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ed which makes the study of each one of them essential for the knowledge of the Hippocampal formation [HF] and its physiology. Among the components of the HF, the Dentate Gyrus [DG] is the structure responsible for preprocess the information coming from the entorhinal cortex, so that the stimuli originated in the cortex can reach the hippocampus CA3 [2]. Therefore, the use of some molecular tools such as proteomics and transcriptomics will allow us to generate data about the regulation of the gene expression in the DG of human tissues and rats. **Objective:** We propose to analyze the DG from naïve Wistar rats and human tissue coming from autopsy using proteomics and transcriptomics techniques to identify changes in molecular mechanisms between the two species, and with these data the Rat is a suitable animal model for Humans. **Methods:** Five brains from Wistar rats and five human hippocampus from autopsy will be used in this project. Therefore, the cellular populations of interest, dentate gyrus, will be isolated using laser-capture microdissection. The rat DG will also be divided into Dorsal and Ventral portions. After this processes, the tissues will be analyzed using proteomics (MS/MS – label-free) and transcriptomic (New generation sequencing) analyses. The proteomics starts with the extraction of the proteins using Urea 8M followed by trypsinization and dessalting with C18 columns. The proteins will be analyzed using a LTQ-Orbitrap from CeTICS/ Butantan and the bioinformatics analysis with MaxQuant e Perseus software. The transcriptomic analysis will be performed by sequencing the RNA using an Illumina Hiseq® platform. Sequences will be aligned and quantified with the TopHat/DESeq2 pipeline for total RNA. **Relevance:** This study is relevant because it will generate a multi-OMICs and multi-species database which has never been generated before. It will allow us to compare and validate the Rat as a good animal model to Humans in the neurobiological approach. Furthermore, the study of that structure itself, the Dentate Gyrus, might contribute to the comprehension of classic Neuroscience events, such as long-term memory and the special localization. Such data will give parameters for new researches aimed to understand diseases affecting the dentate gyrus, such as Epilepsy, Alzheimer's Disease, among others.

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WHY NEUROSCIENCES NEED NEUROETHICS? A FIRST APPROACH IN THE BRAZILIAN CONTEXT

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Introduction and Hypothesis: The neuroscience's field is within the context of the so-called emerging technologies, which are characterized by the use of sophisticated technology. Neurotechnology revolutionized the way we understand the brain, our feelings, cognitive abilities, decision-making and moral choices. These achievements have strongly impacted not only the clinical and experimental field related to the knowledge of the brain, butalsohave affected the various sectors of society, such as economic, education and law. Due to this strong social impact of neurosciences many institutions and scientific Brain consortiums have created discussion groups to reflect on neuroethics issues.Undergraduate neuroethic training has been proved to be fundamental to help the students to deal with ethical questions that are not necessarily raised bythe traditional bioethics. Neuroethic training would also increase the students' perceptions of a responsible science *vis-a-vis* of society. Some recent studies in other countries have shown that neuroethic training has a positive impact on neurosciences students. **Objective:** In Brazil the undergraduate neuroethics training is quite recent along with poorly understanding of various topics by students and teachers. The objective of this research is to depict this gap and reveal some recent data performed by the NEURO-I-SELF Group (CNPq). **Methods:** A preliminary survey has been carrying out to map the neuroethics courses at the main public Universities in Brazil. We will also identify the researchers teams dedicated to the neuroethics studies and training in Brazil. This will be done by analyzing the date of the main funding agencies in Brazil (such as CNPq, FAPESP and Capes).Our first step for the analyses is to determine the impact of neuroethics training course among the neurosciences students of UNIFESP and USP. In a second step, a questionnaire will be used to measure the changes in the student's perception between the neuroscience and society. **Relevance:** In spite of the relevance of the subject for science and society, there are few studies in Brazil approaching the teaching of neuroethic and their impact among neurosciences students. This study can help to improve neuroethics training courses in Brazil.

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KINEMATIC ASSESSMENTS IN PATIENTS SUBMITTED TO ROBOTIC THERAPY AND TDCS

