

THESES

NEUROCYSTICERCOSIS: RELATIONSHIP BETWEEN TAENIA ANTIGEN DETECTION IN THE CEREBROSPINAL FLUID AND MAGNETIC RESONANCE IMAGING (ABSTRACT)*. **THESIS. SÃO PAULO, 2006.**

RONALDO ABRAHAM**

Neurocysticercosis (NC) is the most common parasitic infection of the nervous system, remaining a serious public health in our country. NC diagnosis is supported by clinical and epidemiological data, specific serological reactions in the blood and cerebrospinal fluid (CSF) and neuroimaging findings. Detection of anti-*Taenia* antigens using ELISA techniques is a recent methodology that provides information about clinical activity of the disease.

The objective of the study was to determine relationship between *Taenia* antigen detection in the CSF and magnetic resonance imaging (MRI) in patients with definite diagnosis of NC according to current diagnostic criteria.

Sixty-three patients were submitted to a CSF examination, including global leukocyte count with cytomorphological profile, biochemical tests, IgG class antibodies research for syphilis, toxoplasmosis and cysticercosis (complement fixation test, indirect immunofluorescence, passive hemagglutination and enzyme-linked immunosorbent assay), and *Taenia* antigen research. Antigens were detected in CSF samples by ELISA assay obtained from rabbit sera antibodies immunized with *Taenia crassiceps* cysticercal vesicular fluid. A blood sample was simultaneously collected in order to perform IgG class antibodies research for cysticercosis (complement fixation test, indirect immunofluorescence, passive hemagglutination and enzyme-linked immunosorbent assay) and protein content with its fractions; blood-CSF barrier function was evaluated by assessing the CSF/serum albumin quotient. A MRI was performed in every patient; the lesions were evaluated in relation to its total number, location and evolutive phases.

The most common clinical manifestation found was epileptic seizure (95.2%), specially partial seizures. This abnormally high prevalence of this form of the disease is probably due to a selection bias caused by the diag-

nostic criteria adopted that privileges the epileptic form of NC. Fifteen patients (23.8%) have received antiparasitic therapy, and 58 were treated with anti-inflammatory medication (dexamethasone or dexchlorpheniramine).

Taenia antigens were detected in 36 patients (57.1%). The ELISA test for cysticercosis in the CSF was positive in 46 patients (73.%), but in six negative cases *Taenia* antigens detection was positive, pointing to a diagnostic usefulness of the method. In this series of patients we could conclude that *Taenia* antigen detection represents a fine marker of disease activity in the epileptic form of NC.

A total number of 836 lesions were analyzed by MRI imaging, 98,7% of them placed within the cerebral parenchyma, more frequently (89.6%) near the convexity. In fifteen patients (23.8%) a single lesion was detected.

We observed a significant relationship between total number of lesions detected by MRI and the intensity of *Taenia* antigen detection, showing that the methods are congruent with proportional relationship and do not depend on cysts location. When considering patients with two or more degenerating cysts, the regression test shows a positive, but not linear, relationship with *Taenia* antigen detection. There is no significant relationship between the number of calcified cysts and *Taenia* antigen detection.

Results demonstrate that *Taenia* antigen detection is congruent with neuroimaging findings. Some CSF characteristics, like number of cells, gamma globulin concentration and ELISA assay were also concordant with *Taenia* antigen detection, indicating that inflammatory reaction in NC comprises cellular and humoral immunological factors.

KEY WORDS: neurocysticercosis/diagnosis, *Taenia*/immunology, cerebrospinal fluid, magnetic resonance imaging.

*Neurocisticercose: relação entre dosagem de antígenos de *Taenia* no líquido cefalorraquidiano e imagem através de ressonância magnética (Resumo). Tese de Doutorado, Universidade de São Paulo (Área: Neurologia). Orientador: Luís dos Ramos Machado.

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TRANSESOPHAGEAL ECHOCARDIOGRAPHY IN PATIENTS WITH ISCHEMIC STROKE (ABSTRACT)*. **THESIS. SÃO PAULO, 2005.**

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The clinical protocol "Transesophageal echocardiography and treatment with aspirin in patients with ischemic

stroke" is going on, and, as an initial part of it, we present the article "Transesophageal echocardiography dis-

closes unexpected cardiac sources of embolus in stroke patients aged more than 45 years". Cerebral embolism from cardiac source is an important cause of stroke, specially in patients younger than 45 years old.

Objective: To describe the TEE findings in young and no-young stroke patients without any prior evidence of cardiac source for cerebral embolism.

