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THESES

CLINICAL–NEUROLOGICAL AND ELECTRONEUROMYOGRAPHIC EVALUATION OF THE INDETERMINATE CHRONIC FORM OF CHAGAS DISEASE (ABSTRACT)*. THESIS. BELO HORIZONTE, 2001.

*EUSTÁQUIO CLARET DOS SANTOS***

Objective - To evaluate if alterations exist in patients with the indeterminate chronic form of Chagas disease, through a clinical – neurological and electroneuromyographic study.

Method - From March 1996 to April 1999, 49 patients with the indeterminate chronic form of Chagas disease sent to me by the "Chagas Disease Out-Patient Reference Centre" of the Clinical Hospital of the Federal University of Minas Gerais (UFMG) were submitted to the clinical-neurological and electroneuromyographic study. Seventy-six healthy volunteers, who had no Chagas disease, were examined and some of the reference values for the electroneuromyographic study were thus obtained. The electroneuromyographic study consisted of sensory and motor conduction of nerves of superior and inferior members; late response study ("F" wave and "H" reflex) of tibial posterior nerve; electromyography strictly defined; and computed motor unit counting.

Results - Considering the anthropometric characteristics of the two groups (sex, color, age and height) no differences were found that could influence the results.

The exam of muscular force and sensibility (superficial and deep) of the Chagas disease patients was normal. There were reflex alterations in significant number in Chagas disease patients (83.7% for the radial; 81/6% for the triceps; 72.4% for the biceps; 49% for the ankle; 38.8% for the patellar). The electroneuromyographic study including the motor unit counting was normal in 13 of the 49 Chagas disease patients (26/5%). The great majority of the Chagas disease patients presented a normal study result of sensitive and motor conduction (71.4%). The carpal tunnel syndrome was observed in nine patients with the indeterminate chronic form (18.4%). In everybody there was a decrease of the speed of sensitive conduction of the median nerve. An increase of distal motor latency was present in five patients (10.2%). Other conduction alterations found were: a decrease of the speed of sensitive conduction of the ulnar nerve in one case (2.0%); decrease of the speed of motor conduction of the fibular nerve in one case (2.0%); reduction of the width of the potential motor of the right ulnar nerve in one case (2.0%); and reduction of the width of the potential motor of the posterior tibial nerve bilaterally, in one case (2.0%). The study of the sural nerve was normal in both groups (Chagas disease patients and controls). The motor unit counting for the biceps muscle was normal in all the Chagas disease patients. Reduction of the motor unit counting was observed in the abductor pollicis brevis muscle in 15 patients (30.6%) and in the extensor digitorum brevis muscle in ten patients (10.2%). Still with relationship to the motor unit counting there was a correlation between its decrease and clinical complaints in six patients (40%); alteration of the clinical-neurological exam in two patients (13.3%); and, with the electroneuromyography, in four patients (26.7%). The "H" reflex study showed an absence of this response in Chagas disease patients (42.9%) and the control group (9.2%), frequently quite elevated in the first group. The latencies of the "F" waves were normal in all the Chagas disease patients indicating normal function of the proximal segment of the posterior tibial nerves.

Conclusions - Paresthesia in hands, associated to Tinel's sign and/or pain in the Phalen's maneuver characterized carpal tunnel syndrome clinically and was confirmed by sensory and motor conduction studies. This find observed in the Chagas disease patients can be interpreted as a susceptibility of the nerve to the compression, associated to some other factor, and not necessarily to the disease. A hypoactive tendon reflex and the absence of the "H" reflex implicates subclinic neuropathy. Decreased motor unit counting in distal muscles of inferior and superior members was observed in 10% to 30% of cases. Biceps motor unit counting was normal in all patients. We do not have sufficient elements to attribute such finds to Chagas disease and these alterations could stem from traumatic processes. The above findings could be related to a frustrated or subclinic disturbance, or even to minimal sequels of a previous process, which happened in the acute phase, without more evident clinical repercussions. At no time could a specific, irrefutable and unequivocal involvement of the peripheral nervous system be defined in the indeterminate form of Chagas disease, as established in literature for the autonomous nervous system.

