TBILISI STATE MEDICAL UNIVERSITY
ANNALS OF BIOMEDICAL RESEARCH AND EDUCATION
2003 July/September, ***Volume 3, Issue 3***

Differential Diagnostical Criteria and Treatment of Children Stuttering

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Abstract

Stuttering affects about 5 percent of the population, that its incidence is highest during preschool years, and that remission rates are high, especially during the first twelve to eighteen months after onset. The aim of present paper is elucidate differential-diagnostical criteria of stuttering and select optimal therapeutical tactic. 137 patients with stuttering of age from 2 to 14 years have been investigated. Patients were divided into 2 groups: organic form of stuttering (62 patients) and neurotic form of stuttering (75 patients). All patients were subjected to EEG investigation; results were divided into 3 groups. We used 3 kind of treatment: with tranquilizators, antidepressants and in 23 cases with Sodium Valproate. The conducted investigations have shown, that EEG method at 35% of patients reveals different types of abnormalities. This act proves a practical importance of EEG investigation in identification forms and optimal treatment of stuttering. In 67% of patients we got the positive therapeutic effect. Treatment with Sodium Valproat was effective in ~50% of patients. The best outcome was observed in cases of early diagnosed stuttering and the worse outcome was observed in cases of chronic stuttering.

Keywords: *stuttering, EEG, ambidexterity, speech disorder, sodium valproat, brain mapping*

Introduction

Stuttering is a disability of spoken language that emerges most often at a time when young children's cognitive, linguistic, and motor abilities are undergoing rapid maturation and development. It is generally accepted that stuttering affects about 5 percent of the population, that its incidence is highest during preschool years, and that remission rates are high, especially during the first twelve to eighteen months after onset. It is also wibely believed that one's ancestors and gender influence a child's odds of beginning to stutter and, perhaps, of recovery [1,2,5,8].

In spite of this, the underlining cause of stuttering in childhood is unknown. So every step made towards better study children stuttering is very important.

The aim of present paper is elucidate differential-diagnostical criteria of stuttering and select optimal therapeutical tactic.

Material and Methods

Between 1990 and 2003, 745 varicocele patients, of 137 patients with stuttering of age from 2 years to 14 years have been investigated (*Fig.1*). As you can see the most numerous is the first group of patients. We can explain this fact: at 2-4 years expressial speech, motorial and cognitive function is not complete, abilities undergoing rapid maturation and development. That's why stuttering incidence is highest during 2-4 years. Majority of patients are males and it is logic, because it is known, that stuttering occurs males more often [2,3,5, 6]. For 79 patients it was first visit to neurologist. The middle duration of stuttering was from 2 weeks to 4 years. Observations were carried out during 2 years.

The entire patients were examined in detail (*Fig.2*). We used electroencephalographic examination. All patients were subjected to EEG investigation by routin 16-channeled EEG and by QEEG (Brain Sarvior Saico-apparatus).

Results

Such as the patients were divided into 2 groups; first group was completed by 62 patients with organic form of stuttering; second group was completed by 75 patients with neurotic form of stuttering. 54 patients had neurologic signs of residual-organic pathology of the central nervous system in first group. Retrospectal

analysis has shown, that at first year of life 15 patients had intracranial hypertension, 16 patients had central paraparesis of lower limbs. 22 patients had speech and motorial retardation at 2 years age.

In second group pathological signs were observed in only 36 cases (such as minimal cerebral dysfunction, tics, emotional labiality, "shy" child, enuresis nocturnal-incontinence of urine, difficulties in reading and writing. It was revealed, that among first-degree relatives of stuttering persons this disorder have placed in 35 cases. In first group it was 11 cases of mother's, 7 cases of father's and 3 cases of sibling's stuttering.

Investigation has revealed, that 27 patients were left handlers (21 cases in first group and 6 cases in second group). It is known, that more left-handed persons are affected by stuttering, because the notion that stuttering is the result of left hemispheric dysfunction. Cerebral dominance for language may be mixed in children who stutter, with "rivalry" between the hemispheres for control over speech (Orton and Travis) [2,5,6].

It is known too, that ambidexterity or an enforced change from left-to right-hand use have dean popular explanations of stuttering. It has revealed, that majority of stuttering persons, were enforced by parents to take a spoon, or a pen with right hand [2,3,4,7].

Clinical analysis has revealed, that in certain part of patients stuttering appear at time of emotional strain, a psychogenesis has been proposed (37 patients of first group and 51 patients of second group).

It was revealed three different clinical types of stuttering: tonic, clonic and mixed.

It is known, that stuttering represent a disorder of rhythm- an involuntary, repetitive prolongation of speech- due to an insuppressible spasm of articulatory muscles. The spasm may be tonic and result in a complete blocking of speech (at one time referred to as stammering) or clonic, i.e., a rapid series of spasms interrupting the emission of consonants, usually the first letter or syllable of a word (stuttering). There is no valid reason to distinguish between these two forms of the disorder, since they are intermingled [4].

Retrospective analysis shown, that 18 patients of first group early age had seizures. Such cases were not revealed in second group.

EEG investigation results: in first group EEG data did not indicate any significant pathology at 25 patients. At other patients it was revealed different abnormalities, reduction in the amplitude of Beta 1; difference over occipital and temporal sites; induction of high-amplitude waves with tendencies to paroxysmal activity.

In second group was revealed only 14 cases of differences over temporal sites and 16 cases of mild abnormalities by the type "minimal cerebral dysfunction".

