

THESES

GUNSHOT WOUNDS TO THE SPINE: STUDY OF 246 PATIENTS (ABSTRACT)*. THESIS. RECIFE, 2000.

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The gunshot wounds of the spinal cord and cauda equina, surely, represent one of the most devastating calamities which can affect the human life. Very often, they cause irreversible neurological disturbances. In the civilian population, the specific literature is scarce of large retrospective series. Therefore, in the absence of extensive data, it is difficult to evaluate in depth the extension of the lesions, its complications and the role played by the several forms of treatment.

The objective of this thesis is to produce responses to several unsolved questions and to add information, which can improve the handling of the pathology.

This study was based on the analysis of 246 patients with gunshot wounds of the spinal cord and cauda equina, admitted to the Service of Neurosurgery, Hospital da Restauração, Recife, Brazil, between January, 1st, 1981 and June, 30th, 1998. Two hundred and thirty five (95.5%) patients were male and 11 (4.5%) were female. The age of the patients ranged from 10 to 65 years, with mean of 26.6 (SD=9.2). The median was 24 years. Twenty percent was less than 20 years old and 50% was younger than 25 years old. The neurological condition, by the time of the admission to the hospital, was judged according to the classification of Frankel ASIA/IMSOP. In group A were 147 (59.8%) patients; in group B, six (2.4%); in group C, 51 (20.8%); in group D, 35 (14.2%); and seven (2.8%) patients were allocated in group E. All patients had radiological investigation and 51 (20.7%) were submitted to computerised tomography of the affected vertebral segments. All patients have been injured by hand guns and 241 (98%) were hit by bullets of small caliber. The cervical spine was affected on 72 (29.3%) opportunities, the thoracic spine on 113 (45.9%) and the lumbar spine was injured on 61 (24.8%) occasions. The in-hospital time ranged from three to 182 days, with a mean of 28.3 (SD=23.5). The follow-up varied from three to 397 days, with a mean of 76.3 (SD=58.6).

One hundred and fifty seven (63.8%) patients were managed conservatively and 89 (36.2%) underwent surgical treatment. Thirty five (14.2%) patients died during the investigation. Urinary infection was present on 44.3%. Bedsores were detected on 35.9% and were significantly associated with the

absence of motor activity (groups A & B). Laparotomy was carried out on 46 (18.7%) patients and was unrelated to mortality. Subcutaneous emphysema was evident on 18.7% and haemopneumothorax on 26.4% and both were unassociated with a higher mortality. Respiratory infection was diagnosed on 58 (23.6%) patients and was significantly related to the absence of motor power (groups A & B) and to a higher mortality rate. Pulmonary embolism was cause of death on 10 patients, in other words, on 4.1% of the population under study.

Amongst the 89 patients who were operated on, 15 (16.9%) had emergency surgery and 74 (83.1%) had elective operative procedures. All emergency surgeries were decompressive laminectomies. Amongst the elective surgical procedures, 61 (82.4%) were decompressive laminectomies, 12 (16.2%) constituted anterior approaches to the cervical spine for decompression and fusion, and on one (1.4%) opportunity the cervical spine was stabilised through a posterior approach. The percentages of surgical procedures related to the neurological status were as follow: 22.4% in group A; 83.3% in group B; 62.7% in group C and 54.3% in group D. No patient in group E was submitted to surgical treatment. The patients with incomplete lesions (groups B, C & D) had surgical procedures (60.9%) significantly higher than those with complete lesions (group A), which was 22.4%. On the other hand, group A patients had percentages of emergency interventions (27.3%) significantly more elevated than those with incomplete lesions (10.7%). The presence of the bullet inside the vertebral canal was significantly related to a higher rate of surgical and emergency procedures. Cauda equina injuries were significantly more operated on (72.3%) than spinal cord lesions (27.6%). Cerebrospinal fluid (CSF) fistula was present on 10 (4.1%) occasions and significantly associated with surgical procedures. Purulent meningitis was diagnosed on 12 (4.9%) patients and was significantly related to CSF leak, surgical treatment and emergency procedures. Thirty-one (21.1%) patients of the group A, two (33.3%) of the group B and two (3.9%) of the group C have died. Patients with complete lesions had significantly higher mortality rate than those with incomplete injuries (4.3%).

