n-Hexane induced neuropathy 1

A Case of n-Hexane Induced Neuropathy with Focal Conduction Block

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A 32-year-old man who had worked at aluminum processing plant for 4 months visited us. He complained of numbness and paresthesia of both foot and hands and weakness of all extremities. Electrophysiologic study showed motorsensory polyneuropathy of diffuse axonal type with focal conduction block. And we discovered higher concentration of n-Hexane in his workplace. On sural nerve biopsy, bubbly enlarged nerve fibers in light microscope and thick myelin sheath and axonal degeneration on electron microscope were found. We diagnosed it as n-Hexane induced neuropathy.

Key Words: Neuropathy, n-Hexane, Neurophysiology

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  N-Hexane
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                   n-Hexane
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                                                                      MRC(medical research council)
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              n-Hexane
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                                                                          porphobilinogen,
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            가
  32
                                                                      n-Hexane
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Address for correspondence
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                                                                                        (Figure 1).
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Table 1. Nerve Conduction Studies of the patient

Motor nerve conduc	tion study				
nerve		Latency(ms)	Amplitude(mV)	CV(m/s)	F(ms)
Median(right)	Wrist	4.0	4.8		34.5
	Elbow	13.3	1.0	29	
Ulnar(right)	Wrist	3.3	4.3		34.7
	Elbow	10.6	2.4	29	
Peroneal(right)	Ankle	5.7	1.0		NP
	Knee	17.2	0.4	31	
Peroneal(left)	Ankle	6.4	0.9		NP
	Knee	18.2	0.5	30	
Tibial(right)	Ankle	7.1	2.7		NP
	Knee	20.8	1.1	29	
Tibial(left)	Ankle	8.3	2.8		NP
	Knee	18.9	0.8	37	
Sensory nerve condu	uction study				
		latency(ms)	Amplitude(μV)	CV(m/s)	
Median nerve(right)		NP			
Ulnar nerve(right)		NP			
Sural nerve(right)		NP			
Sural nerve(left)		NP			
H-reflex		Right : NP		Left : NP	

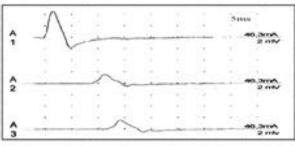
CV: conduction velocity NP: no potential F:F-wave latency

Table 2. The results of concentration of organic solvents in the air at workplace

Site of measurements	Solvents	Results(ppm)	Upper limits of exposure(ppm)
Worker	n-Hexane	164.442	50
Above washing bath	<i>n</i> -Hexane	41.014	50
Left corner of the workplace	<i>n</i> -Hexane	40.852	50
Above drying panel	<i>n</i> -Hexane	126.688	50
Exit	<i>n</i> -Hexane	18.424	50

가 가 n-Hexane 가 (Table 2). 164.442 ppm, 126.688 ppm 가 n-Hexane (coasting) 가 (myelin) 3 (paranodal myelin retraction) n- Hexane induced neu-가 3 ropathy 8. n- Hexane

, n-Hexane



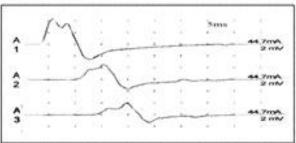


Figure 1. Compound motor action potentials at median and ulnar nerve stimulation.

The CMAP amplitudes of median and ulnar nerves at wrist are larger than those at elbow or axilla. These findings suggest partial conduction block. Trace A1, A2, A3 indicate wrist, elbow, axilla, respectively.

2,5-hexanedione . Hexane hexadione cytochrome p450 ,

coasting

n-Hexane . n-Hexane

.¹² -- 가

> n- Hexane neuropathy ,^{3,4,7,8} (paranodal axonal swelling)

Cornblath 13

n-Hexane

가 n-Hexane

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