

Introduction: The neurotransmitters serotonin and dopamine are implicated in normal cognitive functioning. In healthy volunteers, dopamine depletion produces selective deficits of spatial working memory (SWM) while serotonin depletion results in deficits on a delayed word recall task (delayed verbal learning). Serotonin 5-HT_{1A} receptors in man are found in postsynaptic locations in hippocampus and neocortex, and as somatodendritic autoreceptors in the raphe nuclei. 5-HT_{1A} agonists have been shown to preferentially increase dopamine in the prefrontal cortex (PFC) acting by means of the 5-HT_{1A} autoreceptors, which may influence cognitive function and memory in particular. We aimed to investigate the relationship between serotonin activity and memory performance in healthy volunteers.

Method: Ten male and 10 female healthy volunteers (aged between 18 and 60 years) were tested in a randomized, double-blind, crossover design receiving both buspirone (20 mg) and placebo over the course of the study. All subjects completed tests of reaction time, SWM and verbal learning.

Results: Repeated-measures ANOVA showed significant decrement in delayed word recall performance after buspirone administration. SWM and RT data will be available for discussion at the time of presentation.

Conclusions: Single dose of buspirone caused slight but nonetheless significant worsening in delayed verbal recall in healthy volunteers. This outcome may be because of 1) verbal memory decrements as a result of nondirect 5-HT_{1A} receptor action on dopamine function in the PFC or, alternatively, 2) buspirone-induced changes in serotonergic function in the hippocampus.

Altered neurophysiological parameters in an animal model of hyperactivity

TL Pitcher, JR Wickens, JNJ Reynolds

University of Otago, New Zealand

Background: The spontaneously hypertensive rat (SHR) is commonly used as an animal model of attention deficit hyperactivity disorder-like behavioural characteristics. Little is known about the physiology of the SHR and its genetic control, Wistar-Kyoto (WKY). The aim of this research was to investigate the physiology of neurons in a brain area involved in movement initiation, the striatum.

Methods: Male rats from the Wistar (WI), SHR and WKY strains were anaesthetized with urethane (1.8–2.4 g/kg). *In vivo* intracellular recordings were obtained using sharp microelectrodes from spiny projection neurons in the dorsal striatum. Cellular proper-

ties were measured from electrophysiological records of spontaneous activity and neuronal responses to intracellular current injection.

Results: Recordings were made from 71 striatal spiny projection neurons (WI, $n = 24$; SHR, $n = 24$; WKY, $n = 23$). Most cellular properties were similar across the three rat strains. However, two parameters of action potential firing differed between the SHR and WKY strains. (Current evoked action potential amplitude: SHR 76.5 ± 7.5 mV, WKY 70.1 ± 8.7 mV; duration: SHR 0.60 ± 0.09 ms, WKY 0.67 ± 0.06 ms; $P < 0.05$ one-way ANOVA.) The cellular properties of the WI strain were intermediate and not significantly different to either SHR or WKY.

Conclusions: The action potential parameter differences between the SHR and WKY strains may be related to the behavioural differences between the two strains. At the cellular level, this difference may also indicate that the two strains contain differences in membrane conductances in the striatal spiny projection neurons.

Depression and health risk factors in the North West Adelaide Health Study

N Potts¹, D Wilson², A Taylor³, T Gill³, G Schrader^{1,4}, R Ruffin²

¹University of Adelaide; ²Health Observatory, Department of Medicine, The Queen Elizabeth Hospital; ³Population Research and Outcome Studies Unit, South Australian Department of Health; and ⁴Department of Psychiatry, The Queen Elizabeth Hospital, Adelaide, Australia

Background: The North West Adelaide Health Study is a population-based biomedical cohort study investigating the prevalence of chronic conditions and health-related risk factors. This study is based on a randomly selected group of individuals over the age of 18, who agreed to be involved in a longitudinal health study.

Methods: Over the past 18 months, 3488 participants were assessed. General demographic and socioeconomic data were collected. Participants were assessed for the presence of a number of chronic conditions including major depression, chronic lung disease, quality of life using the SF-36 and health risk factors such as body mass index, smoking and exercise.

