



## A Study of Abnormal Movements in ICU Patients in Rajah Muthiah Medical College

Authors

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### Abstract

*Movement disorders disrupt motor function not by causing weakness but by producing either abnormal, involuntary, unwanted movements, or by curtailing the amount of normal free flowing movement. We observed all patients admitted in ICU and video recorded 30 patients with new onset abnormal movements. In our study most common involuntary movement is tremor followed by myoclonus and seizure. Most common cause of admission associated with involuntary movement is OPC poisoning followed by fever in our study. In our study post hypoxic myoclonus was associated with poor prognosis.*

**Keywords:** Abnormal movements, ICU, Video record.

### Introduction

New onset involuntary movements are an important and understudied area in critically ill patients admitted in ICU. Incidence of new onset seizure in critically ill patients is 0.8-3%<sup>1,2</sup>. In a study of 52 patients who underwent video-EEG recording on suspicion of seizure in ICU showed epileptic seizure in 27% patients<sup>3</sup>. There is no other study for other involuntary movements in ICU with video recording, so we did video recording of all kinds of involuntary movements that occurred in ICU patients in Rajah Muthiah Medical College & Hospital to find out the type of movements and probable etiology of the movements.

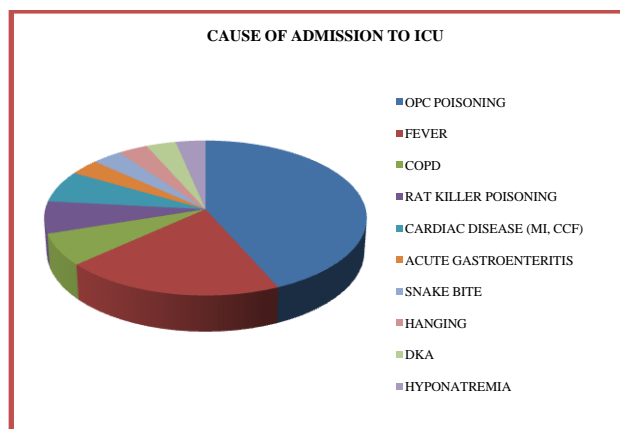
### Method of Study

We observed all patients admitted in intensive care unit in Raja Muthiah Medical College & Hospital for the occurrence of involuntary movements with video recording From October 2015 to October 2017. we excluded patients with age less than 13 years, known case of seizure disorders, known case of any previous established neurological disorders/movement disorder and known case of previous psychiatric illness and patients on antipsychiatric medications or drugs which can produce abnormal movements.

### Results

We recorded 30 patients with new onset involuntary moments in our ICU. Most common cause of admission to ICU associated with

involuntary movements is Organophosphorus poisoning which accounts for 41% of involuntary movements. Second cause of admission associated with involuntary movements is fever.



Tremor was the most common involuntary movement recorded in 8 patients. Other common involuntary movements recorded were seizure (5), myoclonus (6) and fasciculation (3). We observed a case of flapping tremor of tongue in a COPD patient with respiratory failure. Two cases of OPC patient with intermediate syndrome showed tremor, of which one case had wing beating tremor. Another 2 cases of OPC poisoning, one dengue, one rat killer poisoning and one DKA patient had tremors.

S.No	Type of abnormal movement	No.of cases
1.	Tremor	8(26.6%)
2.	Myoclonus	6(20%)
3.	Fasciculation	3(10%)
4.	Carphological	3(10%)
5.	GTCS	2(6.6%)
6.	Focal Seizure	1(3.3%)
7.	Hemichorea	1(3.3%)
8.	Orofacial Dyskinesia	1(3.3%)
9.	Nystagmus	1(3.3%)
10.	Stereotype Movement	1(3.3%)
11.	Blepharospasm	1(3.3%)
12.	Catatonia	1(3.3%)
13.	Myokymia	1(3.3%)

We observed myoclonic jerk in a patient of post cardiac arrest status due to myocardial infarction and in one patient with OPC poisoning. One patient with OPC poisoning developed myoclonic

jerk in lower limb. One ratkiller poisoning patient developed diaphragmatic myoclonus. One case each of COPD and hanging had myoclonus in upper limb. Two OPC patients developed generalised tonic-clonic seizures and focal seizure was seen in a case of congestive cardiac failure. Fasciculation was seen in two cases of OPC poisoning and in a case of acute gastroenteritis with pneumonia. Hemichorea seen in one case of fever with altered level of consciousness with hip dislocation. Orofacial dyskinesia was observed in one fever case. Upbeat nystagmus seen in one fever patient with altered level of consciousness. One young female with history of fever developed stereotype movements in both upper limbs. One OPC patient with delirium developed catatonia. Carphological movement like bed picking and picking objects were seen in two patients with OPC poisoning and in one case of hyponatremia. We observed myokymia in both lower limbs in one patient with krait bite. Among thirty cases we recorded, seven cases were on mechanical ventilation. Among those mechanically ventilated two patient had myoclonus. We observed two deaths in patients with myoclonus associated with OPC and MI and two deaths in patients with tremor associated with OPC intermediate syndrome.

**Discussion**

In this study of video recording of abnormal movements in ICU to find out the types of involuntary movements occurring in patients admitted in ICU, 13 types of movements were recorded in 30 patients with abnormal movements. The most common type of movement is tremor (26.6%) followed by myoclonus (20%) and seizure (10%). In a study conducted by Benbadis et al the most common type of movement is seizure (27%) followed by tremor (23%) and myoclonus (13.5%). However in benbadis et al study they included patients from all ICU like medical, surgical, cardiac and burns ICU and their aim was to differentiate seizure from other seizure mimic movements.

The etiology for seizure is cholinergic crisis and hypoxia in OPC poisoning. Myoclonus is due to hypoxia in post cardiac arrest or respiratory failure<sup>4</sup>. Fasciculation and tremor are due to nicotinic effect in OPC poisoning and hypoxia and muscle weakness in other condition. Blepharospasm and orofacial dyskinesia may be due to stress. Upbeat nystagmus may be due to hypoxic injury to brainstem. Catatonia like movement in OPC poisoning may be due to atropine induced delirium.

Generalised myokymia is due to toxins of timber rattle snake venom<sup>5</sup>. Carphological movements are due to discomfort in intubated patients or due to cortical releasing phenomenon (3).

Seizure episodes were treated with lorazepam, Phenytoin and levetiracetem and responded well to treatment. Tremors may be caused by drugs like sympathomimetics, anticholinergics and antihistamine etc. Limitations in our studies are not able to calculate exact incidence of involuntary movement because some movements were not recorded due to lack of continuous video recording, EEG and imaging studies were not done in all patients to confirm seizure activity.

### Conclusion

In this observational study most common type of movement we recorded was tremor, followed by myoclonus and seizures. The most common cause of admission to ICU associated with new onset seizure was OPC poisoning in our study. Involuntary movement associated with poor prognosis in patient with mechanical ventilation is myoclonus.

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