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NEUROLEPTIC MALIGNANT SYNDROME IN AN ELDERLY PERSON WITH A HISTORY OF ATYPICAL ANTIPSYCHOTIC TREATMENT AND COMORBIDITIES: A CASE REPORT

Aulia Fahira[1], Adwin Setyanagara[2], Zuhrotun Ulya[3]

Correspondence: *adwinsetyanagara@gmail.com*

[1]Department of Pharmacology, Faculty of Medicine, University of Pembangunan Nasional "Veteran" Jawa Timur, Indonesia
[2]Psychiatric resident, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia
[3]Department of Psychiatry [Forensic Psychiatry Division], Faculty of Medicine, University of Brawijaya, Indonesia

CASE REPORT OPEN ACCESS

ABSTRACT

Introduction: Neuroleptic Malignant Syndrome (NMS), a neuropsychiatric emergency, can develop in patients with antipsychotic medications. This is a matter of concern due to the high frequency of psychotic diseases in Indonesia, affecting an estimated 2.6 million people. This paper will examine a case of NMS who exhibited various risk factors and clinical manifestations, which happened in Kediri, a city in Indonesia that lacks of dedicated mental hospital or intensive care unit for mental health.
Method: In this paper, we reveal about a case report about a 63-year-old man presented to the emergency room with abrupt onset of fever and cognitive impairment. He took olanzapine and clozapine for schizophrenia, which was not often treated. The patient had gait disturbances, pronounced tremors, rigidity, and autonomous movement of the mouth. Examination results were blood pressure of 88/55 mmHg, pulse 123x/minute, respiratory rate 24x/minute, body temperature 42°C. Supporting investigation results showed leukocytosis, hypokalemia, pneumonia and cardiomegaly. Initial management included discontinuation of neuroleptic drugs, administration of oxygen, rehydration, and symptomatic medications.
Results: This is a rare case of NMS in geriatric patient happened in a rural area, Kediri, a small city in Indonesia which experiences higher temperatures in comparison to other cities. This case is quite complex due to the treatment options, a history of poor drug compliance, elderly conditions and comorbidities.
Discuss: For both confirmed and suspected instances of NMS, basic treatment suggestions include stopping antipsychotic medication, continuously monitoring vital signs, minimizing extremes in temperature, introducing fluids, correcting electrolyte imbalances, and providing other supportive measures as needed
Conclusion: NMS should be closely monitored in psychosis patients with a history of noncompliant medication use and concomitant conditions. To save lives, prompt and adequate medical attention is essential.

Keywords: geriatrics, neuroleptic malignant syndrome, schizophrenia, antipsychotics

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INTRODUCTION

A rare but potentially fatal illness known as neuroleptic malignant syndrome (NMS) is frequently linked to the use of neuroleptic (antipsychotic) drugs. The French physicians, Delay and his associates, first identified it in 1960 as "akinetic hypertonic syndrome".[1] It is distinguished by a unique clinical appearance that includes muscular rigidity, autonomic dysfunction, altered mental status, and hyperthermia. The prescribing of atypical antipsychotics nowadays in patients with psychosis should be able to reduce the risk of NMS. However, certain populations are at a heightened risk.[1,2]

Elderly patients, particularly those with schizophrenia and multiple comorbidities, are especially vulnerable to developing NMS. This increased susceptibility is due to several factors: age-related physiological changes, polypharmacy, and the presence of chronic medical conditions that can complicate the clinical picture.[1,-4] In this population, the recognition and timely management of NMS are crucial, given the potential for rapid deterioration and significant morbidity.[1,4]

Due to sporadic patient visits and the limited understanding among non-specialist physicians, missed and incorrect diagnoses are common, posing a high risk of mortality. Clinicians, particularly physicians, must be especially vigilant. Despite 60 years of progress, there remain few comprehensive studies on NMS. The presence of pneumonia as a complication further complicates clinical management.[2,3] This report will discuss a patient's case with multiple risk factors and clinical manifestations for NMS, which occurred in Kediri, a small city in Indonesia that lacks of dedicated mental hospital or intensive care unit for mental health.