The mortality rate was 29.2% for affections of the cervical spine, 11.5% for the thoracic and only 1.6% for the lumbar spine aggressions. Included in the 211 patients who survived, 191 (90.5%) remained neurologically unchanged, 18 (8.6%) showed some degree of improvement and two (0.9%) patients deteriorated following decompressive laminectomies. The spinal cord injuries had improvement percentages of 8.5%, which was similar to the achievement of the cauda equina lesions (8.7%). The patients with metallic dust inside the vertebral canal demonstrated neurological improvement (13.3%) significantly better than those bearing the presence of the bullet inside the canal (3.1%). However, the radiological aspects of the metallic fragments did not correlate to the occurrence of neuropathic pain. Neuropathic pain was verified on 19.1% of the cauda equina lesions and on 9.5% of the spinal cord injuries, but the differences were not statistically significant. On the other hand, this type of pain was more evident when the lesion affected the thoracolumbar spinal cord than the cervical one. The outcome of the neuropathic pain was not significantly influenced by the surgical procedures. Amongst the 209 patients who survived and did not deteriorate following surgery, 10 (12.2%) out of 82 operated on, improved, as well as improved, 8 (6.3%), out of 127 conservatively managed. These differences did not reach statistical significance. All patients (12)

submitted to emergency decompressive laminectomies did not change, while 10 (14.3%), out of 70 who had elective surgical procedures, showed some degree of neurological improvement. However, these differences were not statistically significant. Concerning cauda equina lesions, neurological progress was diagnosed on two (6.3%) out of 32 operated on and on two (15.4%) of the 13 conservatively managed, which differences did not obtain statistical significance. Studying the spinal cord injuries, unoperated patients and those treated by decompressive laminectomies, we observed that four (10.5%), out of 38 surgically treated, demonstrated neurological progress, while six (5.3%), out of 114 patients who did not undergo an operation, also showed some neurological improvement. These differences were not statistically significant.

Finally, according to the data extracted from this thesis, decompressive laminectomies were associated with a higher level of complications and did not influence positively the outcome of the patients. However, it is mandatory and we strongly recommend that a prospective multicentric study be organised with a larger population of patients. This will be, for sure, the only way we can better understand the whole complexity of this pathology, and therefore, be able to better manage and help these patients.

KEY WORDS: traumatic spinal cord lesion, gunshot wound.

* Lesões da medula espinhal e cauda equina produzidas por projéteis de arma de fogo: estudo de 246 pacientes (Resumo). Tese apresentada à Faculdade de Ciências Médicas da Universidade de Pernambuco para Concurso de Professor Titular de Neurocirurgia.

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ZINC THERAPY FOR WILSON'S DISEASE: STUDY OF 20 CASES (ABSTRACT)*. THESIS. SÃO PAULO, 2000.

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Eleven female and nine male subjects with Wilson's disease (WD) were included in this study. Data collection ran from September 1983 until December 1999. All subjects were submitted to zinc therapy during the study follow-up.

Patients were split into two groups. Group 1 included the subjects who had been on adequate zinc therapy for over a year. Subsequently, group 1 was further subdivided into 1-A and 1-B, to include subjects who had been on D-Penicillamine (DP) for under and over five years, respectively. Group 2 was also subdivided into 2-A, with subjects who had received zinc plus DP, and group 2-B, with patients showing an advanced stage of the disease.

Zinc therapy outcomes were assessed considering the evolution of neurological and systemic clinical pictures, Kayser-Fleischer (K-F) rings, liver function blood tests, serum and urine copper levels and, in several cases, Magnetic Resonance Imaging (MRI) of the head. The neurological clinical work-up and MRI results were quantified and pre and post treatment scores developed.

The mean age of disease onset was 18.5 ± 13.2 years and the mean present age of subjects was 33.3 ± 13.2 years. Of the eighteen patients presenting the neurological form of the disease, one had the hepatic form whilst another had the hematological form of WD. All 20 subjects, except one, were

treated initially with DP, where the causes that most frequently determined its substitution by zinc, were leukopenia (8 cases) and kidney disease (5 cases). Group 1 average treatment duration with DP was 7.9 years, whereas the average treatment duration with zinc was 4.8 years.

On comparison, compliance rate averages for zinc and DP therapy indicated a trend toward a greater treatment compliance rate with zinc therapy. Averaged neurological scores before and after zinc treatment showed an improvement in the neurological profile, with score reduction following zinc therapy in group 1. Out of 20 cases, eight subjects presented a total or partial regression of K-F rings, 12 cases remained unchanged and only one relapsed. Out of the seven patients who were submitted to a head MRI, four showed an improvement in signal abnormalities, two remained unchanged and one pre-

sented increased MRI changes.