KEY WORDS: Chagas disease, electromyography, nervous conduction, peripheral nervous system, neuromuscular disorders.

*Avaliação clínico-neurológica e eletroneuromiográfica da forma indeterminada da doença de Chagas (Resumo). Tese de Doutorado, Faculdade de Medicina da Universidade Federal de Minas Gerais (Área: Medicina Tropical). Orientador: Manoel Otávio da Costa Rocha.

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ELECTROPHYSIOLOGICAL EVALUATION OF THE ANTI-OXIDANTS GLUTATHIONE AND α-LIPOIC ACID ACTION IN AN ANIMAL MODEL OF CEREBRAL ISCHEMIA. (ABSTRACT)*. **THESIS**. **FORTALEZA**, **2000**.

*OTONI CARDOSO DO VALE***

An animal model for brain ischemia was developed. An electroencephalographic analysis of several band frequency absolute amplitudes has been performed in order to demonstrate the effects on cerebral electric activity induced by ischemia, following common carotid arteries bilateral obliteration in Wistar rats, anaesthetized with urethane.

The waves were recorded from subcutaneous electrodes on left frontal (F3), right frontal (F4), left parietal (P3), right parietal (P4) and vertex (Cz) regions. This electrophysiological analysis consisted of the absolute amplitude means evaluation of the several frequency spectra (alpha, $beta_1$, $beta_2$, $beta_3$, theta and delta). The cerebral electrical activity was picked up by an appropriate hardware and a software system for analysis.

It has been verified a highly significant reduction of the absolute amplitude means of the spectrum waves ($p<0.015$) after both common carotid arteries occlusion. The infusion of 1.2 mM reduced glutathione solution into the cephalic segment of the left common carotid artery of Wistar rats significantly reverted the depression of the absolute amplitudes of the several spectral frequencies of the electroencephalogram ($p<0.05$) induced by obliteration of both common carotid arteries.

The infusion of 0.12 mM reduced glutathione or saline solution into the cephalic segment of the left common carotid artery of the same animals did not reverted significantly the depression of the electroencephalographic wave absolute amplitudes induced by obliteration of both common carotid arteries. The occlusion of left common carotid artery in urethane anaesthetized Wistar rats caused less significant absolute amplitude reduction than both carotid arteries occlusion and the absolute amplitude recovery with intracarotid 1.2 mM reduced glutathione infusion was less evident. The left intracarotid infusion of 0.12 mM reduced glutathione in rats with bilateral common carotid arteries occlusion reverted the ischemic absolute amplitude reduction of only right frontal $beta_1$ hypersynchronic activity ($p<0.05$), but induced NREM sleep electrophysiological activity ($p<0.05$).

The intracarotid infusion of 2.1 mM L-cystine or 1.2 mM L-glutamine in rats with both common carotid arteries occlusion did not cause consistent absolute amplitude modifications of the electroencephalographic spectral waves. The intracarotid infusion of 3,03 mM α-lipoic acid in rats with both common carotid arteries occlusion caused initial reduction and partial final absolute amplitude recuperation of several spectral band frequencies ($p<0.05$); the intracarotid infusion of 6.06 mM α-lipoic acid significantly reverted the ischemic depression of the absolute amplitudes of frontal theta and right parietal delta spectra; the intracarotid infusion of 60.6 mM α-lipoic acid significantly increased the absolute amplitude ischemic-induced depression of almost all spectral electroencephalographic waves ($p<0.05$).

Finally, it has been demonstrated that intracarotid 1.2 mM reduced glutathione and 6.06 mM α-lipoic acid in rats with both common carotid arteries occlusion increased the intracerebral level of reduced glutathione ($p<0.05$).

It was concluded that an appropriated electroencephalographic analysis of Wistar rats with both carotid arteries occlusion is a valuable study model of cytotoxic effects of cerebral ischemia and could be used to verify the cytoprotector reduced glutathione effect and both pro-oxidant and oxidant α-lipoic acid action, as well as other drug effect studies.