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Introduction: Previous studies indicate that quantification of kinetics and kinematics contributes to understanding of the motor learning process [1]. The goal of this preliminary study is to perform kinematic assessments in patients submitted to robotic therapy (RT) and transcranial direct current stimulation (tDCS) at an early stage after stroke. **Materials and Methods:** Six patients, between 3 to 9 weeks post stroke with upper limb paresis (scores 7-56, Fugl-Meyer Motor Assessment, upper limb) were randomly assigned to RT and either active or sham cathodal tDCS (ctDCS). Patients received 18 sessions (one session per day, 3 days per week) of 20 min of ctDCS of the motor cortex of the unaffected hemisphere followed by 40 minutes of RT (InMotion Arm – 2 degrees of freedom), Adaptive Protocol. The movement smoothness (average of 16 trials) was assessed at the beginning of each session and after each of 1 to 3 blocks of training (320 movements per block). We performed an exploratory analysis with paired t-tests to compare the improvement in smoothness between the first and the last session of treatment in each group. We compared changes in smoothness between the two groups with the Mann-Whitney test. **Results:** There was a statistically significant improvement in smoothness in the active group ($p=0.01$) but not in the sham group ($p=0.23$). However, the difference in change in smoothness was not statistically significant between the groups ($p=0.32$). **Discussion:** These preliminary results suggest that RT preceded by ctDCS of the unaffected motor cortex may improve smoothness of movements in patients in the subacute stage after stroke, broadening results of a previous study that assessed smoothness of wrist movements after administration of anodal tDCS plus RT in patients in the chronic phase after stroke [2]. The lack of significant between-group differences may be due to the small sample size. **Conclusion:** These results should encourage further studies with a greater number of patients to confirm positive effects of ctDCS combined to RT, on kinematics of the upper limb in the subacute stage after stroke.

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SIMULTANEOUS ASSESSMENT OF CBF AND BRAIN FUNCTION THROUGH DUAL-ECHO ARTERIAL SPIN LABELING

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Introduction: Both Cerebral Blood Flow (CBF) and information about brain functions are important parameters for the evaluation of cerebrovascular diseases, such as vascular dementia. Arterial Spin Labeling (ASL) is an MRI perfusion-weighted method essentially developed to measure CBF non-invasively [1]. However, due to its intrinsic low SNR, it is necessary to acquire multiple volumes over the time to estimate CBF. Recently, the ASL time series has been used to infer functional information. The present study aims to assess CBF and brain function parameters in a single acquisition through a dual-echo readout approach of ASL (DE-ASL) [2] during a motor task condition. Materials and Methods: 20 participants were scanned on a 3T MRI scanner equipped with a 32-channel receive head coil. DE-ASL data were acquired using a 2D EPI readout and a pseudo-continuous (pCASL) labeling scheme with the following parameters: TR = 4000ms; TE1/TE2 = 9/28 ms; labeling duration/post-label delay = 1450/1550 ms, 20 slices, slice thickness = 5 mm, spatial resolution = 3.75 x 3.75 mm2, FOV = 240 x 240 mm2, flip angle = 90°. The experimental protocol was a block-designed paradigm alternating rest, and right hand finger tapping. Each block had duration of 32 seconds, totalizing four blocks of rest and four blocks of motor task. Results: In figure 1, we show the CBF map for the group for TE1.

For the functional analysis, we obtained a total of 5 networks for each TE through ICA. Specifically to motor network, we found that CBF time-series was better correlated to experimental design for TE1, and that CBF network seemed to be more spatially specific than concomitant BOLD (cc-BOLD) network (figure 2). **Discussion:** For CBF quantification, short TE is recommended since for long TE values there is an increase in BOLD contributions to the signal. Our results for short TE were consistent with the literature regarding the CBF values. For network identification using ICA, our results for long TE showed a high activation T-score, confirming the effects of BOLD contribution. The better correlation

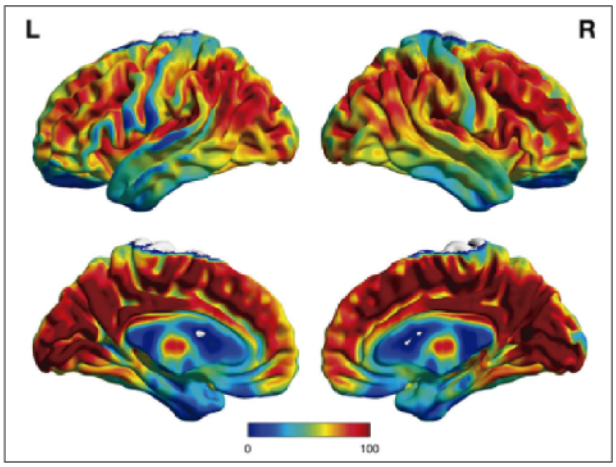

Figure 1. CBF maps.

