Novel Scheduling of Nitroglycerin Paste for the Management of Autonomic Dysregulation in a Traumatic Brain Injury Patient

Gerard D'Onofrio, M.D., M.B.A.; Nasim Chowdhury, M.D.

† NewYork-Presbyterian Hospital – Columbia and Cornell, Physical Medicine and Rehabilitation, New York, NY

INTRODUCTION

- 84 year old man with HTN and CAD on aspirin, presented with head strike and loss of consciousness due to a right, frontal intraparenchymal hemorrhage (IPH).
- His inpatient rehabilitation unit (IRU) course was complicated by poorly-controlled supine hypertension and orthostatic hypotension with nightly supine hypertension exceeding 200 mm Hg systolic despite increasing doses of oral peripheral calcium channel blockers, ACE-inhibitors, and beta blockers.
- Participation in daytime therapy was complicated by marked daytime orthostatic hypotension resistant to abdominal binder, compression stockings, and midodrine administration.

ASSESSMENT

- Autonomic dysregulation from the TBI necessitated increasing doses of oral antihypertensive agents which had the unfortunate effect of worsening his daytime orthostatic hypotension.
- This represented a significant barrier to completing therapy and necessitated novel administration of nitroglycerin paste after consultation with hypertension specialists.
- The use of topical nitroglycerine paste effectively decreased supine hypertension at night, which allowed for decreased oral agents.

DISCUSSION

- Topical nitroglycerin paste is frequently used as an antihypertensive in hypertensive urgency.
- It has a transdermal duration of action of up to 12 hours, and when removed, can be cleared with a half-life of 3 minutes.
- Lowering of oral agents in conjunction with complete removal of paste in the morning decreased daytime orthostasis allowing for therapy in the IRU to be completed.
- This allows for effective management of hypertension with easy removal should hypotension during the day become significant.

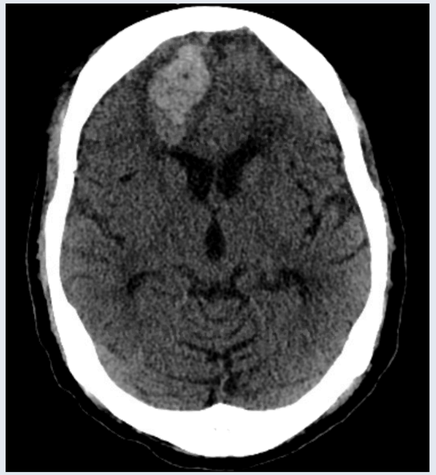

Figure 1. CT Head on Admission

CONCLUSIONS

- Topical nitroglycerin paste can be used to effectively manage autonomic dysregulation after IPH while also allowing for minimization of hypotensive events due to its fast elimination after removal.
- It is an elegant solution for patients who are not able to participate in therapy on inpatient rehabilitation units due to marked supine hypertension and orthostatic hypotension.

REFERENCES

1. Hendricks HT, Heeren AH, Vos PE. Dysautonomia after severe traumatic brain injury. Eur J Neurol. 2010 Sep;17(9):1172-7.
2. Qureshi AI, Qureshi MH. Acute hypertensive response in patients with intracerebral hemorrhage pathophysiology and treatment. J Cereb Blood Flow Metab. 2018 Sep;38(9):1551-1563.

Weill Cornell Medicine | NewYork-Presbyterian Rehabilitation Medicine | Columbia University Vagelos College of Physicians and Surgeons