The overall treatment outcome showed that zinc therapy was effective (leading to an improved or stable clinical picture) in 10 out of the 17 patients (58.8 %) who had received zinc in an appropriate fashion. In group 1, Zinc therapy was effective in 10 out of 15 cases (66.7 %) where compliance rate was good in 86.7 % of patients evaluated. These results do not seem influenced by previous treatment with DP given no statistical relationship between DP treatment duration and good response to zinc therapy was observed. The sole side-effect of zinc salts seen in any of the 20 patients evaluated, was epigastralgia, recorded in six subjects (30 %).

The results obtained in this study indicate that zinc is an adequate therapeutic alternative in treating WD where DP needs to be substituted.

KEY WORDS: Wilson's disease, zinc therapy.

*O zinco no tratamento da doença de Wilson: estudo de 20 casos (Resumo). Tese de Livre-Docência, Faculdade de Medicina da Universidade de São Paulo (Disciplina de Neurologia Clínica).

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REFLEX RESPONSES TO APPENDICULAR COMPRESSION IN TERM NEWBORN (ABSTRACT)*. THESIS. PORTO ALEGRE, 2000.

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The hand compression in newborns to cause the mouth opening response, the rotation of the neck, the flexion and/or extension of the limb. The mouth-opening response could occur following stimulation of the entire upper limb during the first few months of life in normal children. The reflexogenic area extended to the entire lower limb, in the children with neurologic pathology. These findings can indicate a poorer prognosis.

The main questioning is if the already established reflexic responses obtained by hand compression could also occur in other limb segments, in the same or different fashion.

The objectives of this study were to determine the prevalence of reflexic responses triggered by compression stimuli of appendicular areas; compare the frequencies of the responses obtained and identify those with the best response. A cross sectional study was performed with a random sample of 106 normal term newborns, in the Hospital de Clínicas de Porto Alegre, examined in the first 72 hours of life. From the results examination was assembled descriptive analysis and frequency estimates with 95%

confidence interval for categorical variables. The comparison between frequencies obtained for the various appendicular segments was done with the chi-square test, with $p < 0.05$ considered statistically significant.

The 5 most frequent reflexic responses were, in descending order: mouth opening (100%) and neck rotation (88.7%) to hand compression, extension of the upper limb (86.7%) and flexion of the lower limb (84.9%) to compression of the foot, and extension of the upper limb (77.4%) to compression of the leg. Considering as a group all the reflexic responses obtained in the 6 appendicular segments stimulated, one can state that the flexion of the lower limb was the most frequently encountered response, 305 times. Follow, in descending order: mouth opening 191 times; extension of the upper limb 187. Flexion of the lower limb associated with extension of the upper limb 147; rotation of neck 138. The segments studied as a group, one can state that the hand is the best segment among the 6 studied, with 532 positive responses. Follow in descending order of best response: foot 271; forearm 234; leg 218; arm 53 and thigh 50.

Upon compression of the 3 upper segments predominated reflexic responses of the head, neck and limb flexion, whereas upon compression of the 3 lower segments predominated reflexic responses of the lower limb, extension of upper limb and a combination of both. Whenever there was a response to

non-stimulated limbs, this response was always symmetric, being 18.4 times more extensor than flexor in the upper limbs and 24.7 times more flexor than extensor when involving the lower limbs.

KEY WORDS: neurologic examination, primitive reflex, newborn.

* Respostas reflexas à compressão apendicular no recém-nascido de termo (Resumo). Tese de Doutorado, Faculdade de Medicina da Universidade Federal do Rio Grande do Sul (Área: Neurologia Infantil). Orientadora: Newra Tellechea Rotta.

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SOMATOSENSORY EVOKED POTENTIAL IN CHILDREN WITH EPILEPTIC SEIZURES AND CENTROTEMPORAL AND EVOKED SPIKES ON EEG (ABSTRACT)*. THESIS. CAMPINAS, 2000.

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The present research refers to latencies and amplitudes of cortical components of somatosensory evoked potential through median and posterior tibial nerve stimulation in a group of 20 children with partial idiopathic epilepsy and somato-sensitive evoked spikes on the EEG (one sub-group with benign childhood epilepsy with centrotemporal spikes, 8 cases; another sub-group with other partial idiopathic epilepsies, 12 cases) and compared to latencies and amplitudes of cortical components of 20 normal children and 20 children with benign childhood epilepsy with centrotemporal spikes, but without spikes evoked through somatosensory stimulation.