Method: Transversal study. 523 patients (267 men and 256 women) with ischemic stroke, without any evidence of cardiac abnormality, underwent to transesophageal echocardiography (TEE).

Results: Ten percent were aged 45 years or less. Left ventricle hypertrophy, left atrial enlargement, spontane-

ous contrast in aorta, interatrial septum aneurysm, mitral and aortic valve calcification, aortic valve regurgitation, and atherosclerotic plaques in aorta were significantly more frequent in patients aged more than 45 years. 2.8% of no-young patients had thrombus in left heart.

Conclusion: TEE is widely used to diagnose cardiac source of cerebral embolism in young patients, but it seems to be as useful for older ones, in whom cerebral embolism risk is underestimated; atherogenic and cardioembolic causes may actually coexist, and both should be treated.

KEY WORDS: stroke, cardiac embolism, transesophageal echocardiogram, elderly.

* Ecocardiograma transesofágico em pacientes com acidente vascular cerebral isquêmico (Resumo). Tese de Doutorado. Universidade Federal de São Paulo - Escola Paulista de Medicina, (Área: Ciências / Neurologia). Orientador: Alberto Alain Gabbai; Co-Orientador: Gilmar Fernandes do Prado.

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CLINICAL APPLICATION OF MAGNETIC RESONANCE (MR) IMAGING IN INJURED PATIENTS WITH ACUTE TRAUMATIC BRAIN INJURY (ABSTRACT)*. DISSERTATION. SÃO JOSÉ DO RIO PRETO, 2006.

DIONEI FREITAS DE MORAIS**

Introduction: Traumatic brain injury (TBI) is one of the most important causes of morbidity and mortality in the modern world. Neuroimaging provides accurate diagnostic information that will provide subsidies for therapeutical management. Cranial computed tomography (CT) has been used as imaging modality of choice in the initial investigation of TBI.

Objective: The purpose of this research was to evaluate the clinical application of magnetic resonance (MR) imaging in injured patients with acute TBI considering the possibility of: 1) identify the type, quantity and severity of traumatic brain injuries, and 2) improve clinical-radiological association of patients.

Method: A total of 55 injured patients, 34 (61.8%) males and 21 (38.2%) females, with acute (0 to 5 days) and closed TBI and that not required of immediate neurosurgical procedure by CT and MR. Cranial fractures, extradural and subdural hematomas, subdural hygroma, diffuse axonal injury, single and multiple contusions, intraparenchymal hematoma, subarachnoid and intraventricular hemorrhages, diffuse and hemispheric brain swelling, and ischemia were studied by the two imaging methods and analysed by McNemar test. Associations among mild or moderate/severe TBI and diagnosis by MR of acute subdural hematoma, diffuse axonal injury, multiple contusion, and subarachnoid hemorrhage were verified by Chi-square test. The quantity of injuries and time interval among the imaging diagnosis modalities were assessed by Sign test.

Results: The results showed statistical significant differences in the following brain injuries: 1) cranial fractures were detected by CT in 16 (29.1%) patients and in 2 (3.6%) by MR; 2) subdural hematoma was identified by CT in 6 (10.9%) patients and in 20 (36.4%) by MR; 3) diffuse axonal injury was encountered by CT in only 1 (1.8%) patient and in 28 (50.9%) by MR; 4) multiple contusion was found by CT in only 5 (9.1%) patients and in 23 (41.8%) by MR, and, 5) subarachnoid hemorrhage was identified by CT in 10 (18.2%) patients and in 23 (41.8%) by MR. Within the brain injuries diagnosed by MR, there was only significant association among diffuse axonal injury and severity by Glasgow Coma Scale for mild or moderate/severe TBI. Time interval among CT and MR examinations was 1 day; 24 (43.6%) patients performed on the same day, in 11 (20%) the CT was made before MR, and in 20 (36.4%) the MR was carried out before CT.

Conclusion: The clinical application of MR in acute TBI is useful in diagnosis of diffuse axonal injury. The detection of this injury was associated with severity of acute TBI. MR was statistically higher to the CT in the identification of diffuse axonal injury, subarachnoid hemorrhage, multiple contusion and acute subdural hematoma, however inferior in diagnosis of fractures.

KEY WORDS: clinical application, magnetic resonance, traumatic brain injury.

* Aplicação clínica da ressonância magnética em pacientes vítimas de traumatismo craneencefálico agudo (Resumo). Dissertação de Mestrado, Faculdade de Medicina de São José do Rio Preto – FAMERP / SJRP (Área: Medicina interna). Orientador: Waldir Antônio Tognhola. Co-Orientador: Antônio Ronaldo Spotti.

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