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$^3$, 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.

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

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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 thresholds 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 ± 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.

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