It was therefore possible to demonstrate that:

1. Latency of cortical components of children with epileptic seizures is similar to that of normal children;
2. One or more of the components N45, N75, P98 and/or N126 (posterior tibial nerve) with high amplitude occur: in most patients with partial idiopathic childhood epilepsy and with spikes evoked through somatosensory stimulation; in significant proportion in children with benign childhood epilepsy with centrotemporal spikes and without spikes evoked through somatosensory stimulation; and, in greater proportion in children with partial idiopathic childhood epilepsies with spikes evoked through somatosensory stimulation than in children with benign childhood epilepsy with centrotemporal spikes, but without evoked spikes and, in these children, in greater proportion than in normal children.
3. Amplitude of component N35 (median nerve) is

greater in children with benign childhood epilepsy with centrotemporal spikes and without spikes evoked through somatosensory stimulation than in normal children;

4. Amplitude of component N98, obtained through posterior tibial nerve stimulation is greater in children with partial idiopathic epilepsy and with spikes evoked through somatosensory stimulation than in normal children and in those children with benign childhood epilepsy with centrotemporal spikes and without evoked spikes;
 5. High amplitude (higher than 7 μ V) of component N35 is more commonly found in children with benign childhood epilepsy with centrotemporal spikes, with or without evoked spikes, than in children with other partial idiopathic epilepsies and with evoked spikes;
 6. High amplitude (higher than 7 μ V) of component N60 (median nerve) is more frequently found in individuals with benign childhood epilepsy with centrotemporal spikes and without evoked spikes or, further, in those with partial idiopathic childhood epilepsies and with spikes evoked through somatosensory stimulation than in normal individuals;
 7. There is no correlation between lateralization of epileptiform activity and that of cortical components N35 and P98 with elevated amplitude;
 8. PES can contribute to neurophysiological investigation of partial idiopathic childhood epilepsies.
- KEY WORDS: somatosensory evoked potential, benign childhood epilepsy with centrotemporal spikes, EEG evoked spikes.

*Potencial evocado somato-sensitivo em crianças com epilepsias benignas parciais da infância e pontas evocadas por estímulos somato-sensitivos no eletrencefalograma (Resumo). Tese de Doutorado, Faculdade de Ciências Médicas da Universidade Estadual de Campinas – UNICAMP (Área: Neurologia). Orientadora: Elizabeth M.A.B. Quagliato.

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PROGRESSIVE SUPRANUCLEAR PALSY. CLINICAL AND NEUROIMAGING FEATURES (ABSTRACT)*. DISSERTATION. SÃO PAULO, 1999.

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Thirty seven years ago, Steele, Richardson and Olszewski described an entity which was named progressive supranuclear palsy (PSP). Such disease is considered to be a Parkinson-plus syndrome characterized by marked postural instability, supranuclear vertical gaze abnormalities and axial rigidity. Nuchal dystonia, fronto-subcortical cognitive dysfunctions and a staring facial expression are also frequently observed. PSP is a fatal sporadic degenerative disease with a course of 6 years and it commonly appears in late sixties.

The present study is a survey of 16 probable PSP patients, diagnosed according NINDS-SPSP criteria. First clinical manifestation, presence of tremor, onset age of the disease, time to the diagnosis and L-dopa response were searched in all cases. CT-scan was performed in 16 patients, MRI in 8 and 99mTc-HMPAO-SPECT in 9 cases. Four patients were studied with auditory (AEP), visual (VEP) and somatosensory evoked potentials (SSEP). PSP represented only 2.1% of all cases of parkinsonism in the movement disorders study group of neurology department of University of São Paulo general hospital.

The mean age of onset was 64.75 years ($SD = \pm 7.28$; min = 55 years / max = 79 years). There were a probable slight predominance of men (1.6:1).

Postural instability with falls was the most frequent initial clinical feature of PSP (62.5% of all pa-

tients). Supranuclear vertical gaze palsy was observed only 2.3 years after the disease onset. Two patients had, as a possible associated initial manifestation, ocular clinical complaints which were initially considered to be chronic dacryocystitis. Such complaints might be related with the paucity of blinking in PSP patients. Tremor was observed in 44% of all patients, although all of them developed a variable and transitory limb tremors in the beginning of the disease, only 19% presented rest tremor. Only 19% of subjects was correctly diagnosed in a first evaluation and the mean time to perform such task was 2.43 years ($SD = \pm 1.89$). L-dopa response was studied in a non-controlled way and 13% of patients had a good, but transitory benefit with l-dopa.

