

A Unique Case of Olanzapine Induced Hypothermia

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Introduction

- A serious complication of antipsychotic medications is thermal-dysregulation.
- Hyperthermia is commonly seen with the use of antipsychotics, but profound hypothermia (core body temperature below 35C) can also occur that could lead to hospitalization and even death.
- Here is a case of olanzapine induced hypothermia in a schizophrenic patient.

Case Description

- A 64 year-old male with history of bipolar, schizophrenia, and post-traumatic stress disorder is found unresponsive and cold in prison.
- There was no evidence of ingestion of a substance prior to being found.

Vital Signs

- Temp: 30.1 C
- HR: 42 bpm
- BP: 155/79mmHg
- RR: 18 bpm
- SpO2: 100% on room air

Pertinent Labs

- Potassium 3.2mmol/L (N: 3.4-5.0)
- Arterial blood gas: pH of 7.28 (N:7.35-7.45), PCO₂ 69mmHg (N:35-48), and PHCO₃ 32mmol/L (N:21-28)
- Remainder of laboratory workup were within normal limits

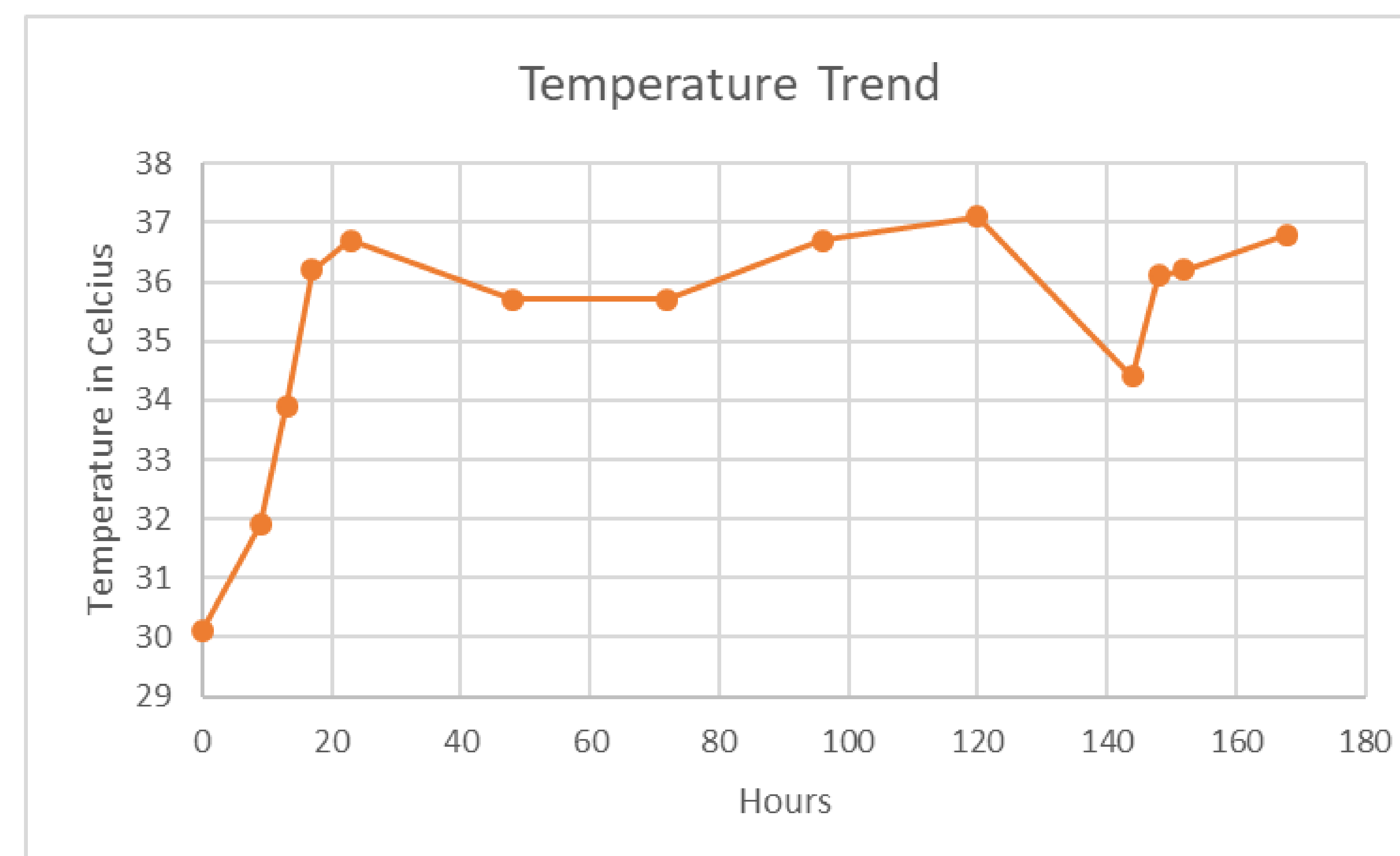
- Computed tomography scan of the brain showed no acute abnormalities, and chest x-ray showed pulmonary vascular congestion.
- On physical exam, the patient was lethargic, well hydrated, pupils 2mm and reactive, no respiratory distress, and moved all four extremities spontaneously.
- A beir hugger was placed, was given naloxone twice, ceftriaxone, intravenous fluids (IVF), and potassium chloride.
- Hospitalization was complicated by acute respiratory failure requiring 15L of oxygen, hypotension which responded to IVF, and multilobar pneumonia.
- Treatment included vancomycin, piperacillin-tazobactam, and furosemide.

- Body temperature improved to 37.1 and by day five, he was responsive, alert, and awake.
- Documentation showed recent initiation of olanzapine 15mg in prison and was resumed at this time.
- At 8.5 hours after initial dose in hospital:

Vital Signs:

- Temp: 34.3C
- HR: 53 bpm
- Patient became obtunded

- Olanzapine was discontinued, vital signs normalized and mentation improved.
- The patient required critical care until stable for downgrade.



Discussion

- Individuals are generally at a higher risk of developing hypothermia in the first week after starting or increasing dose of antipsychotics.
- Atypical antipsychotics are linked to about 55% of all reported hypothermia cases associated with antipsychotics, furthermore, literature shows that hypothermia associated with olanzapine is exceedingly rare.

- Certain risk factors for hypothermia associated with antipsychotics include diagnosis of schizophrenia, pre-existing brain damage, hypothyroidism, and organic brain diseases.
- There is no consensus on the mechanism of action leading to hypothermia, however, various recognized mechanisms exist.
- Changes in neurotensin peptide levels, dopamine D2 and 5-hydroxytryptamine₂ receptors antagonism that interfere with hypothalamic regulation and antagonism at α 2-adrenergic receptors that inhibit vasoconstriction and shivering.
- Treatment is mostly supportive with rewarming and prompt discontinuation of the drug.

Conclusion

- There is scant but growing evidence of olanzapine-induced hypothermia.
- This report adds to the body of literature because of the synergistic presence of schizophrenia along with recent initiation of olanzapine.
- Patients initiating or increasing dosages of atypical antipsychotics should be monitored for the potentially fatal and rare side effect of hypothermia.

References

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