Cortisol levels in atypical depression and chronic fatigue syndrome using hair and saliva specimens

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Background: Several diagnostic criteria for mayor depressive episode (MDE) overlap with CFS definition. However, it is unknown the weight of this association in atypical depression, a subtype of MDE that has frequently been linked with CFS, since both disorders exhibit low cortisol levels. However, this result has been only found in specimens designed for measuring acute cortisol levels. In this study, we measure cortisol levels in subjects with CFS and atypical MDE without psychiatric comorbidity, using both hair and saliva specimens, to gain a measure of both short and long term cortisol levels in these two conditions.

Methods: Psychiatric questionnaires in addition to hair (HCC), representing the cortisol concentration of the previous three months and six time-points of saliva specimens across the day for taking four saliva measures were assessed in an age and gender matched group of 34 controls, 15 subjects with atypical depressive episode (A-MDE) and 17 with CFS.

Results: CFS (92.22 nmol/l, s.d = 33.19 nmol/l) and A-MDE (mean = 89.05 nmol/l, s.d = 22.58 nmol/l) subjects showed lower cortisol total daily output in saliva (AUCg) in comparison to healthy controls (mean = 125.53 nmol/l, s.d = 40.64 nmol/l). CFS and A-MDE did not differ from one another in any cortisol measures, including HCC. CFS subjects reported fewer daily stressors in comparison to A-MDE subjects. There was no difference in overlapping symptoms between CFS and A-MDE subjects.

Conclusions: Low levels of cortisol using short-term measures (AUCg) may be transitory, since cortisol levels were normal when a long-term measure; hair was studied. This may be explained by hyperreactive cortisol secretion. It is suggested that A-MDE and CFS are part of the group of somatic symptom disorders, since it was found the same pattern of cortisol secretion in both disorders, in addition to the same frequency of overlapping clinical features.

Cortisol levels in major depressive episode using fingernail specimens

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Background: Hypercortisolemia may be a biomarker in major depressive episode (MDE), but not all studies have obtained this finding. Previous conflicting results may be partly explained by the use of different specimens that only assess acute cortisol levels. Recently, fingernails have been proposed as a specimen for measuring chronic cortisol levels over a period of several weeks. However, cortisol levels using fingernails have not yet been reported in MDE.

Methods: We assessed clinical features and subtypes of depression in addition to fingernail cortisol levels in a group of 26 subjects with DSM-5 MDE and an age and gender matched group of 45 controls.

Results: MDE subjects (mean = 201.2, SD = 277.2 pg/mg) showed significantly higher cortisol levels measured in fingernails compared to control subjects (mean = 101.5 pg/mg, SD = 90.5), $p = 0.03$. MDE subjects with non-atypical features exhibited higher cortisol levels than controls ($p = 0.03$).

Conclusions: Results showed elevated cortisol in MDE using an aggregate measure of cortisol over several weeks. MDE subjects are therefore shown to have subclinical chronic hypercortisolism, which we hypothesis might have a mediating role in the frequent association between some common medical comorbidies such as hypertension and diabetes in subjects with MDE. Elevated chronic cortisol may be confined to the subgroup of patients with non-atypical features.

Cortisol levels in unipolar and bipolar depression using hair and saliva specimens

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Introduction: Early discrimination between unipolar and bipolar depression is a significant diagnostic challenge. One of the

reasons is that at onset bipolar disorder (BD) often presents with symptoms undistinguishable from unipolar major depression (UD). Several line of research currently focus on understanding the biological underpinning of these common affective disorders to aid phenomenological syndromic recognition. The identification of a diversified and specific pattern of cortisol secretion might help develop biomarkers for these disorders. To date there is little agreement on their cortisol status. The common use of specimens that reflect acute rather than chronic cortisol levels may partly explain this problem similarly to the potential diagnostic contamination of unipolar samples with bipolar cases. In this study, we investigated acute and chronic cortisol levels in patients with UD and BD.

Methods: Fifty-nine participants with DSM IV UD, 12 with BD, age and sex matched with 40 healthy controls were recruited. Bipolarity was assessed with the HCL-33 and cortisol levels measured with saliva and hair specimens.