Global atrophy was the commonest finding in CT (69%) and MRI (62,5%), suggesting that PSP was not merely a "subcortical" disease. One case, which had a definite PSP according NINDS criteria, showed putamenal low signal intensity on T2-weighted image. SPECT studies disclosed a frontal hypoperfusion in 56% of 9 patients, suggesting that PSP has a frontal dysfunction in the majority of cases. SSEP was normal in all 4 cases. AEP and VEP disclosed abnormalities in 2 patients who had the poorest performance in neuropsychological evaluation.

KEY WORDS: progressive supranuclear palsy, clinical features, neuroimage.

*Paralisia supranuclear progressiva: aspectos clínicos e de neuroimagem (Resumo). Dissertação de Mestrado, Faculdade de Medicina da Universidade de São Paulo (Área: Neurologia). Orientador: Ricardo Nitri.

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CLINICAL FEATURES OF 165 EPILEPTIC PATIENTS IN HUCFF-UFRJ (ABSTRACT)*. DISSERTATION. RIO DE JANEIRO, 1999.

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Background. Epilepsy is the second most prevalent neurologic disease in the world, affecting over 40 million people. A study based on our epileptic patients is fundamental for improving the anti-epileptic care. A protocol, created by *Liga Brasileira de Epilepsia-RJ* was used, as part of a multicentric study.

Method. Individuals with epilepsy, first unprovoked seizure or acute symptomatic seizure exam-

ined in our hospital from July 1992 to June 1993 were included in this study. Data were analyzed with Epi Info, V. 6.04.

Results. From 215 interviews with 203 patients, 165 were included. They were relatively young (average age of 32.1 years, 6 to 79 years; $\pm 15,90$), with a slightly male predominance (54.5%), and low-grade education. Sixty six percent had the first sei-

zure before the age of 25, and the illness had a mean duration of 12 years. The primary generalized seizures are the commonest (53.2%), and there are similar amounts of idiopathic and symptomatic cases. Our major cause for symptomatic seizure was neuroinfection (12.4%). The majority (64.8%) of the seizures was treated with monotherapy, most frequently phenobarbital or carbamazepine. Occurrence of side effects was low (18.1%), and total control was achieved in 66.7% of the patients; 29.9% had partial control and 3,5% had no control. EEG was

abnormal in 49% of cases and CT in 49,4%.

Conclusions. The epileptic outpatients at HUCFF-UFRJ are similar in many ways to those from other developing countries (clinical, demographic and etiologic aspects), and in other ways are like outpatients in developed countries (use of monotherapy and control achieved). They may benefit from medical-scientific progress.

KEY WORDS: epilepsy, epidemiological profiles, health care.

*Características clínicas de 165 pacientes epilépticos do HUCFF-UFRJ (Resumo). Dissertação de Mestrado, Universidade Federal do Rio de Janeiro (Área: Clínica Médica - Setor: Neurologia). Orientador: James Pitágoras de Mattos.

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HEADACHE AND COMPUTERIZED TOMOGRAPHY: CLINICAL AND ECONOMIC ASPECTS (ABSTRACT)*. DISSERTATION. NITERÓI, 2001.

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One hundred and fifty patients were submitted to a questionnaire in two radiology clinics, all of them had a cranial computed tomography scan (CCT) indicated by physicians among various medical specialties (neurologists, neurosurgeons, generalists, etc.).

The points analysed were: sex, age, if patients had headache or not and its intensity, physician speciality, use of endovenous contrast, abnormalities in reports, costs of investigation and some cross-match data.

The normal CCT ratio was 76.7% versus 23.3% of abnormal ones; only in 3.3% it was imperious. Neu-

rologists requests were 55.5% among specialists; however, most of abnormal were found in those which were asked by generalists. Costs for abnormal diagnosis were in the ratio of R\$ 6.130,00.

We observed a high cost versus a low objectivity in findings of CCT in patients with headache, we suggest a better clinical evaluation, medical-patient relationship, inclusion of headache specialists in public medical institutions and private medical security in order to reduce this demand.

KEY WORDS: headache, computerized tomography(CT), costs, economy.

*Cefaléia e tomografia computadorizada: aspectos clínicos e econômicos (Resumo). Dissertação de Mestrado, Universidade Federal Fluminense (área: Neurologia). Orientador: Pedro Ferreira Moreira Filho.

