

Atypical Neuroleptic Malignant Syndrome in a patient presenting w/postoperative agitation and delirium

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Background

Etiology of Postoperative Agitation

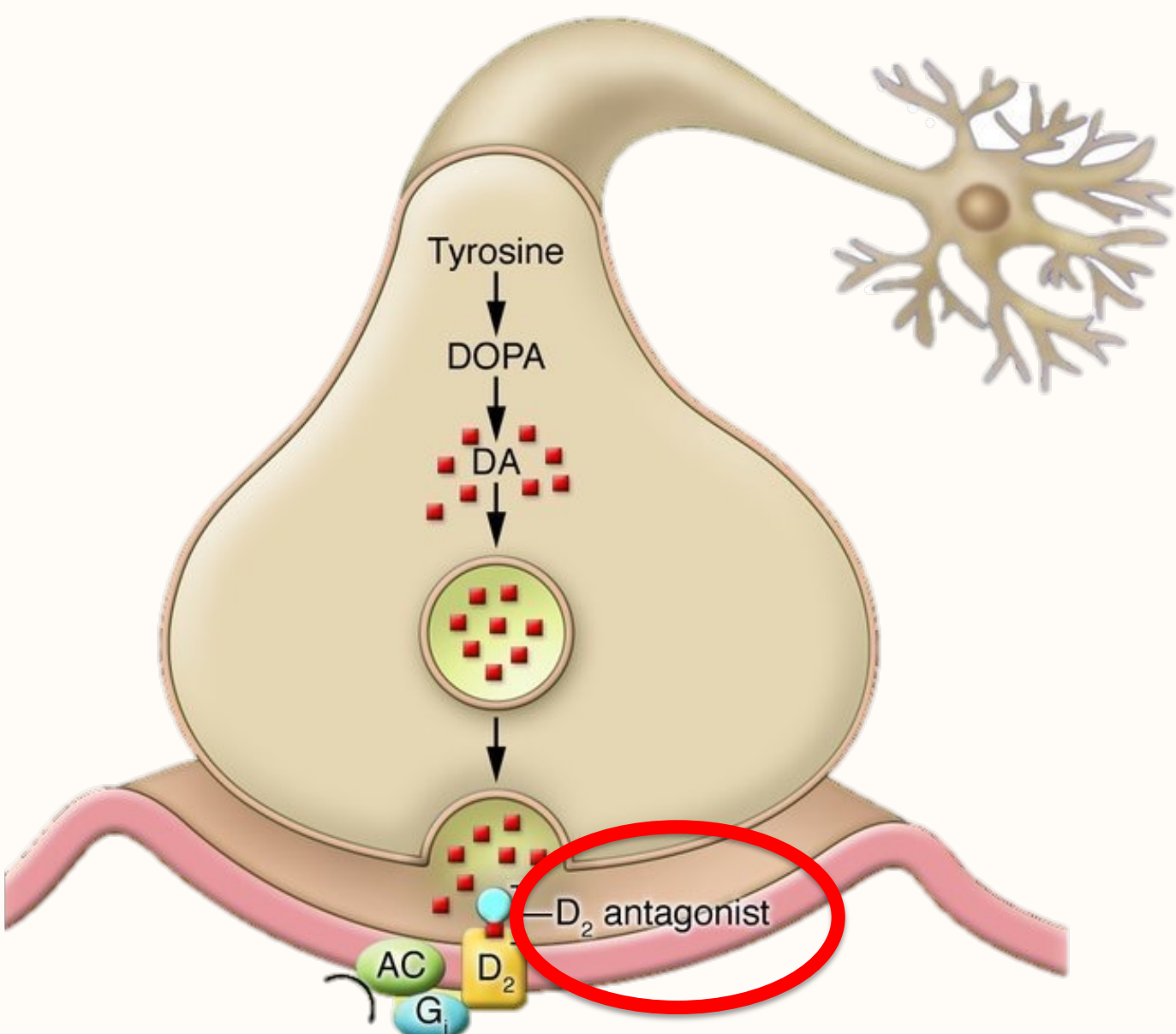
The etiology of acute postoperative agitation can be multifactorial and can commonly present with symptoms consistent with postoperative delirium. (1)

Common Etiologies for delirium/agitation:

- Substance misuse/withdrawal
- Hypoxia/Hypercapnia
- Infection
- Medication-induced
 - i.e. analgesics, sedatives, sleeping pills
- Hypoactive/hyperactive delirium

Treatment: Identify underlying trigger

- Nonpharmacological interventions
- Antipsychotics to control agitation
 - Anti-dopaminergic

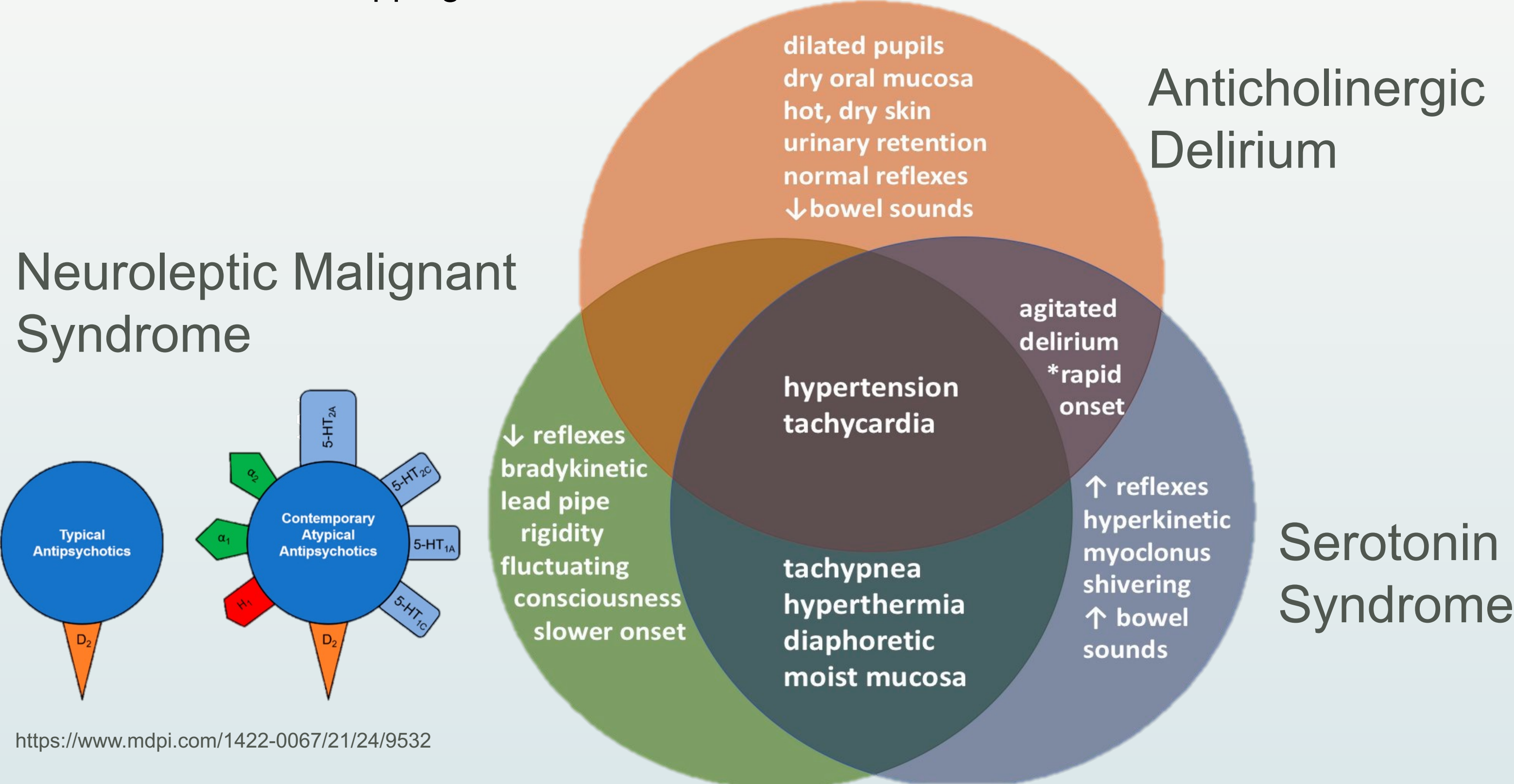


<https://www.jci.org/articles/view/32483>

Neuroleptic Malignant Syndrome

NMS is a life-threatening, neurological disorder most often caused by an adverse reaction to neuroleptic or antipsychotic medications (within first 2 weeks). Common symptoms include high fever, sweating, unstable blood pressure, stupor, muscular rigidity, and autonomic dysfunction. (2)

Toxidromes with overlapping characteristics:



<https://www.mdpi.com/1422-0067/21/24/9532>

<https://www.grepmed.com/images/5702/comparison-diagnosis-anticholinergic-venndiagram-toxidromes>

Case Report

38yo M w/CAD, polysubstance use disorder, and current opioid use for chronic pain presented after scheduled replacement of ascending aorta, CABGx4, and central Impella insertion w/worsening agitation.

Initial Presentation:

- Per nursing and primary cardiovascular intensive care unit team, patient w/ **intermittent bouts of severe agitation, restlessness, and violent behavior**
- UDS (pre-op): **+meth, THC, opiates**

Treatments with no clinical improvement

Substance Withdrawal	Maximum dose continuous dexmedetomidine infusion (2mcg/kg/hr) and multiple opioids
Presumed pain	IV hydromorphone, IV fentanyl, nasogastric methadone, IV ketamine
Agitation/Delirium	Multiple doses of antipsychotics: olanzapine, quetiapine, haloperidol Total: 2.5mg haloperidol, 37.5mg olanzapine, 500mg quetiapine within a 24-48 hour period

Postoperative Day 3

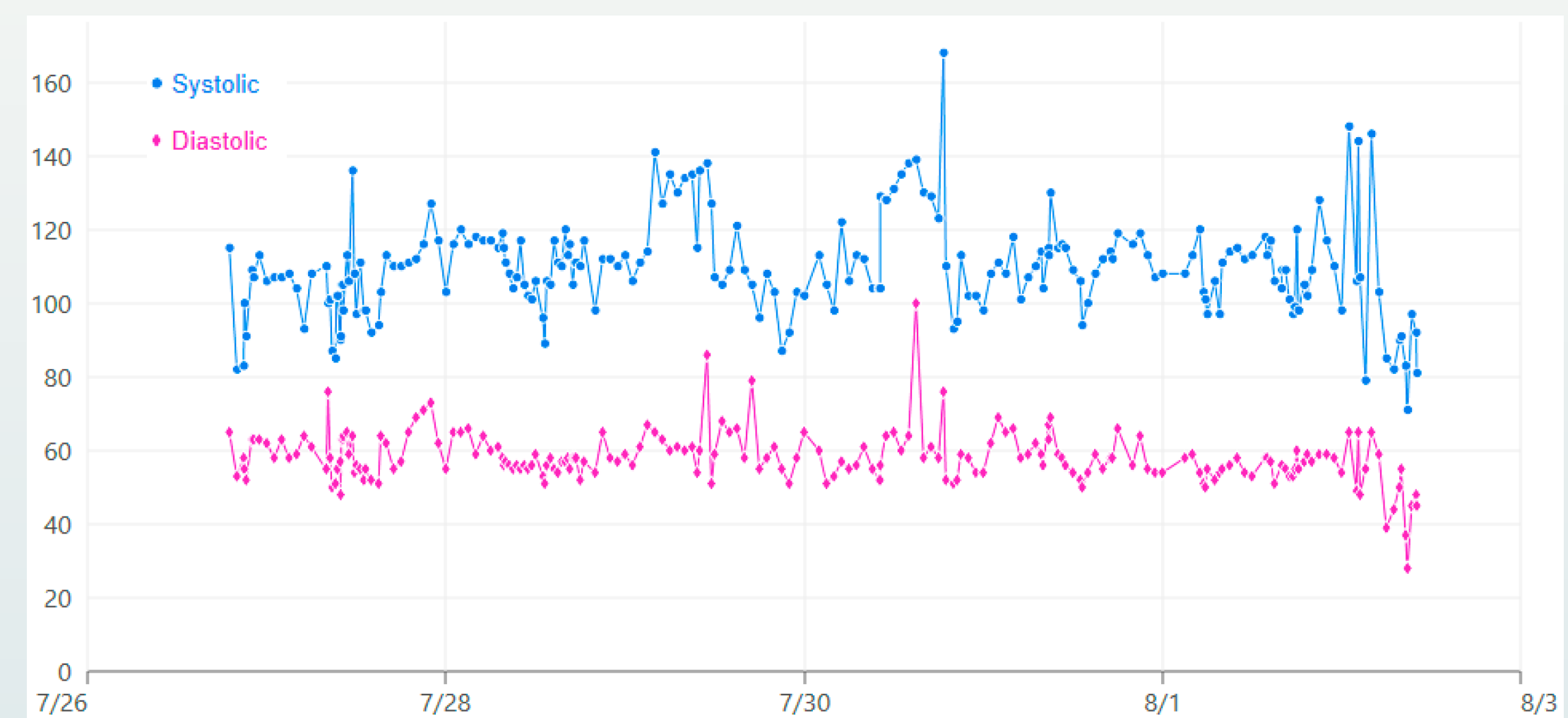
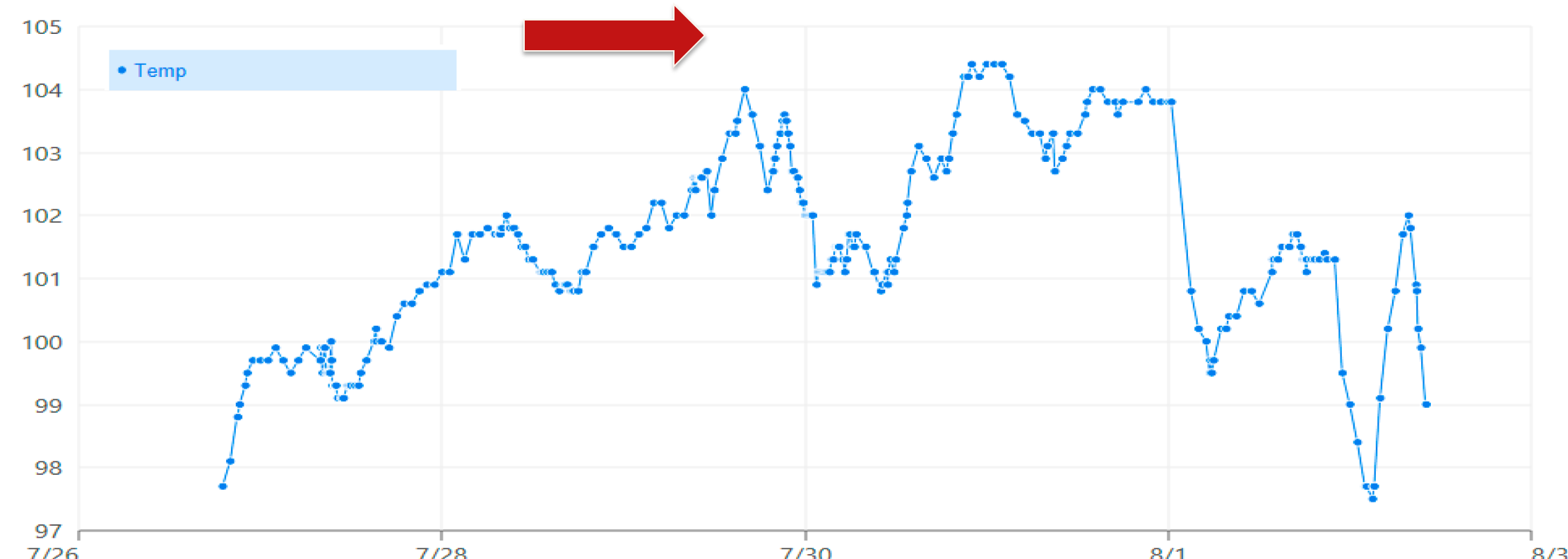
- Fever to max 40C (104F)
- Hemodynamic instability
- AMS
- ↑ creatinine phosphokinase
 - ranging from 425 to 1105

NMS was suspected. Psych consulted. **Interestingly, no obvious lead-pipe rigidity was appreciated.**

The patient remained on lorazepam for agitation, but all other antipsychotics were d/c'd and patient had transient improvement in mental status on supportive therapy.

Subsequent Hospital Course:

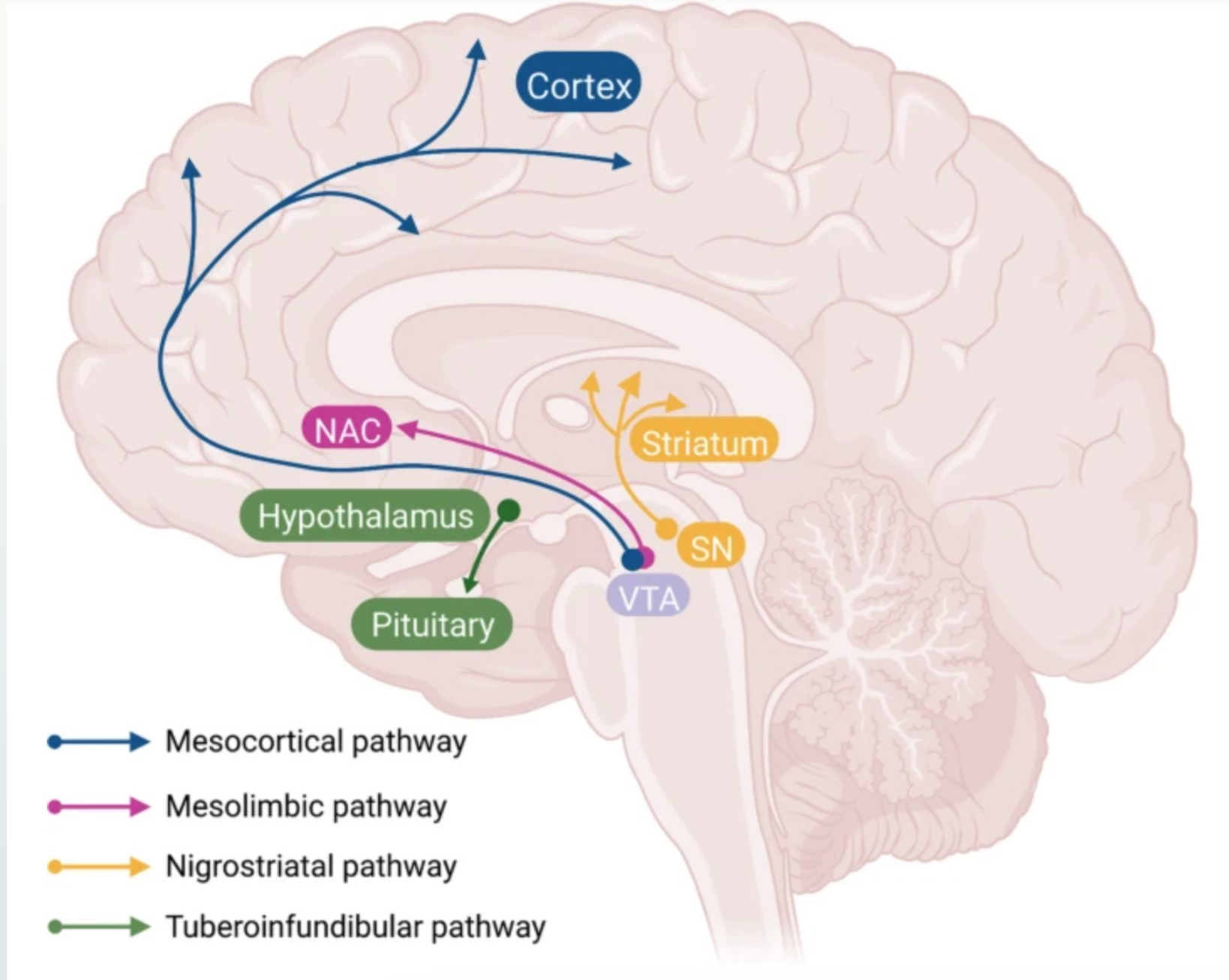
- Required reintubation and multiple bronchoscopies for concern for repeat aspiration, esophageal cooling device placement, and dialysis due to worsening renal function
- Required increasing pressor requirements with persistent hypoxia and hypotension
- Expired postoperative day 7 with multisystem organ failure



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Discussion

- We present a patient whose postoperative agitation/delirium was likely multifactorial and complicated by incomplete history of substance use, multiple substance intoxications and possible withdrawals, and iatrogenic drug side effects
- Given continued hyperthermia, AMS, and elevated creatinine phosphokinase levels despite being treated appropriately for substance withdrawal, pain, and possible infection, this patient's presentation of NMS is one of a few reported cases of antipsychotic-induced NMS after cardiac surgery
- Interestingly, no characteristic finding of lead-pipe muscle rigidity; however case reports suggests patients who receive atypical antipsychotics can present atypically w/o muscle rigidity and/or hyperthermia (3,4)



<https://www.nature.com/articles/s41398-022-02233-0>

Conclusions

This patient's atypical presentation of delirium and agitation secondary to NMS is important to consider as identifying uncommon etiologies as clinically relevant when concurrent treatments have not improved symptoms can help ensure appropriate regimens are titrated accordingly.

References

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