The next presentations will be:

Date: Wed April 21, 2010
Time: 1:00 p.m. to 2:00 p.m.

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"Past, Present and Future: Positron emission tomography-guided volumetric resections of high-grade gliomas"

Abstract: Nowadays 18F-FDG is the most commonly used radiopharmaceutical scanning isotope carrier. Since its implementation in medicine, PET radiopharmaceuticals have been used in different fields of research and clinical activity, including Neurosciences - ranging from evaluation of tumor cellular proliferation with C-methionine to calculation of cerebral blood /volume flow with O-labeled carbon monoxide. The standard FDG-PET is now used in characterizing primary brain tumors in terms of both grade and prognosis, as one can find a direct relationship between glucose metabolism and malignant behavior. The glucose metabolism of the normal brain can become a disturbing factor when interpreting the activity reflected by FDG-PET, visual or electronic correlation of PET images with anatomic imaging (MRI/CT) is considered to be essential. The simultaneous heterogeneous nature of brain tumors is another reason in favor of the imaging correlation. The relationship between FDG accumulation and tumor grade was first described by Delbeke et al. (1995), connecting high grade tumors to increased metabolic activity. Besides being a diagnostic complementary exam, FDG-PET can be helpful in guiding a stereotactic biopsy or similar procedure, aiding MRI/CT imaging, as it enables the selection of the tumoral regions that are hypermetabolic and potentially have the highest grade. Since the first studies by Alavi et al. (1988), FDG-PET imaging is also considered an independent factor for clinical prognostic. FDG-PET can be important in evaluating residual or recurrent tumor following therapy, as well as function as a survey tool for low-grade tumor’s degeneration into high-grade malignancy. One limitation of FDG-PET is the fact that radiation necrosis can sometimes be indistinguishable from recurrent high-grade tumor. C-methionine or C-thymidine can then be used as markers, as they present higher specificity for tumor cell proliferation over inflammation. We see great potential in these imaging techniques to strengthen and deepen our research in brain tumors. The use of PET/MRI as image guided surgery for HGG has already proven beneficial results in the literature. We can adopt this technique to further study clinical outcomes and tissue characteristics in our Neurosurgical Outcomes Lab, Brain Tumor Imaging Lab and Brain Tumor Stem Cell Lab.

Location: CRB II – David Koch Cancer Research Building, Room 111 (1st floor; behind MeLatte).

LIGHT LUNCH AND REFRESHMENTS WILL BE PROVIDED.

Joint seminar of Section of High Resolution Brain PET ( Nuc Med /Radiology) and Brain Sciences Imaging (BSI) Core

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