Results: Hair cortisol concentration (HCC) was greater in BD vs. UD based on DSM diagnostic criteria. By using more sensitive HCL-33 bipolarity index criteria, HCC was also greater in BD vs. healthy controls. Measurement of the area under the curve with respect to the ground (AUCg) suggested lower cortisol in BD vs. healthy controls ($p < 0.05$). Greater bipolarity index was associated with lower levels of AUCg cortisol.

Conclusions: Our results support a different pattern of cortisol secretion in affective disorders which could aid diagnostic discrimination. Hypercortisolemia may be a chronic phenomenon only in BD although it is possible that this pattern may differ in relation to bipolarity subtype. The use of the bipolarity index as adjuvant screening tool in clinical diagnosis might help to correctly identify bipolar disorder when assessing depressive presentations.

Cortisol slope predicts depression symptoms 12 months after coronary artery bypass graft surgery

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Background: Alterations in the diurnal profile of cortisol have been associated with depressed mood in patients with coronary heart disease. The relationship between cortisol output and depressed mood has not been investigated prospectively in coronary artery bypass graft (CABG) patients before. We aimed to study the prospective relationship between cortisol measured pre- and post-operatively and depression symptoms measured 12 months after CABG surgery using data from the ARCS (Adjustment and Recovery after Cardiac Surgery) study.

Methods: We analysed data from 171 patients awaiting first-time, elective CABG surgery from the pre-assessment clinic at St. George's Hospital, London. The Beck Depression Inventory (BDI) was used to assess depression symptoms and saliva samples were collected to measure diurnal cortisol. On average, baseline assessments of depression and cortisol occurred 29 days before surgery, short-term follow-up of cortisol occurred 60 days after surgery and long-term follow-up of depression was 378 days after surgery.

Results: Baseline cortisol slope was not associated with depression at 12-month follow-up. However, cortisol slope measured 60 days after surgery predicted depression (BDI $\geq$ 10) 12 months after surgery (odds ratio 0.618, 95% confidence interval [CI] 0.388–0.983, $p = 0.042$) after controlling for baseline BDI, smoking, body mass

index and disease severity (EuroSCORE). This finding indicates that a one unit increase in slope (i.e. a steeper slope) is associated with a 34% reduction in the odds of depression. These analyses were confirmed in models using continuous BDI scores (beta = -0.126, 95% CI -1.290 to -0.002, $p = 0.049$).

Conclusions: Dysregulation of the diurnal profile of cortisol in the weeks following cardiac surgery predicts depression symptoms 12 months after surgery. These findings suggest interventions aimed at improving adaptation in the early recovery period may have long-term benefits in this patient group.

Differential cytokines level between early withdrawal and early remission in patient with alcohol dependence

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Background: Patient with alcohol dependence (AD) have more comorbidities and inflammatory cytokines may play a crucial role in the development of comorbid physical and mental illness. The study evaluated the plasma cytokine concentrations during different stage in patients with AD. We also analyzed the gender differences of cytokine level in healthy controls.

Methods: 78 male AD patients was recruited for a conservative alcohol detoxification program, and the cytokines level were tested at early withdrawal (baseline) and early remission (one month). 136 healthy volunteers (85 males and 50 females) for analyzed the gender differences of cytokine level. 10 inflammatory cytokines (IL-1β, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, GM-CSF, IFN-γ and TNF-α) were assessed using a multiplex magnetic bead assay in all participants.

Results: There are significant differences between healthy male and healthy female in the concentration of cytokines ($P \leq 0.001$, except IL-1β). The AD patient shows high inflammatory cytokines than healthy controls at early withdrawal state ($P < 0.001$ for all cytokine levels), and these cytokine levels decreased in patient with early remission state ($P \leq 0.001$, except IL-1β and IL-5).

Conclusions: Healthy females may higher cellular and humoral response than healthy males. Inflammations were observed in male AD patients, and the inflammation process may be improved after early abstinence from alcohol. Total abstinence is the best medicine for prevent alcohol induced medical and mental illness.