ABSTRACT FORMAT

The submitted abstracts should adhere to the following format. The abstracts not in the given format are liable to be rejected.

Arial font should be used throughout the text of abstract. The abstract should not exceed two pages with top-bottom margins as 2.54 cm and left-right margins as 3.17 cm.

Title: Title should be typed in bold in upper case.

Authors: Authors name should be followed by superscript indicating the affiliations, in case the authors are from different centres. Title, authors' name and affiliations should be separated by single line.

Text: Text should include a synopsis, introduction, materials and methods, results and discussion, conclusion and references. 1.5 line spacing should be used with enter key pressed twice between two heads.

Figures and tables: Appropriate figures and tables may be given.

Note: A sample abstract is given below for your reference.

Sample abstract:

ASSESSMENT OF THE METABOLIC PROFILE IN ALCOHOL DEPENDENTS THROUGH PROTON MR SPECTROSCOPY

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Abstract: Chronic alcoholism is associated with altered metabolism, morphology and cognitive abilities of the brain. To assess the metabolic changes associated with alcohol dependence, ^{1}H MRS was carried out in the frontal, parietal and occipital lobe. A significant increase in Cho/Cr ratio ($p<0.01$) was observed only in occipital lobe gray matter in the alcoholic group indicating altered phospholipid metabolism which may probably be responsible for the alterations in the cognitive abilities associated with vision.

Introduction: Excessive abuse of alcohol over a period of years may lead to a condition known as Alcohol Dementia, which can cause problems related to memory, learning and other cognitive skills [1, 2]. Previous MR Spectroscopic studies have shown brain metabolic changes in alcoholics particularly in the hippocampus, frontal cortex, basal ganglia and cerebellum. MRS revealed NAA loss in the frontal lobe in alcohol associated dementia [3, 4]. Alcoholism leads to changes in the levels of neurotransmitters in the brain particularly, amino acid glutamate, GABA and dopamine resulting in altered brain metabolism. Earlier functional magnetic resonance imaging (fMRI) studies at our centre and by other groups have shown that alcoholics also display a deficit in visuo-perceptual skills which have activation centres in the parietal, frontal and occipital lobes of the brain [5]. To substantiate our findings of Neuroimaging, MR Spectroscopy was carried out to assess any metabolic changes associated with these cognitive skills.

Materials & Methods: Sixteen healthy subjects and eight alcoholic dependents (30-55 years) were recruited for the study. The subjects chosen for the study were age, sex & education matched. The patient group had a family history of alcoholism with an average duration of alcohol dependence of 16 years. They were recruited for the study based on DSM IV criterion in conjunction with **C**ut down **A**nnoyance **G**uilt **E**ye-opener (CAGE). No genetic tests were performed and patients did not have any history of drug abuse or neuropsychiatric disorder. Spectra were acquired with a circularly polarized Head coil using 1.5 T whole body MR system (Magnetom Vision, Siemens, Germany). Single voxel (1.5x1.5x1.5cc) proton MRS (PRESS) was carried out with TR 1500ms and TE 135ms, in four locations of brain, namely, right and left frontal lobe white matter, left parietal white matter and left occipital gray matter. Spectra were post-processed using vendor provided software. The ratios of the metabolites were calculated from the integral values of metabolite peaks.

Results & Discussion: A significantly elevated Cho/Cr ratio ($p<0.01$) was found in the occipital lobe gray matter of the alcoholics (0.6079 ± 0.1942) as compared to the controls (0.4512 ± 0.0797). In the alcoholics Cho/Cr was also slightly high in right frontal lobe white matter ($p<0.08$) and left parietal lobe white matter ($p<0.06$) though not statistically significant. Increased levels of Choline indicate relatively low anabolism of membrane phospholipids. Previous studies have reported NAA loss in the right frontal cortex in alcoholics [3, 4]; however, we did not find any significant changes ($p<0.08$) which maybe due to smaller subject group or because of the extent of Alcohol associated Dementia.

Conclusion: Present study suggests an altered membrane lipid turnover in the occipital lobe, thereby, indicating that metabolism and function in visual sensory and integration areas may be affected in alcoholics.

References:

1. Tapert S. E., Caldwell L. and Burke C. Alcohol and the adolescent brain. Alcohol Research and Health, **28(4)**: 2004/2005.

2. Oscar-Berman M. and Marinkovic K. Alcoholism and the brain: An overview. Alcohol Research and Health, **27(2)**: 2003.

3. Meyerhoff D.J., Blumenfeld R., Truran D., Lindgren J., *et al*. Effects of heavy drinking binge drinking, and family history of alcoholism on regional brain metabolites. Alcohol Clin. Exp. Res., **28(4)**: 650 (2004).

4. Jagannathan N.R., Desai N.G. and Raghunathan P. Brain metabolite changes in alcoholism: an in vivo proton magnetic resonance spectroscopy (MRS) study. Magn. Reson. Imaging, **14(5)**: 553 (1996).

5. Manisha Bhattacharya, Shilpi Modi, S. Senthil Kumaran and Subash Khushu. Neurocognitive mapping of visuospatial judgment in healthy subjects and chronic alcoholics – an fMRI study. Proc. ISMRM-2006.