

## Acute Delirium after Injectable Tramadol.

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### ABSTRACT

**Introduction:** Delirium and confusional states are among the most common mental disorders encountered in patients with acute medical illness, particularly among those who are older. We report a case of tramadol induced acute delirium in a patient admitted in the emergency ward which was managed by stoppage of the offending drug. **Case report:** A 62 year old male presented to the emergency ward with complaints of acute abdominal pain and ultrasonography revealed cholelithiasis. All other investigations were unremarkable and the patients was put on conservative management including tramadol for pain relief. Few hours later, the patient developed confusion, violent behavior, and started talking irrelevantly, which subsided after he was sedated with lorazepam. Next morning, after receiving another dose of injectable tramadol, the patient again developed delirium with similar symptoms as the night before. After thorough psychiatric consultation he was diagnosed with tramadol induced delirium. As a result, tramadol was discontinued and the patient recovered completely. **Conclusion:** Tramadol, a commonly used analgesic in emergency and surgical settings, can lead to delirium. It is important for emergency physicians to have a high index of suspicion so that they can promptly identify the offending drug and take corrective measures.

**Keywords:** Confusion, delirium, tramadol, outcomes.

### INTRODUCTION

Delirium and confusional states are among the most common mental disorders encountered in patients with acute medical illness, particularly among those who are older. They are associated with numerous underlying medical conditions and can be difficult to diagnose in an emergency setting.<sup>[1]</sup> Sometimes no single explanation for delirium can be identified in a patient. Frequently, an acute medical illness exacerbates confusion in patients with dementia, essentially creating coexistent acute and chronic confusional states.<sup>[2]</sup> We report a case of tramadol induced acute delirium in a patient admitted in the emergency ward which was managed by stoppage of the offending drug.

### CASE REPORT

A 62 year old male presented to the emergency ward with complaints of acute abdominal pain. The patient had no similar history in the past and underwent ultrasonography, which revealed cholelithiasis. The patient was diagnosed with acute cholecystitis and was admitted. Routine haematological investigations, blood sugar, renal and liver function test were unremarkable. The

patient was put on conservative management with intravenous fluids, broad spectrum antibiotics and tramadol for pain relief. There was no concurrent use of any anti-depressants. Four hours after starting treatment, the patient developed confusion, violent behavior, and started talking irrelevantly. Furthermore, the patient was unable to recognize his family members. There were no myoclonic twitches or muscular rigidity. On examination, the patient had tachycardia, excessive sweating. The pupils were reacting to light bilaterally and bowel bladder functions normal. These symptoms persisted till he was sedated with lorazepam. Next morning the patient woke up with acute pain and was therefore given another dose of injectable tramadol. Within a couple of hours, this time, the patient again developed delirium with similar symptoms as the night before. Psychiatric consultation was requested and the patient, after a thorough mental status examination, was diagnosed with tramadol induced delirium. As a result, tramadol was discontinued from the treatment. Later, the patient recovered after management with intravenous fluids and broad spectrum antibiotics alone. The patient was discharged after four days after the acute episode of cholelithiasis and acute delirium subsided completely.

### DISCUSSION

Delirium is characterised by violent behaviour, disorientation, state of confusion, which is acute in onset. The consciousness and cognition fluctuates

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and lucid periods can be mistaken for recovery.<sup>[3]</sup> Patients aged above 65 years have been reported to have higher incidence of delirium requiring hospitalization. Detailed psychiatric evaluation of the patients for attention, thought, consciousness, perception, psychomotor, disorientation, and behavioural assessment are warranted in all cases presenting with delirium. Confusion assessment method has been recommended by some authors to diagnose confusion and delirium in patients.<sup>[4]</sup> In addition to that, potentially treatable causes of delirium should be identified as early as possible with the help of various haematological and imaging investigations. Haematological and biochemical assessment should be performed in all cases, with special focus on common investigations like blood glucose, electrolytes, urea, liver function tests, thyroid function and arterial blood gas analysis. Urinalysis and urine drug screening is sometimes helpful. Search for infection or environmental toxin based on medical history of the patient should not be ignored. In certain cases, cerebral imaging, electroencephalography or cerebrospinal fluid examination might be required to make a final diagnosis.

Numerous conditions have been identified which can additively result in delirium. Most common causes are metabolic disturbances. Hypo- or hyperglycaemia, hypoxia as detected on blood gases analysis, dehydration and electrolyte imbalances are the commonly seen causes. In elderly patients sudden changes in electrolyte levels can be more important than the actual values. In younger patients social use of alcohol or recreational drugs can also result in classical presentation of delirium, which can be compounded in some cases by withdrawal symptoms. Self medication with anticholinergic medication, benzodiazepines, narcotic analgesics and anti-parkinsonian medications are the common culprit pharmacological drugs. Severe infections, specially of the central nervous system like encephalitis or meningitis can also present with delirium. Organic causes like stroke or epilepsy can also cause delirium. In rare cases, vasculitis, encephalopathy or migraine can also result in delirium which might present a diagnostic challenge to the treating physician.

Although not understood completely, high plasma level of the metabolite O-desmethyltramadol after tramadol administration is thought to be the causative factor.<sup>[5]</sup> Due to its inhibitory effect on M1 and M3 muscarinic receptors, tramadol may induce an anticholinergic confusional state.<sup>[6]</sup> Inhibiting norepinephrine reuptake maybe responsible in some cases. Delirium in the post-operative period is due to numerous causes. The odds of post-operative delirium are higher in elderly patients, specially when they had pre-existing generalized neurological disease, history of alcohol abuse or severe movement restriction. Additionally, persistent effects

of anaesthetics, anticholinergic drugs, postoperative hypoxia, hypotension and electrolyte disturbances may also result in delirium in the postoperative period. Delirium after a major surgery should point towards the possibility of fat emboli.

Early detection of the cause and prompt correction of the underlying cause is the mainstay of treatment. National Institute for Health and Care Excellence recommends steps to reduce the risk of delirium.<sup>[7]</sup> Furthermore, studies suggest that high quality care can help avoid delirious states in approximately half of the patients.<sup>[8]</sup> Educational programmes for physicians and nurses can help in detection and management. Watchful eye of the nursing staff has a more important role in this regard. All medication should be reviewed and unnecessary drugs should be discontinued. Dosage of essential drugs can be controlled and kept to the minimum, like for barbiturates and long-acting benzodiazepines. Prognosis varies with the underlying comorbidities.

## CONCLUSION

Tramadol, a commonly used analgesic in emergency and surgical settings, can lead to delirium. It is important for emergency physicians to have a high index of suspicion so that they can promptly identify the offending drug and take corrective measures.

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