

New Understanding of the Association of Myasthenia Gravis and Epilepsy

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In this issue, we appreciate the study by Su et al. entitled "Coexistence of epilepsy and myasthenia gravis-report of four patients and review of the literature". This report described four Taiwanese patients with coexistence of myasthenia gravis (MG) and epilepsy, and raised several probable mechanisms to link the two diseases. The traditional hypothesis that MG occurs as a result of long-term use of anticonvulsants did not always apply in MG patients with epilepsy. As MG might occur earlier than epilepsy and MG did not always remit after change in anticonvulsants, additional mechanisms are necessary to explain the coexistence of these two diseases. At least two lines of evidence indicate that immunological mechanisms may play a role in causing both epilepsy and MG. Firstly, an abnormal high level of anti-acetylcholine receptor (anti-AchR) antibody has been detected in the cerebrospinal fluid in experimental autoimmune MG⁽¹⁾ and naturally occurring MG⁽²⁾. Secondly, EEGs of the rabbits with experimental autoimmune MG revealed paroxysmal epileptogenic discharges⁽¹⁾. A detailed literature review has been done in this study, where EEG abnormality was found in 1.5-5.0% of the normal subjects⁽³⁾ and epileptiform activity in 2.2-4.0% of the patients without seizure disorders^(4,5), whereas EEG abnormality has been reported in around one fourth and paroxysmal EEG changes in one tenth of the MG patients^(6,7). The higher frequency of EEG abnormalities in the MG patients than in the normal population implies a subclinical central nervous system involvement⁽⁸⁾. MG patients had a higher incidence of paroxysmal EEG changes than the normal control is in good accordance with a higher frequency of epilepsy in MG.

Although this study is retrospective and small in sample size, it nevertheless indicates a strong associa-

tion of epilepsy with MG. We hope that large prospective population-based studies will be carried out to confirm an association between epilepsy and MG. If the two diseases are linked, then the neurologists will pay much attention to both diseases and will improve our managements in the future.

References:

1. Fulpius BW, Fontana A, Cuenoud S. Central-nervous-system involvement in experimental auto-immune myasthenia gravis. *Lancet* 1977;2:350-1.
2. Lefvert AK, Pirskanen R. Acetylcholine-receptor antibodies in cerebrospinal fluid of patients with myasthenia gravis. *Lancet* 1977;2:351-2.
3. Cobb WA. The normal adult EEG. In: Hill D, Parr G, eds. *Electroencephalography*. London: McDonald, 1963:232-49.
4. Goodin DS, Aminoff MJ. Does the interictal EEG have a role in the diagnosis of epilepsy? *Lancet* 1984;1:837-8.
5. Zivin L, Marsan CA. Incidence and prognostic significance of epileptiform activity in the EEG of non-epileptic subjects. *Brain* 1968;91:751-78.
6. Gibbs FA, Gibbs EL. *Atlas of electroencephalopathy*, Vol III. Mass: Addison-Wesley, 1964:451.
7. Hokkanen E. Myasthenia gravis- a clinical analysis of the total material from Finland with special reference to endocrinological and neurological disorders. *Ann Clin Res* 1969;1:94-108.
8. Hokkanen E, Toivakka E. Electroencephalographic findings in myasthenia gravis. *Acta Neurol Scand* 1969;45: 556-7.

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