KEY WORDS: ischemia, glutathione, α-lipoic acid, cerebral electric activity.

*Avaliação eletrofisiológica da ação dos antioxidantes glutation e ácido α-lipóico em um modelo animal de isquemia cerebral (Resumo). Tese de Doutorado. Universidade Federal do Ceará (Área: Neurofarmacologia). Orientador: Manassés Claudino Fonteles.

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POSTMENINGITIC BACTERIAL HYDROCEPHALUS IN INFANCY: REPORT OF 23 CASES AND REVIEW OF THE LITERATURE (ABSTRACT)*. **DISSERTATION**. **SÃO PAULO**, **2002**.

*PAULO MANABU HONDA ***

Despite hydrocephalus being a frequent bacterial meningitis complication , there are few reports pertaining to this subject in the literature. In fact, we found only 13 reports which included this etiological description.

In the current work we present 23 new cases, 20 of which include etiological agent descriptions. All subjects were under 5 years old and treated at the Institut of Infectology Emilio Ribas (IIER) between 01/01/95 and 12/

31/99. They were predominantly male (14 patients or 60.9%), the majority being 12 months of age or under (18 patients or 78.3%). Thirteen cases aged six months or under.

The etiological agents were as follows: *Streptococcus pneumoniae* (eight patients), *Haemophillus influenzae* (six patients), *Neisseria meningitidis* (three patients), group B *Streptococcus* (two patients) and *Salmonella* sp (one patient). The causative organism was not found in three patients.

The incidence of postmeningitic bacterial hydrocephalus throughout the IIER 5 year study , varied according to age. In children up to 4 years old , the incidence over the 5 year period averaged 2.9%, whereas between 0 and 12 months it was 3.57% and in the range 0 to 6 months it was 7.69%.

We had other tomographic findings, caused by meningitis, in 17 patients (74%). The major finding was that of ischemic infarts, present in 10 patients (43.5%), and associated with *S. pneumoniae* in six patients.

We treated 22 patients with ventriculoperitoneal shunts. One patient had an arrested hydrocephalus and required only transient external ventricular drainage. Owing to complications we revised the shunt systems of four patients (18.2%) and had infection in another three patients (13.6%). Subsequently, one of these three patients died. We did 12 months of follow-up on 16 patients, after which only three remained with no neurological symptoms.

We concluded that postmeningitic hydrocephalus is a very important complication of bacterial meningitis, mainly in patients under 6 months old, and that its morbidity is higher when associated with *S. pneumoniae* etiology.

KEY WORDS: hydrocephalus, acquired hydrocephalus, bacterial meningitis, meningitis complications, *Streptococcus pneumoniae*.

* Hidrocefalia pós-meningite bacteriana na infância: análise de 23 casos e revisão da literatura (Resumo). Dissertação de Mestrado, Universidade de São Paulo (Área: Neurologia). Orientador: José Paulo Smith Nóbrega.

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CEREBROVASCULAR DISEASE: LANGUAGE ACQUISITION IN INFANTS AND PRESCHOOL CHILDREN (ABSTRACT)*, **DISSERTATION**. **CAMPINAS**, **2002**

*KARINA TAMAROZZI DE OLIVEIRA.***

Cerebrovascular disease (CVD) is a common cause of acquired aphasia in children (AAC) as much as other disabilities. There are many reports in medical literature related to language assessment, but very little concerning details of linguistic elements. Our objective is describe the language evaluation with phonetic-phonological, syntactic, lexical, pragmatic, discursive narrative characteristics and, perceptive-cognitive notion, to settle the basis for subsequent acquisition of reading and writing.

The AAC diagnostic characteristic was looked, considering: precocious language, hemispherical asymmetry with involvement of left hemisphere and, parallel to pre-verbal communication as beginning of language development in children.

