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IN-HOSPITAL ONSET OF TRANSIENT MYOCLONIC STATE IN OLDER ADULTS: A CASE REPORT

Taku Harada[1,2], Kazushi Yamasato[1], Toshiyuki Nakanishi[1], Mori Nakai[1]

[1] Department of General Medicine, Nerima Hikarigaoka Hospital, Tokyo, Japan
[2] Department of Diagnostic and Generalist Medicine, Dokkyo Medical University Hospital, Tochigi, Japan

Corresponding author: Taku Harada **e-mail:** hrdtaku@gmail.com

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ABSTRACT

Background: Transient myoclonic (TM) state in older adults is a neurological condition characterised by short-lived, repetitive myoclonus without consciousness disturbance. First reported in 1992, it predominantly affects older individuals with chronic diseases. Despite its clear symptomatology, TM often remains under-recognised, leading to potential misdiagnoses.
Case description: We report a case of a 68-year-old woman with a history of chronic heart failure who developed TM during hospitalisation following medication adjustment for acute heart failure. The patient, who had no history of intracranial disease or epilepsy, experienced acute involuntary movements of the face and limbs three days after diuretic adjustment. She responded well to intravenous diazepam and oral clonazepam, with no recurrence of symptoms post-treatment.
Discussion: TM presents with bilateral, irregular, and repetitive myoclonus, mostly affecting the head, neck and upper extremities. Diagnosis is clinical, based on symptomatology and normal laboratory results. This case underscores the importance of recognising TM in differential diagnosis, especially in older patients in the acute or recovery phase of infection, or with medication changes. The potential role of fluid volume changes in TM pathophysiology in patients with underlying conditions such as hypertension or chronic heart failure is also highlighted. This case emphasises the need for heightened awareness and knowledge of TM among healthcare professionals.
Conclusions: TM, though rare, requires awareness among clinicians for accurate diagnosis and management. It is crucial to avoid misdiagnosis and unnecessary interventions, and to provide appropriate information during care transitions, particularly in older adults with chronic conditions.

KEYWORDS

Transient myoclonic state, geriatric, asterixis

LEARNING POINTS

- Transient myoclonic (TM) state is a rare neurological condition in older adults, characterised by brief and repetitive myoclonus, primarily affecting the head, neck and upper extremities.
- The distinctive clinical diagnostic feature is myoclonus occurring without disturbances in consciousness, without amnesia or paralysis, while retaining the ability to perform directed movements. This condition can manifest at rest, may worsen with posture or movement, and tends to improve during sleep.
- Management strategies include ensuring smooth care transitions, avoiding misdiagnosis and educating patients and families about the risk of recurrence.

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INTRODUCTION

Transient myoclonic (TM) state in older adults was first reported in 1992 by Hashimoto et al. as 'Transient myoclonic state with asterixis in elderly patients: a new syndrome' in seven older Japanese patients who presented with simultaneous onset of generalised myoclonus and asterixis lasting for several days[1]. Subsequently, cases without asterixis were recognised and called 'Transient myoclonic state in the elderly'[2]. Most patients were older individuals with chronic diseases such as hypertension and were functionally independent in their activities of daily living. Approximately 30%–50% presented with asterixis. Patients responded well to diazepam or oral clonazepam 0.25–0.5 mg treatment and improved within a few days[2,3]. One of the problems associated with this disease is the lack of awareness of its disease definition[3]. Diagnosis of TM is not difficult with recognition of the characteristic symptom of repeated bilateral myoclonus in short periods even when consciousness is normal. However, without knowledge of the disease, TM can be misdiagnosed as metabolic encephalopathy or epilepsy[2]. In addition, it has been reported that approximately half of the patients experience recurrence within a year and a half[3], therefore timely and correct diagnosis and handing over of information at the time of care transition are considered to be important management tools. Here, we report a case of TM which developed during hospitalisation and was thought to be triggered by an adjustment of diuretics. Care included adjustment of information at the time of care transition.

