S7 *Parental pharmacological treatment of depression: ...*

Citalopram and viloxazine in the treatment of depression by means of slow drop infusion: a double blind comparative trial

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Apart from tri- and tetracyclics, viloxazine and citalopram are the only antidepressants available as concentrate for infusion. These two antidepressants were compared under double-blind fixed dose conditions during the first two weeks of infusion treatment Citalopram 40 mg; Viloxazine 300 mg) and the following four weeks of oral treatment in 62 patients (Citalopram 40 mg; Viloxazine 600 mg).
The mean MADRS total score at baseline was around 34 in both treatment groups and decreased after the 14 days infusion period to 12.3 in the citalopram group and to 16.9 in the viloxazine group. At day 42 the corresponding group means were 6.7 in the citalopram and 13.1 in the viloxazine group. The differences reached statistical significance at both time points ($p<0.05$).
Standard laboratory investigations and ECG analyses did not show any clinically relevant treatment emergent abnormalities. Adverse events showed minor differences between the two groups and confirmed the good tolerability for both drugs.

S8 *Imaging trends on psychosomatic disorders*

BASIC PRINCIPLES OF fMRI

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As compared to nuclear medicine approaches, (PET, SPECT), functional MRI (fMRI) offers substantial advantages: the methods involve minimal discomfort, are free of exposure to ionizing radiation, have excellent spatial and temporal resolution, and offer straightfoward registration with anatomical images. Since the same individual can be studied repeatedly, intersubject averaging, commonly employed in PET and SPECT can be avoided with fMRI. It is thus anticipated that this new technique will play a large role in studying mental phenomena and mental disorders. This lecture will cover the basics of Blood Oxgyenation Level Dependent (BOLD) type fMRI, and the links between physiology of brain activation and the physics of fMRI. In addition, potential pitfalls will be discussed such as those due to increased flow velocity in veins draining an activated area, and oxygenation effects persisting beyond the area of neuronal activation. Modern acquisition techniques will be discussed such as the two-dimensional EPI and the three-dimensional PRESTO fMRI methods. Registration issues, motion artifacts and statistics for fMRI will also be covered.

S8 *Imaging trends on psychosomatic disorders*

NEUROCHEMICAL IMAGING IN PSYCHIATRIC DISORDERS

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Over the last decade, we have seen considerable advances in our understanding of psychiatric disorders, and the brain abnormalities associated with these conditions. Basic research in animal models, improvement in diagnostic and classification methods, and outcome and longitudinal studies are providing a strong framework for the examination of these processes in human subjects. Progress in this area has been limited by the inherent difficulties in studying the human brain non-invasively, and most of the neurochemical data gathered on psychiatric conditions is based on measures in peripheral tissues or blood, neuropsychological test performance, drug challenges and post-mortem data. These data, while providing interesting information about differences between psychiatric patients and comparison groups may not directly reflect the changes in brain function that are occurring during the disease process itself in human subjects, nor the specific brain regions involved in these pathologies.

With the advancement of functional imaging techniques, we are now capable of examining, non-invasively in human subjects, processes such as changes in blood flow and metabolism, which are thought to effect metabolic demands in brain regions, as well as specific neurochemical systems and enzymes. Dopaminergic, serotonergic, opioid and cholinergic systems have been examined in a number of neuropsychiatric disorders using radio-labelled markers for receptors and enzymes involved in the function of these neurotransmitters. The available data will be reviewed and examined for consistencies and inconsistencies with our understanding of psychiatric disorders.

S8 *Imaging trends on psychosomatic disorders*

CONCEPTUAL AND METHODOLOGICAL APPROACHES IN FUNCTIONAL ACTIVATION STUDIES ILLUSTRATED BY STUDIES OF EMOTION

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Physiological measures of in vivo brain function, derived from positron emisson tomography (PET) and functional magnetic resonance (fMRI) are now standard tools in cognitive neuroscience. These techniques provide powerful tools to address critical questions regarding both the neural localisation and mechanisms of higher brain functions. Neurobiological perspectives on higher brain functions and emotion are necessarily embedded in theoretical assumptions about how we think that the brain works. Two dominant themes inform current concepts of higher brain function. One emphasises processing in discrete modules, often anatomically circumscribed and referred to as function segregation. A contrasting view is that higher brain function cannot be strictly localised but is a property of interactions between functionally specialised, and anatomically separate, brain regions. The principles underlying neuroimaging strategies in relation to these perspectives will be outlined and their implementation illustrated by reference to studies of the neurobiology of fear. A distinction will be drawn between innate and acquired mechanisms for the processing of fear; the relevance of the proposed models for the understanding of emotional disorders will be suggested.

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