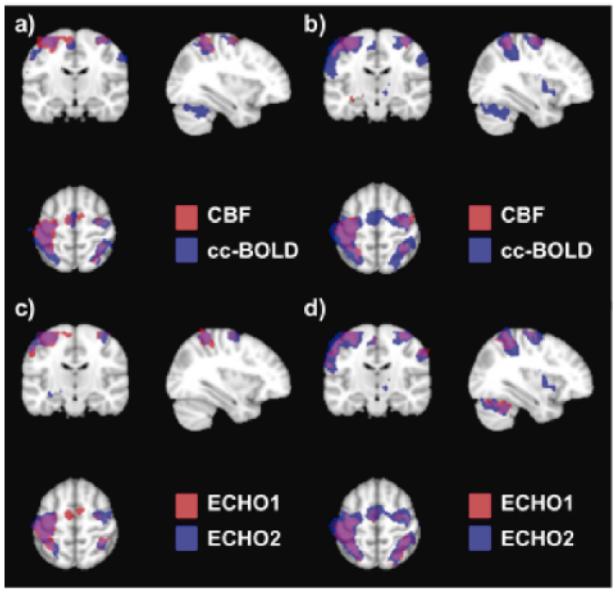

Figure 2. Motor network comparison between a) CBF and cc-BOLD for TE1, b) CBF and cc-BOLD for TE2, c) TE1 and TE2 for CBF networks and d) TE1 and TE2 for cc-BOLD networks.

between CBF time-series and experimental design for TE_1 is due to the reduced contribution of T2* effects on images acquired with shorter TE values, and consequently higher SNR when compared to images acquired using long TE values. Finally, the higher spatial specificity of CBF networks reflects effects that are measured directly in the activation site, while BOLD effect comes from an indirect measurement. **Conclusion:** Our study analyzed how CBF and functional fluctuations can be measured simultaneously through DE-ASL. We concluded that CBF maps should be extracted from short-TE images. For functional analysis, long TE values are recommended to identify general networks, while CBF networks acquired using short TE are better to find accurate spatial activation site.

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DECREASED SHORT-INTERVAL INTRACORTICAL INHIBITION CORRELATES WITH BETTER PINCH STRENGTH IN PATIENTS WITH STROKE AND GOOD MOTOR RECOVERY

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Introduction: Short-interval intracortical inhibition (SICI) evaluated through transcranial magnetic stimulation (TMS) reflects activation of inhibitory, $GABA_A$ergic cortical neurons in the primary motor cortex [1]. A meta-analysis concluded that SICI is decreased in the primary motor cortex of the affected hemisphere ($M1_{AH}$) early, but not in the chronic phase after stroke [2]. In this phase, in patients with moderate to severe upper limb impairments, deeper SICI correlates with better motor performance [3,4]. **Materials and Methods:** Twenty-two subjects were included in the study. SICI was measured with a paired-pulse paradigm. Thumb lateral pinch force was measured according to a standardized protocol [5]. Between-group comparisons were made with unpaired t tests or Mann-Whitney tests according to distribution of the data. The correlations between behavioral and TMS measures were evaluated with Spearman´s rho. P-values ≤ 0.05 were considered statistically significant. **Results:** There was a significant correlation (rho = 0.69, p = 0.014) between SICI and pinch strength in patients, but not in controls. SICI was significantly deeper in patients with greater hand weakness. **Discussion:** For the first time, we report a significant correlation between SICI in $M1_{AH}$ and pinch force in subjects with excellent motor recovery in the chronic phase after stroke. In line with results of a meta-analysis [2]. here were no significant differences in SICI between patients with stroke and controls. In controls, the absence of a significant correlation between pinch strength and SICI may be explained by a ceiling effect. In patients, SICI in $M1_{AH}$ was deeper in subjects with stroke and lower levels of pinch strength. This result contrasts with those reported in subjects with moderate to severe hand motor impairment in the chronic phase [3,4]. **Conclusion:** These preliminary findings suggest that decreased $GABA_A$ activity in $M1_{AH}$ correlates with better hand motor performance in well-recovered subjects with stroke in the chronic phase. It is possible that effects of up- or down-regulation of $GABA_A$ activity may lead to different outcomes, according to severity of motor impairments.

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ATTITUDES OF TEACHERS TOWARDS EPILEPSY AND THEIR RELATION WITH KNOWLEDGE AND BELIEFS

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Introduction: This study aims to evaluate the adequate knowledge and beliefs about epilepsy and association with different models of attitudes described by teachers towards students with epilepsy. Epilepsy is a chronic neurological disease that affects 1% of the population and about 50% of the cases are diagnosed in children. This condition is marked by stigma that affect the psychological, physical, social and schooling areas, revealing difficulties from childhood to adulthood. Identifying the influences and patterns of teachers' behavior in the face of epileptic seizures can help us design actions to reduce stigma. **Materials and Methods:** A cross-sectional study was conducted among public school teachers from 10 different schools in São Paulo State between May 2017 and November 2017. A self-report questionnaire with multiple choice and dissertations answers was given anonymously to each teacher and answered in the researcher presence. The questionnaire was focused on asking for information regarding the following areas: teachers' demographic information, knowledge about epilepsy, attitudes towards epilepsy and perceptions regarding this condition. The questionnaires were home designed after a deep review literature and developed following a standard process for elaboration and validation. The Qui-Square test was used to assess association between attitude and knowledge/belief and the p. value less than