INTRODUCTION AND AIM OF WORK

Introduction:

Magnetic resonance spectroscopy (MRS) enables tissue characterization on a biochemical level surpassing that of conventional magnetic resonance imaging (cMRI) ***(Kadota et al., 2001).***

Proton MRS provides a non-invasive potentially risk-free method to monitor the biochemistry of acute and chronic stages of disease. It provides a bridge between imaging and metabolism ***(Simonetti et al., 2003).***

In many pathologic processes, metabolic changes are most likely to precede anatomic changes during disease progression and treatment. Because spectroscopy is potentially sensitive to such metabolic changes, it offers a method for early detection of a new disease and can influence success or failure of therapeutic intervention ***(Simonetti et al., 2003).***

Proton spectroscopy can non-invasively provide useful information on brain tumor type and grade ***(Howe et al., 2001).***

In vivo proton MRS is the only metabolic technique of non-invasive monitoring of treated brain tumors. It can separate recurrence from radiation necrosis ***(Sabatier et al., 2001).***

MRS is more sensitive than MRI in detecting hypoxic damage related to vascular or other type of abnormality ***(Ross, 1996).***

Proton MRS is capable of demonstrating abnormalities within the lesions and in white matter that appears normal on cMRI in case of multiple sclerosis ***(Falini et al., 1998).***

MRS is able to distinguish the intracranial abscess from cystic and necrotic brain neoplasms ***(Grand et al., 1999).***

Additive information of proton MRS (^{1}H MRS) of the brain led to 15.4% higher number of correct diagnosis and 6.2 % fewer incorrect as well as 16% fewer equivocal diagnosis than with structured MRI data alone ***(Hartman, 2002).***

The aim of this work is to highlight the current value of proton MRS in the assessment of focal brain lesions, especially tumors regarding characterization and follow up after therapy.