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Peripheral nerve injury in patients exposed to *n*-hexane: an analysis of eight cases

Key words: ***n*-Hexane, Poisoning, Electromyogram**

Research Summary

This paper reported a case series of eight patients from similar leather factories in Haining, who were admitted to the emergency department (ED) and diagnosed with n-hexane poisoning.

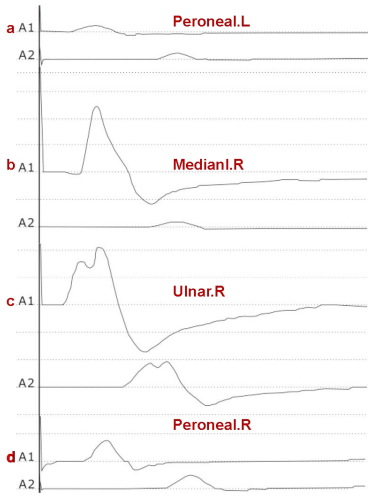
Based on the findings of our case series study, we suggest that when doctors encounter patients with clinical manifestations of motor and sensory dysfunction, they should also consider the possibility of n-hexane poisoning besides diseases of the nervous system. Also, the occupation of patients is a non-negligible information for correct diagnosis.

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Innovation points

Table 1. Patient demographics and clinical features upon admission

Patient ID	Age (Year)	Sex (M/F)	Clinical features on admission							
			Temp (℃)	First diagnosis	Contact time (month)	Poisoning time (month)	Adynamia (upper limbs)	Adynamia (lower limbs)	Numbness (upper limbs)	Numbness (lower limbs)
Case 1	50	F	37.1	peripheral neuropathy	6	1		Y	Y	
Case 2	33	M	37.0	peripheral neuropathy	6	1	Y	Y	Y	Y
Case 3	41	M	36.8	peripheral neuritis	6	1	Y	Y	Y	Y
Case 4	35	F	36.5	peripheral neuritis	6	2	Y	Y	Y	Y
Case 5	28	F	37.0	Not known	6	0.7		Y	Y	
Case 6	45	F	37.6	acute inflammatory demyelinating polyneuropathy	2	2	Y	Y	Y	Y
Case 7	44	M	36.8	Guillain-Barre syndrome	6	2	Y	Y	Y	Y
Case 8	51	M	37.3	peripheral neuropathy	24	1			Y	Y



Stimulate Site	Lat (ms)	Dur (ms)	Amp mV	Area mV·ms	CV m/s
A1:Fibula(head)	4.8	6.8	1.1	4.3	26.7
A2:Popliteal fossa	17.5	6.7	0.8	3.1	

Stimulate Site	Lat (ms)	Dur (ms)	Amp mV	Area mV·ms	CV m/s
A1:Wrist	5.8	7.5	4.1	14.6	20.7
A2:Below elbow	16.6		0.4		

Stimulate Site	Lat (ms)	Dur (ms)	Amp mV	Area mV·ms	CV m/s
A1:Wrist	3.7	7.9	3.5	15.9	30.6
A2:Below elbow	12.5	8.7	1.5	7.4	

Stimulate Site	Lat (ms)	Dur (ms)	Amp mV	Area mV·ms	CV m/s
A1:Fibula(head)	4.2	7.1	1.4	5.2	28.6
A2:Popliteal fossa	16.6	7.9	0.6	3.0	

Fig. 1 The electromyogram of one of the n-hexane poisoning patients in our cases.

Most of the eight patients presented progressive weakness and numbness in the limbs, while no other type of discomfort was reported (Table 1).

Subsequent EMG results suggested that all patients showed varying degrees of neurological damage (Fig 1).

Innovation points

Patients with n-hexane poisoning are often misdiagnosed as general neuropathies at first assessment. According to current guidelines, the diagnosis of n-hexane intoxication must meet the following criteria:

- **A clear history of n-hexane exposure;**
- **Clinical manifestations of multiple peripheral neuropathy;**
- **Electromyogram (EMG) showing neurological damage;**
- **Increased 2,5-Hexanedione content in the urine;**
- **Exclusion of other peripheral neurological diseases.**

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