METHOD

Case presentation

A 63-year-old man presented to the emergency room with complaints of sudden fever and confusion. The patient also had difficulty walking, shaking, stiffness, and mouth movement. The patient was delivered by residents after being found falling under a tree while riding a bicycle, and the patient was very difficult to communicate with. According to information from the family, the patient had a 33-year history of schizophrenia that was not routinely treated, with regular consumption of olanzapine and clozapine. Vital signs showed blood pressure 88/55 mmHg, pulse 123x/min, respiratory rate 24x/min, and body temperature 42°C. General status examination showed tardive dyskinesia, basal rhonchi in the left lung field, and tremors in all four extremities. Laboratory examination showed leukocytosis, hypokalemia (2.4 mmol/L), and thorax X-ray showed pneumonia and cardiomegaly (Figure 1). In addition, the ECG showed sinus tachycardia and horizontal U and T waves (Figure 2). All recording and reporting of patient conditions has been done with the consent of the patient and family, for medical and academic purposes. All research procedures have been declared ethical by ethics committees in the Medicine Faculty, University of Brawiaya [Ethical Clearance No. 135/EC/KEPK/07/2020].

RESULT

Initial management in this patient included discontinuation of neuroleptic drugs and the patient then received management in the form of nasal O2 4 liters/minute, lactated ringer rehydration 1 flash plus normal saline 1 flash, KCL drip 25 mEq in 500cc normal saline, the patient was also given paracetamol 1000mg injection, ranitidine 50mg, ondansentron 4mg, and diphenhydramine 20mg. The patient was brought into the intensive care unit of Daha Husada Regional General Hospital for observation, and the patient was then referred to Menur Mental Hospital for further treatment by a psychiatric specialist. This is a rare case of NMS in a geriatric patient that happened in a rural area, Kediri, a small city in Indonesia, which experiences higher temperatures in comparison to other cities. This case is quite complex due to the treatment options, a history of poor drug compliance, elderly conditions, and comorbidities.