CASE DESCRIPTION

A 68-year-old woman living alone and with mild cognitive impairment was readmitted because of acute heart failure caused by medication non-compliance that had led to multiple hospitalisations for acute exacerbation of chronic heart failure in the past. She had no known history of intracranial disease or epilepsy. Once she had stabilised through the acute-phase care provided by the cardiology department, she was transferred to the general internal medicine ward, where her social services and oral medication were adjusted. Owing to her predisposition to low blood pressure, her bisoprolol dose was reduced from 2.5 mg to 1.25 mg, and furosemide 20 mg was discontinued. Three days after changing the medication, the patient developed acute involuntary movements of the face and limbs. At the time of consultation, she had developed irregular, repetitive bouts of myoclonus lasting a few seconds, involving her face, neck, and limbs. Although her level of consciousness was normal and she was able to speak and follow commands, her physical examination revealed asterixis, although her muscles were not rigid. She had no fever, pain symptoms, numbness, or sensory disturbances. Intravenous diazepam 2.5 mg controlled her myoclonic movements. Her blood sugar, electrolyte and ammonia levels were normal, and her renal function showed no change from baseline mild chronic kidney disease (Cr 0.91 mg/dl, eGFR 47 ml/min). After treatment, she remembered the symptoms consistently and had no amnesia. Given her clinical presentation, she was diagnosed with TM state and was prescribed oral clonazepam 0.5 mg at bedtime for two days.

Afterwards, it was decided to admit her to the geriatric care facility. At the care transition, the handover included information about her diagnosis, potential for recurrence and appropriate responses. There was no recurrence of the TM myoclonic state after admitting her to the facility.

DISCUSSION

In TM, myoclonus lasts only a few seconds but is irregular and repetitive. Myoclonus occurs bilaterally, most often in the head, neck and upper extremities, but approximately 50% of cases involve the lower extremities[3]. In addition to the characteristics of myoclonus, the characteristic clinical diagnosis of TM includes no disturbance of consciousness, amnesia, or paralysis, with the patient being able to perform directed movements. Onset occurs at rest, may worsen with posture or movement, and improves during sleep[2]. Laboratory tests show that electrolytes, glucose and ammonia are normal, and past reports indicate that electroencephalography shows no evidence of epileptiform waves or triphasic waves, with half of the patients being normal and half having only mild non-specific initial findings[3]. The occurrence of asterixis in TM is not mandatory for diagnosis, and its frequency is reported to be approximately 30%–50%[2-3]. In this case, although myoclonus also occurred in the lower limbs, it was predominant in the upper limbs and face. In addition, this case was considered to be compatible with TM, as the patient had concomitant asterixis and a good response to treatment with benzodiazepines.

Many aspects of the pathophysiology of this disease are not yet understood. However, temporary metabolic changes and an overactive sympathetic nervous system may play a role, as indicated by reports of onset following treatment with risperidone or levofloxacin[2]. It was observed that approximately half of the patients developed TM during the acute or recovery phase of an infectious disease[3]. In the present case, the patient developed TM while in the hospital for management of chronic heart failure. Onset occurred within three days after reducing diuretic medication in response to low blood pressure. This suggests that fluid volume changes could contribute to TM in older people with underlying conditions such as hypertension, chronic kidney disease or chronic heart failure.

One of the problems associated with this disease is that it often goes unrecognised and undiagnosed[3]. Furthermore, without knowledge of the condition, TM may be misdiagnosed as metabolic encephalopathy or epilepsy[2]. Distinguishing between TM and mild acute toxic-metabolic encephalopathy presents a clinical challenge because both conditions are characterised by bilateral myoclonus and asterixis. However, TM can be distinguished from acute toxic-metabolic encephalopathy based on several key characteristics. First, TM typically presents with repetitive,

short-duration myoclonic attacks occurring at rest. Second, patients with TM preserve consciousness and the ability to follow instructions. Third, they exhibit normal levels of electrolytes, ammonia, and blood gases. Finally, TM is indicated by the absence of new lesions in MRI scans[2,3]. Furthermore, it is noted that approximately half of the patients experience a relapse within eighteen months[3]. Transitions of care are critically important in the medical treatment of older individuals[4]. Fortunately, there were no reports of recurrence in this patient during short-term follow-up, but conditions such as TM can lead to unnecessary tests and potentially incorrect diagnoses such as epilepsy if not promptly diagnosed and adequately managed during care transitions. Although TM is rare, it has a characteristic clinical presentation. Important management aspects include timely diagnosis, informing the patient and family about the potential recurrence, and ensuring this information is communicated during care transitions.

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