Biological Factors in Chronic PTSD

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Doctor of Philosophy

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Abstract

This is a prospective study of a cohort sample of injured Kuwaiti First Gulf War survivors designed to investigate the prevalence of psychiatric morbidity due to combat and exposures to traumatic events. The study included two main phases. The first phase conducted in 1998, and in 2003 the second phase was executed. This study was designed to investigate the contribution of combat physical injury to the neurobiology of posttraumatic stress disorder (PTSD), prevalence rates of PTSD, depression, anxiety and other psychological morbidity, and predictors of chronic PTSD.

The first assessment was in 1998 and the second assessment in 2003 that involved biological investigations. Beside the clinical interview and the physical examination of the site of injury, multiple psychological scales and questionnaires were used.

Based on DSM-IV criteria of PTSD, after the second assessment the population of this study were classified to: Chronic PTSD (have PTSD at both assessments), Delayed PTSD (have PTSD only on the second assessment), Recovered (have PTSD only in the first assessment), and Never PTSD (have no PTSD in both assessments). The biological assessment include: blood investigations, BMI, and visual analogue. The data of the study were analyzed based on the four PTSD subgroups.

In the first chapter an introduction to the First Gulf War was presented followed by the second chapter that discussed literature review. The third chapter tackled the methods used in this study. The fourth to the sixth chapters discussed the results of this study regarding prevalence of Chronic PTSD, Cortisol and PTSD and Thyroid hormones and PTSD respectively. The last chapter presented the limitations and strengths of the study

There were three main hypotheses. First: combat injured survivors with chronic PTSD have cluster of symptoms severity similar to delayed PTSD after 13 years of the trauma and the prevalence of chronic PTSD is constant over time. Second: low cortisol levels observed in chronic PTSD are constant with chronicity, normalize with recovery, unrelated to degree of disability, and are influenced by comorbid disorders. Third: there is minor role for thyroid hormones in chronic PTSD.

All of registered Kuwaiti combat injured survivors at the Social Development Office in Kuwait, were approached to voluntary participate in this study. Of 234 individuals 212 participate in the first stage, and out of these 123 participate in the second stage with the addition of 33 new cases that were not examined in 1998 but were registered in SDO after 1998. An informed consent was taken from the participants at both phases.

The participants were assessed using General Health Questionnaire, Trauma Questionnaire, Clinician Administered PTSD Scale, Eysenck Personality Questionnaire, Symptom Checklist-90 Revised, and Life Event Scale. Questionnaires and scales applied in the first stage were applied in the second stage with the addition of Impact of Event Scale, Composite International Diagnostic Interview and Scale of Gulf War Syndrome.

Biochemical assessment comprised cortisol level, thyroxine (fT4), free triiodothyronine (fT3) and thyroid stimulating hormone (TSH). The blood samples were taken before starting the interview. Physical assessment involved measurements of: pulse rate, systolic and diastolic blood pressure, waist-hip circumference, body mass index and visual analogue before and after the interview.

Data entry program using Statistical Package for Social Scientists was used to enter data and analysis.

The prevalence rate of delayed onset PTSD (14.6%), chronic PTSD (15.4) recovered from PTSD (22.8%) and never had PTSD (47.2%). With chronic PTSD there are higher cluster of PTSD symptoms severity, not related to severity of physical injury, has more prevalence of PTSD associated symptoms, higher comorbid psychiatric disorders. Intrusions, avoidance and arousal are PTSD cluster of symptoms more predictive of future development of PTSD after the injury. There was a low baseline cortisol level with chronic PTSD, and it was significantly lower in participants with delayed PTSD. Furthermore trauma itself rather than PTSD diagnosis may have an impact on cortisol level. Other psychiatric comorbidity has an enhancing effect on cortisol level.

The levels of thyroid hormones were within the normal range. The trend of thyroid function in delayed and chronic PTSD is lower fT3, and TSH and higher fT4 levels, with higher fT3 levels in delayed PTSD compared to chronic PTSD. It was found that the higher severity of trauma score with PTSD the higher fT3 mean values.

Statement of Originality

I declare that this thesis report is my own work, except where acknowledged. It has not been submitted for academic credit (award of any degree) or diploma) in any University or other tertiary institution, and to the best of my knowledge and belief, contain no material previously published or written by another person, except where due reference has been made in the text.

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Abdullah M. Al-Hammadi

Date:

I believe that this thesis is properly presented, conforms to the specification for the degree of sufficient standard to be, prima facie, worthy of examination.

Professor Alexander Cowell McFarlane

Principal Supervisor

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