

## THESES

### PARAÍBA VALLEY UNIVERSITY TEACHERS OCCUPATIONAL STRESS: BURNOUT, DEPRESSION AND SLEEP EVALUATION(ABSTRACT)\*. **THESIS. CAMPINAS, 2005.**

NANCY JULIETA INOCENTE \*\*

The objective of the present study was to determine the influence that the levels of effort-reward and overcommitment at work have on the university teachers mental health in relation to the vulnerability to the development of burnout, depression and sleep disorder. It is a cross-sectional correlative and descriptive research.

The sample consisting of 510 university professors, of both genders, that were in professional practice and belonged to institutions of higher education, located in the cities of the Paraíba Valley (*Vale do Paraíba*), in the State of São Paulo, Brazil. In the collection of data five instruments have been used. Data Questionnaire of Identification of the Sample; Beck Inventory of Depression; Questionnaire of Effort-Reward Imbalance at Work; Questionnaire of Adult's Sleep; Inventory of Burnout from Maslach.

The results obtained were through techniques of

analysis of multiple regression and generalized linear model with logarithmic connection function followed by variance analysis and *post hoc* Scheffé test.

The main results were: the levels of effort-reward, except overcommitment, had influence on the burnout, depression and sleep disorder. Only the independent variable academic area was predictive of five disorders, among the 7 ones studied. The university teachers Sleep (insomnia and sleep complaints), Depression, and Burnout Disorders prevalences were greater than the same prevalence in the general population. In the work environment where there is a balance between the levels of effort and reward it has been suggested that less burnout syndrome disorders, depression and sleep disorders will be found.

**KEY WORDS:** burnout, sleep, depression, effort-reward, overcommitment, mental health, university professors.

\*Estresse ocupacional em professores universitários do Vale do Paraíba: avaliação do Burnout, depressão e sono. (Resumo). Tese de Doutorado, Universidade Estadual de Campinas, UNICAMP (Área: Neurociências). Orientador: Rubens Reimão.

\*\*Address: Rua Egle Camevalle 285 / 11A, 12240-490 São José dos Campos SP, Brasil. E-mail: nancyinnocente@directnet.com.br

### CSF HIV-1 RNA VIRAL LOAD IN PATIENTS WITH HIV INFECTION (ABSTRACT)\*. **THESIS, SÃO PAULO, 2004.**

PAULO PEREIRA CHRISTO\*\*

Significant progress in the approach to AIDS has been made over the last few years, including a better understanding of the mechanisms of viral replication and disease progression and immunological mechanisms, as well as the introduction of new antiretroviral (ARV) drugs. The quantification of HIV-1 in plasma (viral load) has revolutioned the understanding of viral dynamics in the infected organism and is the best predictive marker of disease progression. A more rational indication of therapy has also been implemented and patient follow-up is becoming the most important tool for monitoring the response to ARV therapy. In contrast, HIV-1 viral load in cerebrospinal fluid (CSF) plays a less known role. Evidence indicates that the brain serves as a reservoir for the virus, which is not controlled by systemic parameters, a fact rendering the measurement of HIV-1 RNA levels in CSF potentially important for the evolution and eradication of the virus from the human body.

The objective of the present study was to determine the viral load in CSF (CVL) and in plasma (PVL) of HIV-1-infected patients with and without neurological manifestations, as well as to correlate the viral load of these

two compartments. In addition, CVL was correlated with the time since diagnosis of the infection, presence and type of neurological disease, use of ARV therapy, immunity measured on the basis of CD4+ T lymphocyte count, and CSF cell and protein content.

Ninety-seven patients hospitalized at a reference hospital for infectious diseases with a suspicion of a neurological disorder were prospectively studied. Neurological diseases were ruled out in 23 patients after work-up. Ninety-eight CSF and 82 plasma samples were collected for the quantification of HIV-1 RNA by the NASBA method. Concomitant and valid CSF and plasma samples were available for 70 patients.

The detection rate of HIV-1 RNA was 78.1% in plasma and 55.6% in CSF, with the detection rate in CSF being higher in patients with neurological disease (63.4%), in patients with a CD4 count lower than 200 cells/mm<sup>3</sup> (64.4%), in patients not undergoing ARV therapy (82.5%), and in patients with detectable plasma viral load (71.4%). The median CVL of the population studied as a whole or divided into groups of patients with and without neurological disease and with different types of disorders was lower than the median PVL, except for patients

with neurocryptococcosis. The ratio between median PVL and CVL showed that PVL was approximately 73 times higher than CVL. However, CVL was higher than in plasma in 11 (16%) of the 70 patients. CVL was correlated with PVL in the total population studied, while no correlation between the two compartments (CSF and plasma) was observed in certain groups of patients, including those with a CD4 count higher than 200 cells/mm<sup>3</sup>, those not undergoing ARV therapy and those showing a protein content lower than 45. Analysis of the correlation between CVL and the variables studied showed a correlation between the amount of HIV-1 RNA in CSF

and the presence of neurological disease and cellularity. A negative correlation was observed between CVL and the time since diagnosis of the infection and CD4+ T lymphocyte count.