We evaluated 10 children, disposed as 5 experimental subjects (ES), and 5 controls (CG), being 4 males and 1 female, chronologically aged until 5 years and 11 months, with normal threshold hearing in both groups, and composing a preschool group for language evaluation. Two subjects in EG group had lesions in left hemisphere (S1 and S5), one in right hemisphere (S4) and two, bilateral lesions (S2 and S3). CVD was ischaemic type in S1, S2, S3 and S5, and haemorrhagic in S4, confirmed in the acute phase through clinical neurological examination, and image. All children were attended by pediatric neurologist of the Department of Neurology of UNICAMP.

The qualitative analysis of language in 5 children through the application of protocols, standardized tests of language and neurological evaluation with complementation of laboratory in organic liquids and image exams, become possible to correlate these results with all subjects.

Our study with 5 children with CVD in preschool age revealed: specific language compromising in learning processes identified as perceptive cognitive type, in 3; discursive narrative, in 2; phonetic-phonological, syntatic, semantic lexical, pragmatic, and oro facial praxis, in each one.

KEY WORDS: cerebrovascular disease, language acquisition, childhood.

*Doença cérebrovascular: aquisição da linguagem em crianças e pré escolares (Resumo). Dissertação de Mestrado, UNICAMP Universidade Estadual de Campinas (Área: Ciências Médicas). Orientadora: Maria Valeriana Leme de Moura Ribeiro.

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ATTENTION DEFICIT HYPERACTIVITY DISORDER: PREVALENCE AND CONTRIBUTION ON PSYCHO-SOCIAL FACTORS (ABSTRACT)*. **DISSERTATION**. **NITEROI**, **2001**.

MARCIO MOACYR DE VASCONCELOS **

Objective - To define prevalence of attention deficit/ hyperactivity disorder (ADHD) in a population of school-age children, and to explore the contribution of psychosocial risk factors to its occurrence.

Method - The study population was composed of all pupils who attended the first five grades at a public state elementary school, which received children from nearby slums. During the research first stage, school teachers and parents filled a standardized questionnaire of 18 ADHD symptoms. In the second stage, children who screened positive and their parents were invited for a medical visit at school. After signature of an informed consent, the following procedures were done: symptoms questionnaire, psychosocial questionnaire and medical assessment. ADHD diagnosis was subdivided into three types: predominantly hyperactive, predominantly inattentive, and mixed type. Some pupils whose screening was negative were paired with diagnosed children. Statistical methods included univariate analysis and multiple logistic regression analysis in order to assess statistical significance of 20 major psychosocial variables in association with ADHD. A case-control paired study was done (31 pairs), then an analysis of the whole sample was undertook, taking in account three subgroups of pupils - affected children, indeterminate children, and controls.

Results - Among 403 pupils recruited in the first stage, 108 screened positive. Of these, 101 were assessed, as well as 31 control children (n = 132). There were 88 boys and 44 girls. Mean age was 9.3 years (standard deviation 1.99). ADHD diagnosis was defined for 69 pupils (prevalence of 17.1%). The one psychosocial factor which displayed most consistent statistical significance was "past marital discord"; other psychosocial factors found to be significant in univariate analysis were "parental separation", "maternal depression", "alcohol use by mother", and "crowded living conditions". Multivariate analysis found the following significant psychosocial factors: "past marital discord", "maternal depression", and "alcohol use by mother". This study also found a high frequency of death by murder of close relatives, and this variable was statistically significant in some analyses.

Conclusions - ADHD prevalence was 17.1%. The most significant psychosocial factor was "past marital discord". Evidence was found that exposure to community violence could have an additional impact in children previously predisposed to ADHD and precipitate it.

KEY WORDS: attention deficit disorder, hyperactivity, child, etiology, psycho-social factors, prevalence.

*Transtorno de déficit de atenção/hiperatividade: prevalência e contribuição dos fatores psicossociais (Resumo). Dissertação de Mestrado, Universidade Federal Fluminense (Área: Pediatria). Orientador: Jairo Werner Júnior.

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