

## THESES

USE OF TRANSCRANIAL DOPPLER IN MONITORATION OF CEREBRAL VASOSPASM SECONDARY TO SUBARACHNOID HEMORRHAGE (ABSTRACT)\*. **DISSERTATION. SÃO PAULO, 1995.**

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The assessment of blood flow velocities in basal arteries through transcranial Doppler (TCD) has appeared as an extremely valuable method in the management of therapeutic measures applied to patients with subarachnoid hemorrhage, before and after surgery. It allows an early diagnosis of cerebral vasospasm, early detection of those patients that are at risk to develop cerebral ischemia, as well as monitoring the benefits of the available therapy (induced hypertension / hypervolemia, use of calcium antagonists and transluminal angioplasty). An important characteristic of the method is that it is noninvasive, thus not increasing the morbidity of a condition which has some potential to deteriorate, leading the patient to a critical condition, often requiring intensive therapy. Besides, it has a relative low cost and can be performed at bedside.

We present our personal experience, in a group of patients submitted to TCD examination in Hospital das Clínicas (Faculdade de Medicina, Universidade de São Paulo). Thirty patients with diagnosis of subarachnoid hemorrhage were submitted to neurologic examination and flow velocity registrations in the intracranial arteries, to determine the correlation between flow velocity alterations and the development of clinical signs attributable to cerebral vasospasm and to compare the results with those found in the literature.

Our results were as follows: in 16 patients which developed clinical vasospasm, 14 (87.5%) showed increased flow velocities at TCD compatible with the diagnosis. From the 14 patients which did not develop clinical vasospasm, 12 (85.7%) had normal flow velocities at TCD and only 2 (12.5%) had increased velocities. In a total of 16 patients with increased flow velocities and ultrasonographic diagnosis of vasospasm, 14 (87.5%) developed neurologic deficits attributable to ischemia and only 2 (12.5%) had neurologic examinations persistently normal, but it does not exclude the possibility of vasospasm occurring without clinical signs.

Our findings, plus all the results already published in literature, point to the conclusion that TCD is a useful auxiliary method to monitor patients with subarachnoid hemorrhage, both in the early detection of those at risk of developing cerebral vasospasm (and ischemia) and as a guide to the institution of therapy.

**KEY WORDS: transient cerebral ischemia, subarachnoid hemorrhage, ultrasonography, diagnosis, etiology.**

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NEUROPHYSIOLOGICAL AND NEUROPSYCHOLOGICAL STUDIES ON POST-WHIPLASH AND MINOR HEAD INJURY PATIENTS (ABSTRACT)\*. **DISSERTATION. RIBEIRÃO PRETO, 1998.**

PAULA CARVALHO VIANA \*\*

A small subset of chronic post-whiplash and minor head injury patients present cognitive, affective and somatic complaints which interfere with their work and daily life. The aim of the present study was to determine if those complaints correspond to EEG/FA abnormalities, delayed P300 latency and/or cognitive disorders.

The study sample which contained 81 subjects was selected from patients and volunteers of Slotervaartziekenhuis, in Amsterdam. The post-traumatic patient group contained 40 subjects with whiplash trauma and 12 who suffered minor head injury. The control groups consisted of 10 who had tension-type headaches (control group I) and 19 who were asymptomatic subjects (control group II). All subjects were submitted to analogic and digital 21 channels EEG recordings, according to the International 10-20 System. Frequency analysis (FA) was performed on 36-42 second epochs of artifact-free EEG under conditions of Eyes Open (EO) and Eyes Closed (EC). P300 was performed on 25 post-whiplash/minor head injury patients and 16 asymptomatic controls. Post-whiplash/minor head injury patients were submitted to complete neurological examination, conventional memory and concentration tests and to a recently developed malingering test.

Neurological examination showed abnormalities in 37 of 52 patients, which consisted mostly of musculoskeletal signs. Analogic EEG did not demonstrate significant differences among post-whiplash, minor head injury patients and headache subjects, with sharp waves in the temporal area being the most common abnormality. All 33 of the post-whiplash/minor head injury patients who had been submitted to FA presented diminished beta 2 and gamma activity in the occipital area when compared to control group II, whereas tension-type headache subjects had less beta 1 reactivity in parietal area, when compared to the same group ( $p < 0.01$ ). No significant differences in FA were observed when post-whiplash/minor head injury patients were compared to tension-type headache subjects. There were no statistical differences in P300 data between patients and control group II, concerning latency, amplitude or topography ( $p < 0.05$ ). A strong negative correlation between memory tests and P300 latency was observed after excluding 4 under-performing patients of the 17 submitted to the malingering test. The results of neuropsychological examination were abnormal in 5 of 13 non-malingering patients (38.4%), primarily in the memory tests.

These data demonstrate that whiplash and minor head injury are related to discrete abnormalities on neurological examination. Sharp waves can be found in the EEG recordings, however post-traumatic epilepsy was not observed. Punctual differences in beta activity may have been related to cognitive/emotional disabilities in post-traumatic patients. Whiplash trauma and minor head injury did not change alpha topography, mean alpha peak frequency and P300 latency, amplitude or topography. FA has been shown to be sensitive for the detection of minor abnormalities, not specific for post-whiplash/minor head injury patients, but that may be related to the neuropsychological under-performance of these patients. Further studies which exclude malingering patients should provide more reliable correlations among FA data, P300 data and the results of neuropsychological examination.