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EPISODIC MIGRAINE AND TRANSFORMED MIGRAINE: A COMPARATIVE STUDY (ABSTRACT)*. DISSERTATION. SÃO JOSÉ DO RIO PRETO, SP, 2000.

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Headache as a daily or near-daily experience, known as chronic daily headache, is part of a heterogeneous group of headaches. Since there are no well definite diagnostic criteria and no longitudinal studies, this headache group is not included in the classification of the International Headache Society. Transformed migraine is one of the most frequent chronic daily headaches, according to several studies.

The purpose of this study was to compare clinical features of episodic and transformed migraine; observing some correlation with depressive symptoms as well as to evaluate the administration of pain relievers used in transformed migraine.

Clinical features of 40 patients with episodic migraine according to the criteria of the International Headache Society Classification and 40 patients with

transformed migraine according to the criteria of Silberstein et al. were compared. Beck's Depression Inventory was used to compare the degree of depressive symptoms between those two groups besides a third group of 40 patients (control) with no headache complaint. The criteria of Silberstein et al. were used to evaluate the administration of pain relievers in the transformed migraine group. Patients with some chronic organic disorders were not included in the study.

Women were the majority in the 3 groups: 82.5% in the episodic, 95.0% in the transformed migraine and 92.5% in the control group. At the first examination, the ages were similar in the 3 groups, whereas the initial age for migraine attacks was smaller in the transformed migraine group ($p=0.014$). The time experience of episodic attacks was similar in the two groups. The headaches were located predominantly in one point of the head in the episodic migraine group, whereas in the transformed in more than one point ($p<0.005$). The nature of the throbbing pain was the only in the episodic migraine group, whereas this was variable in the transformed. Variation of pain intensity was more frequent in the transformed migraine group ($p<0.005$). The frequency of less than 2 associated symptoms was more

unusual in the episodic migraine ($p<0.0005$). The presence of some factor that excited and no worsening factor were features of the transformed migraine. The grouping of improvement factors had significant association with episodic migraine ($p=0.004$). Nocturnal awakening with headache, aura, and familiar history did not show significant association with the type of migraine. The overuse of pain relievers was observed in 67.5% of the patients of the transformed migraine group. The episodic migraine group showed a higher frequency of moderate depression, and the transformed, a severe depression, when they were analysed qualitatively.

The transformed migraine group showed some clear clinical features from the episodic migraine such as the frequency, location and intensity of the headache pain. The early initial migraine attacks may suggest a further risk to the transformed migraine. Patients with the transformed migraine showed more severe depression symptoms according to the qualitative results, strengthening some possible comorbidity with depression. The overuse of pain relievers was a common habit among patients with transformed migraine.

KEY WORDS: transformed migraine, chronic daily headache, depression, pain relievers overuse.

*Migrânea episódica e migrânea transformada: análise comparativa (Resumo). Dissertação de Mestrado. Faculdade de Medicina de São José do Rio Preto (Área: Biologia Médica). Orientadores: José Paulo Cipullo e Waldir Antonio Tognola.

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THE DOUBLE FREQUENCY AND AMPLITUDE GRADIENT ABSENT IN THE EEG DURING THE SLEEP AS A POSSIBLE INDICATION OF CHILDREN'S COMPROMISE (ABSTRACT)*. DISSERTATION. BRASÍLIA, 2000.

CARLOS NOGUEIRA AUCÉLIO*

Study on 200 EEGs of children with ages ranging from 3 months to 12 years old, obtained in sleep, in order to evaluate the frequency and amplitude double gradient (FADG) as possible indicator of neurological compromise.

Using as base the visual analysis, we have defined the FADG into two categories: FADG present; FADG absent.

The correlation of the FADG with the neurological pattern, showed that 73.1% of children with normal neurological pattern (NNP) had the FADG pre-

sent, and 26.9% had the FADG. In the 62 EEGs of children with altered neurological pattern (ANP), 14.5% had the FADG present and 85.5% had the FADG absent. The chi square test, showed a highly significant relation for the absent FADG, and the abnormal neurological pattern.

The FADG is parameter EEG depending of the age. The FADG should be valued in the interpretation criteria of the EEG of children's sleep.

KEY WORDS: EEG, double gradient, childhood.

*O duplo gradiente de frequência e amplitude ausente no EEG em sono como indicador de comprometimento neurológico na infância (Resumo). Tese de Mestrado, Faculdade de Ciências da Saúde da Universidade de Brasília (Área: Neurofisiologia). Orientador: Áurea Nogueira de Melo.

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