

Treatment-Induced Neuropathy of Diabetes : A CASE REPORT

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Introduction

Treatment-induced neuropathy in diabetes (TIND) is considered a rare iatrogenic small fiber neuropathy caused by an abrupt improvement in glycemic control in the setting of chronic hyperglycemia. TIND was defined as the acute onset of neuropathic pain and/or autonomic dysfunction within 8 weeks of a large improvement in glycemic control—specified as a decrease in glycosylated hemoglobin A1C (HbA1c) of 2% points over 3 months. The pain is usually burning or shooting in a length-dependent, distal or diffuse, proximal pattern and is frequently accompanied by allodynia and hyperalgesia. Autonomic testing shows sympathetic and parasympathetic dysfunction. Some patients present with prominent manifestations of autonomic dysfunction including orthostatic hypotension and syncope. The prognosis depends on the type of DM. In type 1 DM, symptoms last from 6 months to 18 months, and in type 2 DM, they continue for up to 2 years. The treatment is not definite, but conservative care is given to each symptom. Symptomatic relief often requires sedatives and opiates analgesics either alone or in combination with various antiepileptic drugs. Fall prevention training and treatment due to orthostatic hypotension is needed. Case A 24-year-old woman was diagnosed with Type 1 DM 10 years ago and admitted to obstetric clinic with cystitis. HbA1c 16.7% was checked on the test. Her insulin was titrated to achieve normoglycemia. Hb A1c that was examined 3 months later was measured at 7.8%. (Fig. 1). One month after discharge, she was admitted to the hospital with weight loss (10kg), back pain, neuropathic pain on four extremities and hyperhidrosis. There was no abnormality in whole spine MRI after hospitalization. The nerve conduction studies suggested asymmetric upper and lower limbs sensory-motor polyneuropathy (Table 1). To control the neuropathic pain, she was prescribed tapentadol 50mg, lyrica 75mg, impactamin power twice daily, amitriptyline 10mg (for intermittent use). After one week, the patient had a 50% reduction in pain.. Onset 2 months later, the patient was admitted to the rehabilitation department with dizziness and falling down. She was diagnosed with orthostatic hypotension (blood pressure at supine position 125/95, after 3minute of standing position 70/53) and checked low score in balance ability assessment (Berg balance test 23/56, Tetrax : fall risk 100%). She was applied anti-embolic stocking and performed balance training with midrone 2mg. Her symptoms have been improved and she was discharged from hospital after the treatment.

Conclusion

TIND typically occurs after a fast improvement in glycemic control in a patient with poor metabolic control, and shows complete recovery. Physicians should educate fall prevention for patients with TIND to prevent possible fall down occurred by orthostatic hypotension.

Table 1. Results of Electrodiagnostic Study

Nerve		Latency (msec)	Amplitude (mV)	CV (m/sec)			
Motor nerve							
Median	Rt	5.2	4.1	37			
Ulnar	Rt	4.2	1.7	34			
Deep peroneal(EDB)	Rt		NR				
Tibial(AH)	Rt		NR				
Median	Lt	4.2	3.0	33			
Ulnar	Lt	3.2	3.6	32			
Deep peroneal(EDB)	Lt		NR				
Tibial(AH)	Lt		NR				
Sensory nerve							
		Latency (msec)	Amplitude (uV)				
Median	Rt		NR				
Ulnar	Rt		NR				
Sural	Rt	2.5	5				
Superficial peroneal	Rt	2.0	6				
Median	Lt		NR				
Ulnar	Lt	2.0	5				
Sural	Lt	2.1	4				
Superficial peroneal	Lt	2.2	4				
Muscle							
		Spontaneous activity		MUAP		Recruitment pattern	
		Fib	PSW	polyphasic	Amplitude		Duration
Lt. Biceps brachi		none	none	none	normal	normal	full
Lt. First dorsal interosseous		none	none	none	normal	normal	full
Lt. Lumbar 3-5 paraspinal muscle		3+	3+				
Rt. Lumbar 3-5 paraspinal muscle		3+	3+				
Rt. Gluteus maximus		none	2+	many	normal	normal	reduced
Rt. FDL		none	2+	many	normal	normal	reduced
Lt. Gluteus maximus		none	2+	many	normal	normal	reduced
Lt. FDL		none	2+	many	normal	normal	reduced

CV, Conduction velocity; Rt, Right; Lt, Left; EDB, Extensor digitorum brevis; TA, Tibialis anterior; AH, Abductor hallucis; FDL, Flexor digitorum longus; NR, No response; MUAP, Motor unit action potential; Fib, Fibrillation; PSW, Positive sharp wave

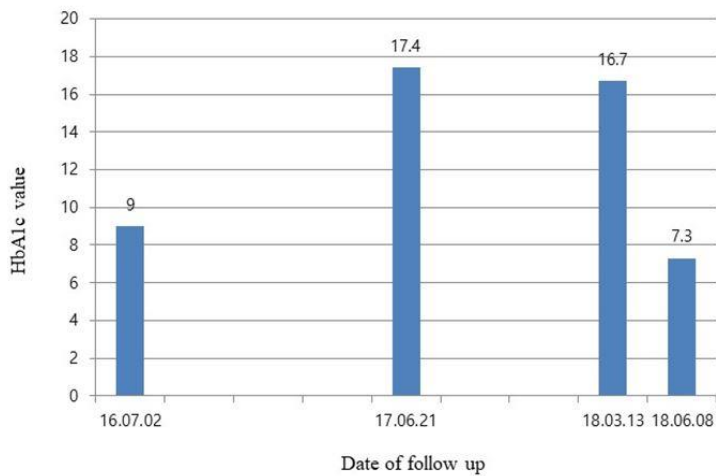


Fig. 1. HbA1c values