Results: Of the 3488 participants, 12.5% (436/3488) met criteria for depression. Depression was statistically significantly more likely among those who were current smokers, obese, had a high waist-hip ratio or waist circumference than those without these risk factors but less likely in those who undertook exercise. Depression was also associated with significantly lower scores on all the quality of life scores as

measured on the SF-36. In general, depression was not associated with a diagnosis of either asthma or COPD.

Conclusions: The prevalence of depression was higher than in previous studies. Importantly, depression was more common in people with significant health risk factors but not with chronic lung diseases. Regular exercise was associated with a reduction in rates of depression. The possible reasons for this will be examined.

Stress Sampler I: psychosocial adjustment and psychiatric and physical comorbidity in diabetes mellitus

J Reddy^{1,2}, L Wedgwood³, J Siegel³, T Showyin³, A Finch³, K Baikie³, G Parker³, P Schofield⁴, P Mitchell², K Wilhelm^{1,3}

¹St Vincent's Hospital; ²School of Psychiatry, University of New South Wales; ³The Black Dog Institute, Sydney, Australia; and ⁴Prince of Wales Medical Research Institute, Sydney, Australia

Background: Diabetes mellitus is a chronic illness that causes significant psychological and physical morbidity. The psychological needs of patients with diabetes mellitus are often undetected and neglected. This paper describes preliminary data from the Stress Sampler Study designed to trial brief psychological interventions to improve psychological and physical health among patients with type I and type II diabetes mellitus. We describe psychosocial adjustment specific to diabetes mellitus and its association with psychiatric and physical comorbidity.

Methods: The Stress Sampler Study, commenced in July 2006, has been recruiting patients presenting to a hospital-based specialist diabetes clinic. Patients are administered the Patient Health Questionnaire, the Problem Areas in Diabetes Survey, SF-12 (physical and psychological self-report of functioning) and a clinical interview by a qualified psychiatrist as part of baseline assessment.

Results: We present preliminary data from the first 100 patients examining the usefulness of a specific diabetes-related measure of psychosocial adjustment and its association with psychiatric diagnosis and physical comorbidity.

Conclusions: These findings will contribute to the identification of specific psychological needs and problem areas among patients with diabetes. Knowledge of specific needs will greatly assist clinicians and researchers in the process of development of specific psychological interventions for patients with diabetes mellitus.

Exploring depressive symptoms in mid-adolescence: the integrated effects of life events and personality

N Reece, S Thomson, K Jarman, A Onley, N Turner, R Brown

University of Newcastle, Newcastle, Australia

Background: There is ample evidence that adolescent depressive symptoms are a precursor of depression in later life (Canals et al. 2002; Pine et al. 1999). The period of mid-adolescence is especially significant because it is regarded as a time of major developmental changes and challenges (Kardum & Krapic 2002). Although the majority of teens exhibit considerable resilience, the prevalence of depressive symptoms greatly increases during this transitional period, and there are several factors shown to create vulnerability in certain individuals.

Methods: This study explored an integrated model to investigate the possible moderating relationship between personality characteristics and stressful life events associated with a vulnerability to depression within mid-adolescence (Kardum & Krapic 2001). Using a retrospective design, 324 year 9 adolescents from Maitland-Newcastle high schools completed the Eysenck Personality Questionnaire-Junior, Adolescent Life Change Event Questionnaire and Centre for Epidemiological Studies-Depression Scale for Children.

Results: As expected, personality and life events were correlated with depressive symptomatology and female adolescents scored higher on most measures. Significant interactions indicate that although life events can predict depressive scores, neuroticism has a greater influence independently and by moderating the effects of stressful life events on depressive symptoms. Additionally, specific life events, such as appearance problems, may impact greater on adolescents' emotional adjustment.

Conclusions: Results suggest modest support for an integrated model in explaining depressive symptoms in mid-adolescence and indicate possible risk factors rather than causal relationships. Results would be enhanced by a prospective design.

Insensitivity to temporal context in schizophrenia

A Richards, J Todd, P Michie

The University of Newcastle, Australia

Background: Elicitation of the mismatch negativity (MMN) occurs when the auditory system detects