Drugs and method of speech therapy treated all patients. 24 patients visited psychotherapeutic.

The conducted medicament divided therapy patients into 3 groups. Patients of the first group were treated with the Sodium Valproat (20-25 mg/kg/day) for 3-6 months. There were patients (N=23) with significant pathology on EEG.

Second group (N=56) patients were treated with antidepressant. There were patients with mild abnormalities on EEG and multiple neurotic features.

Third group (N=58) patients were treated with tranquilizator. There were patients with minimal dysfunction on EEG and minimal neurotic features or without them.

Results of treatment: in 67% of patients we got the positive therapeutic effect.

The best outcome was observed in cases of early stuttering, the worse outcome was observed in cases of chronic stuttering (2 years and more history). In these patients positive effect revealed in onley~20% of patients. Treatment with Sodium Valproate was effective in~50% of patients- stuttering was recovered and EEG teatures were normalized.

In second group (neurotic stuttering) was revealed 2 subgroups: patients with easy- recovered stuttering and patients with persistent stuttering.

The number of recidives was different in these subgroups: 22%-in first and 31%- in second subgroup.

Discussions

1. The early treatment is essential condition for effective treatment. In these cases the outcome is the best one- 67% of patients have positive therapeutic result.

2. In cases of chronic stuttering positive therapeutic effect is only~20%.

3. The most effective is complex treatment (drug-therapy, speech- therapy).

4. The conducted investigations have shown, that EEG method at 35% of patients reveals different types of abnormalities. This fact proves a practical importance of EEG investigation in identification forms and optimal treatment of stuttering.

5. In patients with organic form of stuttering EEG-investigation reveals paroxysmal activity in 25%. In these cases treatment with Sodium Valproate is effective in~50% of patients.

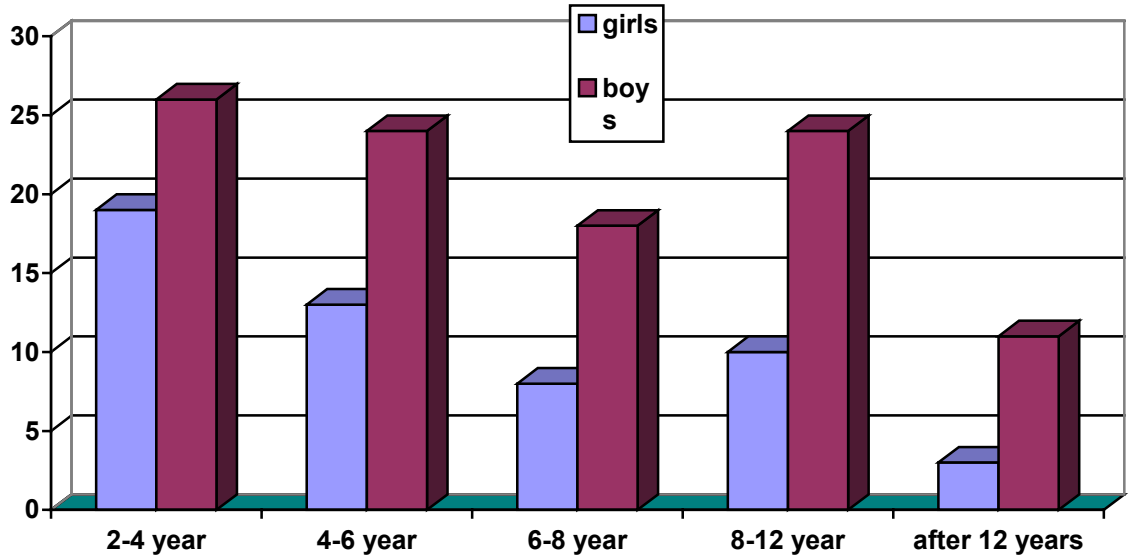

Fig.1 Patients distribution by sex and age.

-SOCIOCULTURAL
-PSYCHOLOGICAL/BEHAVIORAL
-PERCEPTUAL/LINGUISTIC
-ACOUSTIC
-KINEMATIC
-ELECTROPHYSIOLOGIC
-MEASURES OF CNS FUNCTION

Fig.2 Observations (levels of analysis).

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Дифференциальная диагностика и лечение детей с заиканием

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Р Е З Ю М Е

В современной педиатрии и неврологии актуальна проблема заикания, так как трудности общения с окружающими, характерные для многих заикающихся, особенно в подростковом и юношеском возрасте, обуславливают у этих больных определенные изменения личности, мешают им учиться и в полной мере раскрыть свои способности и интеллектуальные возможности. Особую актуальность в настоящее время приобретает изучение клиники и принципов терапии, поскольку последняя в ряде случаев является неэффективной. Обследовано 137 больных с заиканием в возрасте от 2 до 14 лет и проведены клинико-энцефалографические сопоставления. На основе клинического анализа выделены две группы больных: I - невротическая форма заикания (62 больных) и II - неврозоподобная-органическая форма заикания (75 больных). Медикаментозное лечение включало применение антидепрессантов, транквилизаторов а в 23 случаях – антиконвульсант депакин. Установлена обоснованность применения ЭЭГ для дифференциации клинических форм заикания и выбора оптимальной терапии. В 50% случаев лечения антиконвульсантом достигнут положительный эффект. В целом у 67% больных выявлен четкий положительный эффект. При хроническом заикании улучшение было достигнуто только у 20% больных.

Ключевые слова: *заикание, ЭЭГ, амбидекстрия, нарушения речи, вальпроат натрия, картирование головного мозга*