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Cognitive Effects of Sub-Clinical EEG Discharges: An Indication For Treatment

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ÖZET

Subklinik EEG Deşarjlarının Bilişsel Etkileri: Tedavi İçin Bir Gösterge mi?

Epileptik hastalarda video-EEG çekimi ile senkron olarak yapılan nöropsikolojik değerlendirmelerde özellikle sürekli dikkatin gerektirdiği bazı testlerde klinik nöbetin eşlik etmediği bazı subklinik EEG deşarjlarına bağlı olarak geçici bilişsel bozulmalar saptanmıştır. Bunların epileptik çocuğun günlük psikososyal performansındaki etkileri tümüyle bilinmese de, anti-epileptik tedavi ile bu deşarjların bastırılmasının nöropsikolojik tabloda genel bir iyilik yaratması beklenir.

Bu iyiliklerin neler olduğu ve hangi hastalarda ne tip bir ilaç uygulamasının gerektiğini saptamak için daha fazla çalışma yapılmasına gerek vardır.

Anahtar kelimeler: *epilepsi, EEG, geçici bilişsel bozulma*

SUMMARY

Under conditions of intensive EEG monitoring during a continuous performance test, it was shown that transient cognitive impairment occurs in association with subclinical EEG discharges in the epileptic patients. Though the cumulative effect of such impairment on the overall cognitive function is still uncertain, it seems likely to improve cognition in some epileptic patients with subclinical EEG discharges by administering antiepileptic drugs. Further studies are needed to ascertain the beneficial effects of medication in epileptic patients without clinical seizures but subclinical EEG discharges.

Key words: *epilepsy, EEG, transient cognitive impairment*

Many patients with epilepsy experience cognitive problems. These are a matter for particular concern in children due to possible adverse affects on educational attainment which may leave the patient disadvantaged throughout life [1].

Various biological factors contribute to the cognitive difficulties of people with epilepsy. These are however interrelated and it is therefore difficult to determine the influence of any one factor in a particular patient [2]. For instance, cerebral pathology may directly affect neuropsychological function, but also determines the nature of the epileptogenic pathophysiological process; this in turn decides the type, frequency and severity of seizures and the drugs used for treatment, all of which in their various and different ways influence cognition.

The role of antiepileptic drugs (AEDs) is a matter of particular current interest. As 80 % of patients become seizure-free on long established antiepileptics the justification for development of new drugs rests largely on the possibility of offering better quality of life by avoiding sedative side-effects or indeed by confirming positive benefits. Surprising little reliable data are available concerning the cognitive effects of AEDs, particularly in children. Most studies have necessarily been carried out within the constraints of routine clinical practice which precludes the rigorous designs which would be desirable. In many studies practice effects present a major problem and normal controls may show an improvement on repeated testing, no less than that seen when AEDs are withdrawn from patients [3].

There exists a possibility of AEDs actually improving cognition if they can suppress EEG discharges. Amongst the numerous factors which may contribute to cognitive dysfunction, one which can be readi-

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ly separated from the others is the effect of sub-clinical EEG discharges on psychological performance. Moment to moment fluctuations in cognition are demonstrable in association with sub-clinical EEG discharges if the EEG is monitored during a continuous performance task [4]. Under conditions of intensive monitoring children may be shown to have difficulties in reading and make errors in performing other tasks when discharges occur. The impact of such transitory cognitive impairment on psychosocial function in daily life is as yet uncertain. Several individual case reports or uncontrolled studies suggest that suppression of discharges by medication in selected patients may be of benefit. The author has reported a controlled trial which showed improvement of scores on the Conner's Parents and Teachers rating scales when sodium valproate was added to the drug regime, or the dosage increased as compared with scores on placebo [5]. Such improvement was statistically significant and was associated with a reduction in the discharges. Unfortunately many patients showed a reduction in seizures which served as a confounding factor.

Further studies are obviously required to determine the role of TCI (Transient Cognitive Impairment) in the overall psychosocial dysfunction of children with epilepsy and the indications for pharmacological treatment.

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