Seizure (2005) **14**, 340—346

ELSEVIER

SEIZURE

www.elsevier.com/locate/yseiz

Self-perception of factors that precipitate or inhibit seizures in juvenile myoclonic epilepsy

Patrícia da Silva Sousa [a], Katia Lin [a], Eliana Garzon [a], Américo C. Sakamoto [a,b], Elza Márcia T. Yacubian [a,*]

[a] *Unidade de Pesquisa e Tratamento das Epilepsias (UNIPETE)—Department of Neurology and Neurosurgery, Federal University of São Paulo (UNIFESP), Hospital São Paulo, Escola Paulista de Medicina, Rua Napoleão de Barros, 715, Vila Clementino, 04024-002 São Paulo, Brazil*
[b] *Department of Neurology, Psychiatry and Psychology, Ribeirão Preto School of Medicine, University of São Paulo, São Paulo, Brazil*

KEYWORDS
Juvenile myoclonic epilepsy;
Seizure precipitants;
Seizure-inhibiting factors;
Questionnaire;
Patient education

Summary

Purpose: To assess self-perception of factors that precipitate or inhibit seizures in patients with juvenile myoclonic epilepsy (JME).
Patients and methods: Thirty-six males and 39 females with JME and mean age of 25.8 ± 8.7 years were analysed. All patients completed a standardized questionnaire to assess for the presence or absence of precipitant or inhibitory factors for their seizures in a face-to-face interview. These data were statistically analysed through logistic and linear regression models and Phi coefficient.
Results: Ninety-two percent of the patients identified at least one precipitating factor (PF). In order of frequency the following PFs were recorded: stress (83%), sleep deprivation (77%), specific thoughts/mental concentration (23%), performance of hand activities and complex finger movements (20%), flashing lights and playing games (15%), speaking out in public (11%) and alcohol intake (11%), reading (7%), calculating and writing (5%), playing musical instruments (4%), drawing (3%), and specific types of music (1%). Menstrual cycle was the third most important PF in the women (33%). Although PFs were easily recognized, 77% of the patients stated that they were unable to avoid the occurrence of the seizures.
Conclusions: Structured questionnaire is useful in stimulating patients to self-report seizure precipitants. Patients with higher education and uncontrolled seizures identified them more easily. The presence of a significant number of uncommon PFs, such as mental and motor hand tasks, considered uncommon for other epileptic syndromes, suggests that the role of these factors may be under-recognized in JME.

* Corresponding author. Tel.: +55 11 3341 3067; fax: +55 11 3341 3067.
E-mail address: yacubian@zaz.com.br (E.M.T. Yacubian).

1059-1311/$ — see front matter
doi:10.1016/j.seizure.2005.04.007

Introduction

Previously neglected and restricted to reflex forms of seizures and epileptic syndromes, precipitant factors (PFs) have been object of renewed interest during recent decades. Characterization of factors involved in triggering or inhibiting epileptic seizures as well as their prevalence in distinct epileptic syndromes might lead to a better understanding of their physiopathological mechanisms.[1]

Defined as any endogenous or exogenous factors that promote the occurrence of seizures,[1] PFs have already been well defined for juvenile myoclonic epilepsy (JME).[2–10] Several factors are known to be effective in precipitating seizures in this epileptic syndrome. Janz and Christian[2] initially recognized sleep deprivation, excess of alcohol intake, premature awakening, menstruation, psychological stress, physical exhaustion and photic stimulation as triggering factors. Emotions, surprises, fatigue in evening hours and prolonged fasting were subsequently recognized.[3] With the renewed interest in JME during the 1980s, photic stimulation, menstruation and fatigue were confirmed as PFs,[4] and new factors, such as auditory precipitation, were additionally identified.[5] Inoue et al.[6] later characterized in a group of 21 patients with JME, reflex seizures related to calculating or performing mathematics, constructing or drawing, writing, playing cards or chess, performing complex finger tasks, reading and speaking. Mental precipitants such as concentrating and thinking, television or video games were further described.[7,8] More recently, a structured questionnaire survey in JME patients included other PFs considered unusual, such as praxis, reading, writing, calculating, making decision, speaking and playing musical instruments.[10] Other series[11–14] and case reports[15,16] have confirmed these factors. Praxis induction was observed in 31% of 62 German patients[10] and in 12.6% of 213 Japanese individuals.[9]

The aim of this study was to evaluate the self-perception of precipitant and inhibitory factors in 75 Brazilian JME patients.

Patients and methods

In this study we included 75 JME patients followed between January 1st, 2000, and June 1st, 2004 at Hospital São Paulo Epilepsy Outpatient Clinic, Federal University of São Paulo, São Paulo, Brazil.

Inclusion criteria were: (a) unequivocal diagnosis of JME based on criteria defined in the revised Classification of Epilepsies and Epileptic Syndromes[17]; (b) age over 12 years old; (c) no evidence of neurological or intellectual deficits and (d) being able to read and write. We excluded those patients with intellectual, psychiatric or emotional disturbances that could affect the reliability of their responses.

Written consent was obtained from all participants prior to the interview. During one of their regular outpatient visits all patients then underwent a face-to-face semi-structured interview answering a questionnaire applied by one of the investigators (P.S.S.). Each patient included had been followed up regularly at the Epilepsy Outpatient Clinic where socio-demographic data were recorded. Epilepsy characteristics (seizure types, onset, antecedents, medication and therapeutic response) were obtained directly from the patients. The questionnaire was prepared based on the format adopted by Antebi and Bird[18] and Spector et al.,[19] and included three questions: (a) Have you noticed any situations or states which will cause you to have more seizures? (b) Can you identify these PFs on this list: stress, sleep deprivation, specific thoughts/concentration, flashing lights, performing hand activities and complicated finger manipulation, playing games, calculating, speaking in public, drinking alcohol, playing musical instruments, listening to music, reading, writing, drawing, menstrual cycle and others? And finally, (c) Can you identify some factors or situations that would stop or inhibit your seizures?

In order to compare our data with previously published articles, we performed a bibliographic survey through Medline that identified 18 publications referring to the prevalence of each PF in series of patients with JME.

Statistical methods

For data analysis five variables were considered: number of PFs, stress, sleep deprivation, specific thoughts/concentration and motor activity. The number of PFs was analysed through a multiple linear regression model. Each one of the others was examined using a logistic regression model. In both models we considered the following clinical factors: age, gender, schooling and seizure control.

The association among all PFs mentioned by the patients was analysed using Phi coefficient. We considered significant $p < 0.05$.

Data were evaluated using the SPPS for Windows, version 10.0, statistical software.

Results

A total of 75 patients (39 women, 36 men) were interviewed. The mean age at the time of interview was 25.8 ± 8.7 (13–54 years). See Table 1 for