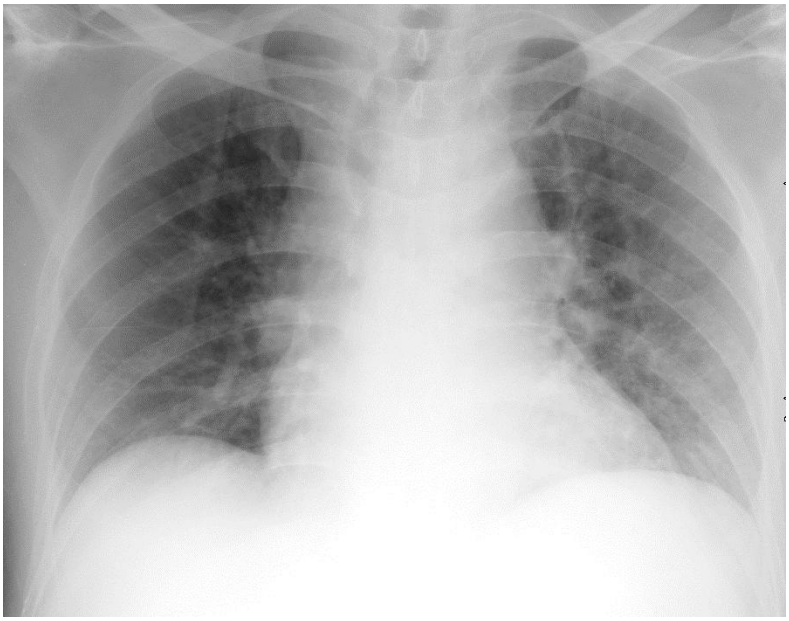

Figure 1. Thorax X-ray

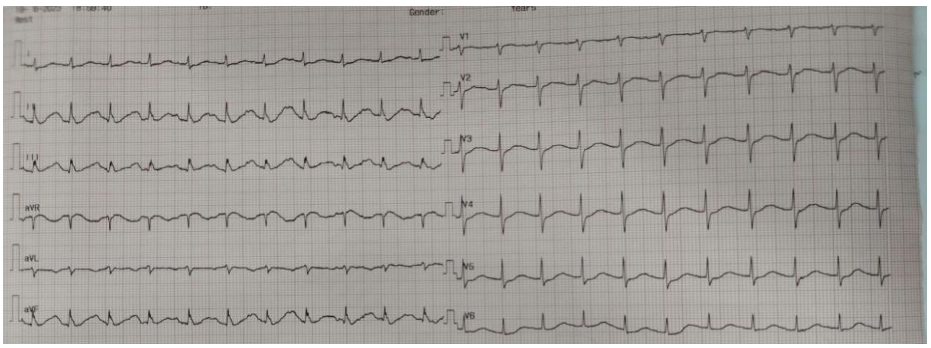

Figure 2. Electrocardiogram Results

DISCUSSION

This case report describes a unique case in which an elderly patient residing in a rural area was diagnosed with neuroleptic malignant syndrome. Furthermore, the patient has been diagnosed with schizophrenia and has been taking medicine for around 33 years, with a history of poor medication compliance following the prescribed treatment regimen. This patient required sophisticated therapy and specialized care in the critical care unit of a mental health facility.

The choice of drugs in the elderly with psychotic symptoms may raise the possibility of neuroleptic malignant syndrome. Interestingly, this patient is known to take olanzapine and clozapine, which are typical antipsychotics with a low risk of neuroleptic malignant syndrome, but this patient does not routinely control and take his medication.[1,4] The pathophysiology of neuroleptic malignant syndrome is dopamine dysfunction, withdrawal of dopaminergic medications, lesions in the central dopamine system, and abnormalities in the metabolism of skeletal muscle cells can all lead to pathological problems in skeletal muscle, such as the sarcoplasmic reticulum's excessive release of calcium, which can cause malignant syndromes similar to NMS.[1,2]

Male to female ratio in patients with late-onset neuroleptic malignant syndrome is 2:1.4, and the majority of these patients are elderly. Physical variables can also raise the incidence of NMS. These include infections, organic brain diseases, exhaustion, dehydration, malnutrition, hyponatremia, thyrotoxicosis, and alcohol or other psychoactive substance usage.[6] This patient was known to have other conditions such as hypokalemia, dehydration, and pneumonia. In addition, environmental factors can also contribute to triggering neuroleptic malignant syndrome, such as high temperature and high humidity.[4,5] In the city of Kediri, which is famous for its hot weather compared to surrounding cities, this can contribute to the occurrence of NMS.

CONCLUSION

Neuroleptic malignant syndrome is a self-limiting condition. However, the choice of medication, especially in the psychotic elderly, a history of poor medication adherence, advanced age and comorbidities are risk factors for malignant neuroleptic syndrome and have the potential to worsen the patient's condition. Effective management of antipsychotic discontinuation and supportive therapy and family education for prevention can reduce morbidity and mortality in these patients.

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A history of poor medication compliance also contributes to the occurrence of neuroleptic malignant syndrome. Up to 20 days following a change in antipsychotic dosage or abrupt antipsychotic withdrawal, there is a higher chance of developing neuroleptic malignant syndrome (peak risk occurs within 5 days after the change.[9] Using antipsychotic medications along with antidepressants, lithium, or anticholinergics raises the risk of neuroleptic malignant syndrome. Nevertheless, there is no conclusive correlation between the risk of neuroleptic malignant syndrome and the duration or absolute dose of antipsychotic medication.[7,8]

After neuroleptic malignant syndrome, close monitoring is needed, and the family is re-educated about this serious condition and how to prevent it.[1,2] For both confirmed and suspected instances of NMS, basic treatment suggestions include stopping antipsychotic medication, continuously monitoring vital signs, minimizing extremes in temperature, introducing fluids, correcting electrolyte imbalances, and providing other supportive measures as needed.[1,9,10]

Since NMS is a self-limiting condition, symptoms can typically be improved by stopping antipsychotic medication and receiving supportive care.[11,12] Although many pharmacological and other supplementary therapies have been suggested for the treatment of NMS, opinions on their efficacy are divided: Dopamine receptor agonists may alleviate symptoms and shorten recovery time in patients with Parkinson's disease who develop NMS; muscle relaxants dantrolene may be used to treat fever and muscle stiffness during the acute phase of NMS; and electroconvulsive therapy (ECT) may be useful in NMS patients who do not respond to medication or supportive treatment. Oral or parental benzodiazepines may speed up recovery, especially in patients with mild NMS.[1,2,12]

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