

THESES

MAGNETIC RESONANCE SPECTROSCOPY IN ATTENTION DEFICIT HYPERACTIVITY DISORDER (ABSTRACT)*. **THESIS. NITEROI, 2005.**

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Objective: To study the applicability of proton magnetic resonance spectroscopy for the diagnosis of attention deficit/hyperactivity disorder.

Method: This case-control study assessed 46 school-aged boys through the DSM-IV symptom questionnaire and diagnostic criteria, pediatric history, physical and neurologic examinations, and a neuropsychologic test equivalent to the Wide Range Achievement Test. After 15 children were excluded and one child abandoned the study, study population consisted of 16 cases (median age 9.0 ± 1.35 years) and 14 controls (median age 9.0 ± 1.23 years). The imaging study employed a PRESS sequence with a single voxel of 8 cm^3 positioned in such a way to include mostly gray matter, echo time of 30 ms, repetition time of 1500 ms, and 128 acquisitions, and three cerebral areas were analyzed: right frontal cortex, left frontal cortex, and left striatum. Peaks and ratios of the following metabolites were computed: N-acetylaspartate, myo-inositol, choline, and creatine. Glutamate changes were also studied. In addition, rates were calculated to compare metabolite ratios among the three cerebral regions.

Results: Myo-inositol/creatine ratio in right frontal cortex was found to be significantly elevated in cases

(median 0.69, range 0.60-0.85) in comparison with controls (median 0.66, range 0.56-0.74; $p=0.044$). Peaks and ratios of other metabolites showed no significant differences. Calculated rates based on metabolite ratios among cerebral regions showed statistical significance for the comparison of N-acetylaspartate/creatine ratio in left striatum with the same ratio in left frontal cortex, and a value lower than 0.810 for this rate was associated with attention deficit/hyperactivity disorder diagnosis (*odds ratio*=9.33, 95% confidence interval=1.51-57.66, $p=0.013$).

Conclusion: A value lower than 0.810 for the rate based upon division of N-acetylaspartate/creatine ratio in left striatum by the same ratio in left frontal cortex is 9.33 times more likely to be associated with diagnosis of attention deficit/hyperactivity disorder. This rate had a 87.5% sensitivity and 57.1% specificity for ADHD diagnosis. Compared with controls, affected children also showed significant elevation of myo-inositol/creatine ratio in right frontal cortex. Study findings favor the notion of bilateral brain dysfunction in ADHD.

KEY WORDS: attention deficit disorder, hyperactivity, child, diagnosis, magnetic resonance spectroscopy.

*Utilidade da espectroscopia por ressonância magnética no diagnóstico do transtorno de déficit de atenção / hiperatividade (Resumo). Tese de Doutorado, Universidade Federal Fluminense (Área: Neurologia). Orientador: Osvaldo J. M. do Nascimento. Co-Orientador: Jairo Werner Jr.

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SOCIAL SUPPORT AS MENTAL HEALTH AND OBESITY PREVENTION. INTERVENTIONS THROUGH SCHOOL SETTINGS PLAY ACTIVITIES. (ABSTRACT)*. **THESIS. CAMPINAS, 2006.**

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Several studies indicate that within the next twenty years, half of the global population will be overweight due to the predominating growth of this disorder and the lack of effective preventive measures. The continuing growth in obesity has led to an expansion in the populations' organic problems, in addition to the psychic ones related to self-esteem and body image. Some investigators point to compulsory eating habits due to anxiety as the main cause of increased obesity. On the other hand, the absence of preventive measures in mental health has led to mental disorders, which currently

have become the main public health problem in developed nations. It has been confirmed that application of planned games or playing "activities" can reduce the risk of developing psychopathology and produce an increase in the protective factors over a short time period, this increases the possibility of the application promoting preventive results over the long term.

Two types of planned activities were chosen as a primary preventive program for this study: Art Therapy and "Capoeira" Art (a Brazilian type of self-defense). The children were divided into three groups, as follows: Art