

Sudden Onset Diplopia associated with Better Diabetes Control – Too Fast is Not Too Good

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LEARNING OBJECTIVES

- ❖ Consider TIND in the differential diagnosis of patients presenting with neurological symptoms following intensified glycemic control
- ❖ Recognize the need for a gradual decrease in hemoglobin A1c (of 2 % every 3 months) while pursuing achievement of target goal

REFERENCES

- Gibbons, C. H., & Freeman, R. (2009). Treatment-induced diabetic neuropathy: A reversible painful autonomic neuropathy. *Annals of Neurology*, 67(4), 534–541. <https://doi.org/10.1002/ana.21952>
- Gibbons, C.H. Treatment-Induced Neuropathy of Diabetes. *Curr Diab Rep* 17, 127 (2017). <https://doi.org/10.1007/s11892-017-0960-6>

INTRODUCTION

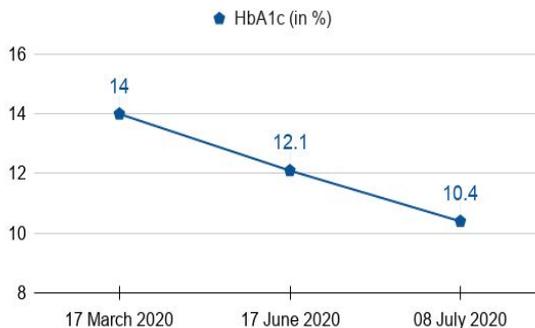
Treatment-induced neuropathy of diabetes (TIND) is predominantly a small fiber somatosensory and / or autonomic neuropathy that occurs after abrupt improvement in glycemic control in the setting of chronic hyperglycemia.

Although first described in 1933, current growing emphasis on lowering HbA1c values demands the need to recognize the possible occurrence of this iatrogenic complication.

CASE REPORT

- 32 year old male presented to the ED with horizontal binocular diplopia, headache and increased burning sensation in his feet
- **PMH** : Type 1 diabetes mellitus (DM), peripheral neuropathy
- **HOME MEDS** : Insulin glargine, mealtime insulin lispro and gabapentin
- Physical exam : pupil-sparing right oculomotor nerve palsy, with no other cranial nerve abnormalities, motor weakness, sensory deficits or impaired coordination

Hemoglobin A1c trend



CASE REPORT (CONTD...)

CT angiography of head and neck	No acute ischemia No Hemodynamically significant stenosis , aneurysm, dissection
MRI of the brain without contrast	No acute intracranial process

- Discharge : reduced insulin dose, target decline rate of HbA1c – 2 % every 3 months, eye patch
- Follow up : Improved peripheral neuropathy with continued diplopia

DISCUSSION

- TIND can occur in patients with type 1 and type 2 diabetes treated with insulin or oral hypoglycemic agents.
- The rate and magnitude of change of HbA1c influence its development.
- Acute onset – usually appearing within 8 weeks of glycemc change, and severe pain refractory to conventional analgesics are some differentiating features from generalized neuropathy of diabetes.

CONCLUSION

- Paradoxical worsening of peripheral neuropathy after abrupt glycemc control supports the diagnosis of TIND in this patient.
- Current management strategies include symptom control and slower decline in HbA1c levels.
- New onset cranial neuropathy temporally linked to intensified glycemc control has not been well reported in literature necessitating further research.