In conclusion, CVL was generally lower than PVL and was associated with the presence of neurological diseases and CSF cell count, and a lack of correlation between the two compartments (CSF and plasma) was observed in certain groups of patients, suggesting the existence of compartmentalization of HIV-1 in CSF.

**KEY WORDS:** CSF, HIV, AIDS, viral load.

\* Carga viral do HIV-1 no líquido cefalorraqueano em pacientes portadores do HIV (Resumo). Tese de Doutorado, Universidade de São Paulo (Área: Ciências/Neurologia). Orientador: José Antonio Livramento.

\*\* Address: Rua Cachoeira do Campo 132, 30480-180 Belo Horizonte MG, Brasil. E-mail: ppc@gold.com.br

## COMPARISON BETWEEN DIFFERENT METHODS TO DETERMINE MOTOR THRESHOLD TO TRANSCRANIAL MAGNETIC STIMULATION (ABSTRACT)\*. **THESIS. SÃO PAULO, 2004.**

*ADRIANA BASTOS CONFORTO\*\**

Motor threshold is a crucial parameter for determination of intensities of transcranial magnetic stimulation. However, the definition of this measure has been heterogeneous in the literature.

This study aims at investigating different technical aspects related to motor threshold measurement and their impact on the design of experimental protocols of transcranial magnetic stimulation.

A total of 256 measurements were performed in sixteen subjects aged 23 to 39 years. A figure-of-eight coil was used to perform transcranial magnetic stimulation. Implications of the following issues were evaluated: 1) defining the stimulated position for motor threshold measurement according to evaluation of amplitudes of motor evoked potentials (optimal position) or according to positions arbitrarily determined, considering reference positions on the skull as fiducial markers; 2) defining threshold according to motor evoked potentials registered in the abductor pollicis brevis muscle with surface electromyography or according to visualization of hand movements; 3) using different coil positions on threshold of the first interosseus dorsalis and biceps brachialis muscles; 4) using different definitions of motor threshold and different coil positions to determine stimulus intensities of transcranial magnetic stimulation and to measure amplitudes of motor evoked potentials; 5) using different numbers of stimuli to define motor thresholds.

There were statistically significant differences between thresholds measured with different methods. We found significant differences between motor thresh-

olds of the abductor pollicis brevis measured with stimulation of the "optimal position" or with stimulation of an arbitrary position on the skull (difference  $3.6 \pm 1.3\%$ ,  $p = 0.017$ ). Significant differences were also found between motor thresholds measured with recording of motor evoked potentials or with observation of movements ( $p = 0.031$ ). Intensities of magnetic stimulation were significantly higher (difference,  $5.3\%$ ,  $p = 0.04$ ) when threshold was measured with stimulation of an arbitrary position. Amplitudes of motor evoked potentials were not significantly different ( $p = 0.92$ ) with stimulation of the "optimal position" or with stimulation of an arbitrary position, when intensities of stimulation were adjusted according to the threshold measured in each position. There were no significant differences between threshold measurements performed with evaluation of six motor evoked potentials at each intensity of stimulation, compared to ten potentials ( $p = 0.70$ ).

In order to measure motor threshold, it is important to search for the target muscle optimal position. We discourage usage of the term 'motor threshold' interchangeably for thresholds measured with MEP evaluation and with visualization of movement. We propose that the term be used to designate the former, while "movement threshold" be used for the latter. Differences between the two techniques should be considered in design and comparison of TMS protocols.

**KEY WORDS:** transcranial magnetic stimulation; motor threshold; movement threshold; motor evoked potential.

\* Comparação entre diferentes metodologias de determinação do limiar motor para estimulação magnética transcraniana (Resumo). Tese de Doutorado. Universidade de São Paulo (Área Ciências/ Neurologia). Orientadora: Suely Kazue Nagahashi Marie.

\*\* Address: Av. Dr. Enéas C. Aguiar 255/5084 – 05403-000 São Paulo SP, Brasil. E-mail: abconf@usp.br