Hydro Testosterone (FDHT), 89-Zr DS 8895a, 18-F NAV4694, and 18F-AV-1451 coupled with rapidly increasing advances in PET/CT such as Time of Flight technology, faster scintillators, quicker scan times, iterative reconstructions, and quantitative capabilities has thrust PET/CT as a preferred imaging modality in many clinical trials. It is imperative that NMTs take part in continuous professional development and keep themselves abreast of current trends in all aspects of Nuclear Medicine and PET – technical, clinical, instrumentation and IT. This allows us to be key players in research activities as we are often the contact point for study coordinators of clinical trials as well as the patients participating in the trials. A sound knowledge of web based portals for uploading scan data to central reading sites is also helpful.

NMTs are well equipped to step beyond the realm of clinical scanning into research scanning. Sound clinical understanding of the trial and scan protocol is essential and the importance of adhering to study time points cannot be overstated. Usually a team approach is required with key stake holders – the study coordinators, reporting nuclear medicine physicians, medical physicist, radiochemists and radiopharmacists to ensure the success of the research scan.

References: