



A Case of Duloxetine-Induced Hypotension in a Pediatric POTS Patient

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BACKGROUND

- Postural Tachycardia Syndrome (POTS) is characterized by tachycardia without blood pressure changes when transitioning upright.
- Patients may experience palpitations, weakness, and fatigue. Symptoms of anxiety and depression are associated with the condition.
- Although antidepressants are prescribed to manage physical and psychiatric issues in POTS, their efficacy is not well-established.
- This case involves a pediatric POTS patient who had an adverse reaction to duloxetine.

CASE REPORT

- This is a 16 year old with a medical history significant for chronic pain and POTS, and a psychiatric history significant for MDD, GAD, and PTSD admitted for worsening mood and SI.
- During the admission, duloxetine was started for depression, fatigue, and pain. The dose was raised to 90 mg daily over a 1 month period.
- The patient experienced hypotension that correlated to increases in duloxetine (**Figure 1**). Moreover, the patient required bolus support at higher doses (**Figure 2**). Blood pressures stabilized after duloxetine was discontinued.

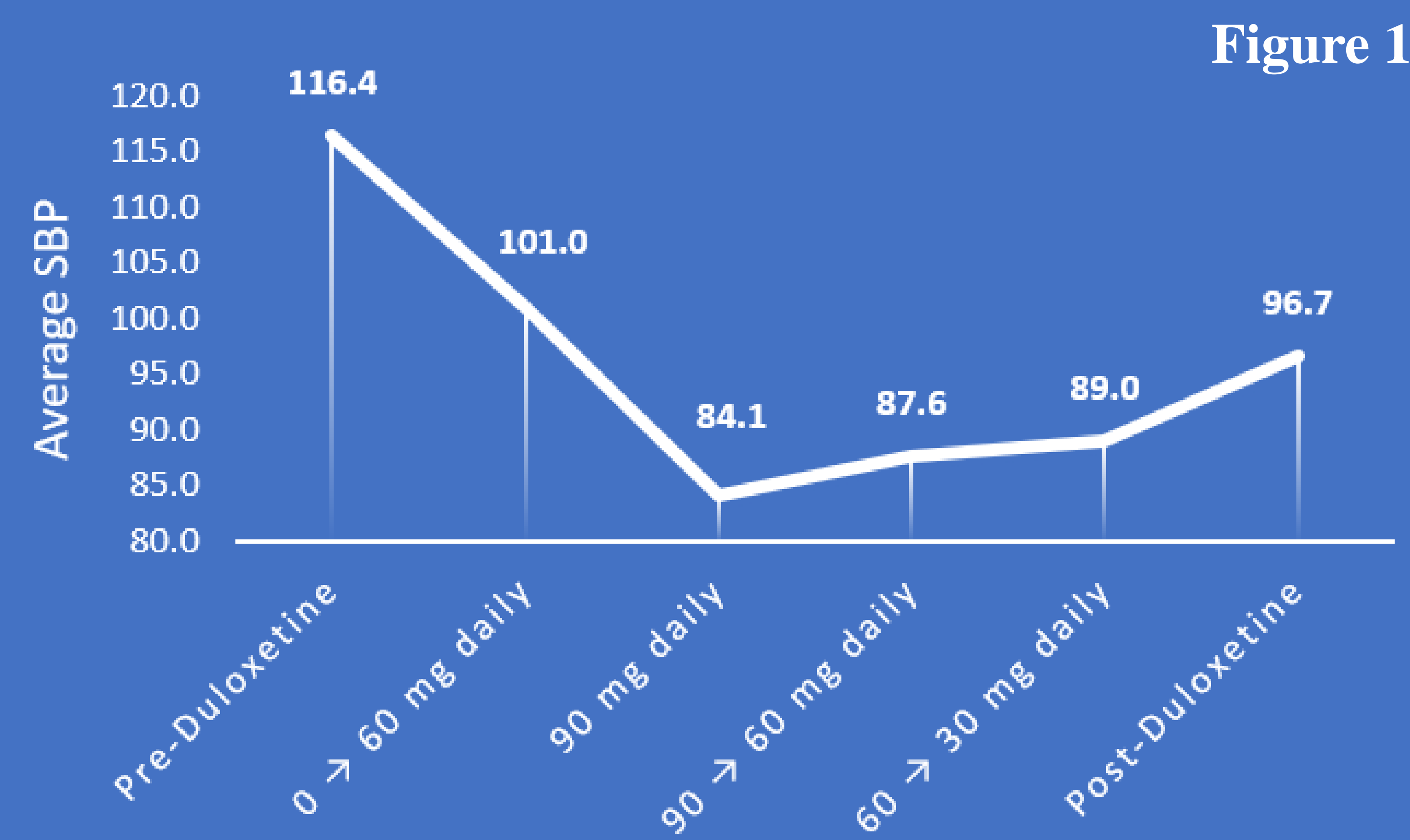


Figure 1. The patient was admitted from October 2023 to January 2024. Duloxetine was started on November 7, and was titrated to a maximum dose of 90 mg daily by December 15. The average Systolic Blood Pressure (SBP) at each dose range is listed above. SBP was highest (116.4) in the pre-duloxetine period and nadired (84.1) when duloxetine was administered at 90 mg daily.

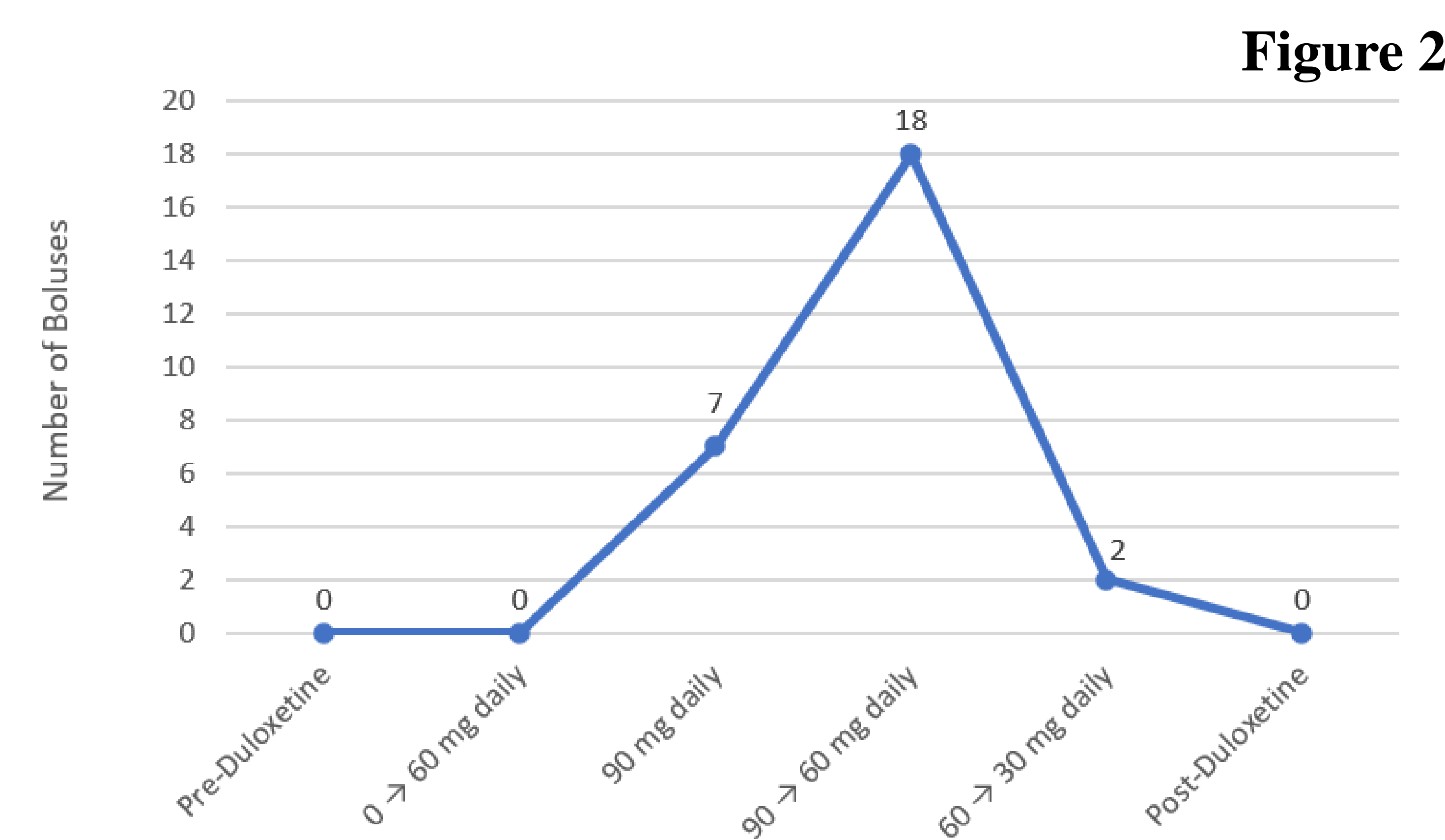


Figure 2. After duloxetine was initiated, the patient had worsening symptomatic hypotension. The patient began to require fluid bolus support after duloxetine was titrated above 60 mg daily. Boluses were given in 1000 mL amounts. The patient required the greatest number of boluses (18) in the 6 day period after duloxetine was decreased from 90 mg daily to 60 mg daily.

DISCUSSION

- Duloxetine is an inhibitor of serotonin and norepinephrine reuptake that is used to treat anxiety, depression, and somatoform disorders.
- Norepinephrine is often elevated in POTS, and may exacerbate dysautonomia and symptoms of orthostatic intolerance.^{1,2}
- In hyperadrenergic states, noradrenergic agents increase central norepinephrine to markedly elevated amounts. This activates presynaptic α -2 receptors, which inhibits norepinephrine release and decreases blood pressure.³

CONCLUSIONS

- Antidepressants are used to treat co-morbidities in POTS. Although noradrenergic medications are helpful in chronic pain and somatoform disorders, they may worsen POTS symptoms.
- More research is needed to determine the safety and tolerability of antidepressants in POTS.

REFERENCES

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