**KEY WORDS: head injury, whiplash injury, EEG, brain mapping, headache.**

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OCCULT SPINAL DYSRAPHISM IN CHILDREN: THE TIME AND THE SURGICAL TREATMENT OF 50 CHILDREN (ABSTRACT)\*. **THESIS. CAMPINAS, 1994.**

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The diagnosis and the surgical treatment of 50 children with occult spinal dysraphism followed from 1982 to 1992 are analyzed. The ages at the time of the surgery ranged from 9 days to 16 years. Sixty per cent (60%) were less than two years old, and neither sex was predominant.

In 92% of the cases there were cutaneous anomalies in the lumbosacral area (semifluctuant mass, dimple, skin tag, hairy pathy or hemangiomas). Additionally, back pain and progressive neurological deficits in the lower limbs were present in 42% of the cases. Sphincter disturbance and orthopedic deformities were present in 34% of the series, and trophic disorders in 12% of the children.

Physical and neurological exam, urodynamic evaluation and neuroradiological study (X-ray, myelography, myelo-CT and magnetic resonance image) were considered essential components of the pre-operative studies.

Lipomas and thickened filum were the more frequent operative findings. The surgical aim is to free intra to extradural adhesions and to release the tethered spinal cord, responsible for ischemia of the lumbosacral cord neurons.

The results showed the pain always disappear. The motor weakness and sensory loss in the lower limbs decreased in most and certainly got no worse in any. Several children were able to cancel proposed orthopedic corrective procedures on their lower limbs. The sphincter disturbance responded least of all, but even this improved.

Surgical treatment was gratifying. In 80% of the cases, there were complete cure or improvement of the deficits. The symptoms have not increased in another 10% of the cases.

Early identification of the illness permitted the realization of prophylactic surgeries in the case of lipomas, and in other pathologies the patients would have to be operated on at the onset sign of a tethered cord.

**KEY WORDS: spinal dysraphism occult, surgical treatment, lipoma.**

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**EPILEPTOGENIC FACTORS IN LOCALIZED EPILEPSIES (ABSTRACT)\*. DISSERTATION. CURITIBA, 1998.**

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**Purpose:** Recognize the relation of the epileptogenic factors in people with localized epilepsies (LE).

**Method:** We accomplished a descriptive and prospective study of 100 patients with LE, older than 14 years old. We related the epileptogenic factors in prenatal, perinatal and postnatal. The data (clinical, EEG, CT) were obtained by means of specific protocol.

**Results:** Most of the patients were inside of the interval age from 14 to 33 years old. The male gender prevailed with 57 patients and 13% reported a family history of epilepsy. The simple partial secondarily generalized seizures were the most frequent type (49 patients). The post-natal factors type prevailed with 43 patients. Association with risk factors was observed in 32 patients (pre and post natal in 16) and in 24 it was not possible to define such risks. The primogenic (first born), the instrumental childbirth and the cranial trauma were the pre-natal, peri-natal and post-natal factors more frequent, and the cranial trauma was the main risk factor separately for LE in our study.

**Conclusion:** The relationship between epilepsy antecedent relative and normal EEG and normal CT; abnormal EEG and risk factors; alteration in the CT and risk factors and normal CT and absence of post-natal risk factors showed to have statistical significance, as well as the absence of antecedents and presence of post-natal risk factors. We did not observe statistical significance when comparing the risk factors with the gender and the epileptic seizures.

**KEY WORDS: epilepsy, epileptogenic factors, localized epilepsies, cranial trauma.**

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PERIPHERAL NEUROPATHY IN IMMUNODEFICIENCY VIRUS (HIV) INFECTED CHILDREN (ABSTRACT)\*. **THESIS. NITERÓI, 1999.**

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Peripheral neuropathy in HIV infected children has not been thoroughly studied as it has been in adults. To determine if symptoms and signs of peripheral neuropathy occur in HIV infected children and to estimate the prevalence of peripheral neuropathy in this population, a descriptive cross-sectional study was elaborated.

We evaluated a cohort of 55 children older than five years from the HIV out-patient clinic from the Pediatric Institute of the Federal University of Rio de Janeiro. A total of 39 children were interviewed and examined systematically for peripheral nerve symptoms and signs, and referred for nerve conduction studies. Of this clinically evaluated group 13 (34%) had symptoms and signs of peripheral nerve involvement.

Distal paresthesiae and/or pain plus diminished ankle jerks and/or diminished vibration sense were the most common clinical findings. Most children were classified as C3, were undernourished and using potentially neurotoxic drug. However, those findings, as well as the presence of encephalopathy and longer disease duration were not significantly associated with the presence of peripheral neuropathy. Nerve conduction studies indicated a predominance of axonal abnormalities.

Peripheral neuropathy occurs in one third of HIV infected children older than five years with similar features as the distal sensory polyneuropathy described in adults.

**KEY WORDS: peripheral neuropathy, HIV, AIDS, children.**

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