SHORT REPORTS

Acute polyradiculoneuropathy after amitriptyline overdose

Despite extensive use of amitriptyline only five cases of peripheral neuropathies have, to our knowledge, been reported.¹⁻⁵ No polyradiculoneuropathy has so far been related to treatment with amitriptyline.

Case report

A 53 year old depressive woman had been taking amitriptyline 75 mg and lorazepam 2.5 mg daily in January 1984. At the beginning of February she took soluble amitriptyline 800 mg in a suicide attempt. She became comatose, with generalised seizures, mydriasis, and urinary retention; her muscle stretch reflexes were normal, blood pressure 90/50 mm Hg, body temperature 37°C, and pulse 100 beats/min. The clinical data and an electrocardiogram were normal. She needed respiratory help and gastric evacuation. The next day she was alert, and respiratory help was stopped. She complained of weakness in her left arm that worsened during the next three days. On examination she had severe flaccid tetraplegia, no muscle stretch reflexes, complete bilateral facial and motor bulbar nerve palsy, and axial muscle palsy, resulting in her being unable to keep her head and trunk upright. Though she complained about tingling sensations in her arms and legs and around her mouth, no abnormal sensations could be detected. Her gastrointestinal mobility, bladder function, and postural blood pressures were normal.

She required respiratory help again during the next five days. By this time the cerebrospinal fluid, normal five days earlier, had an increased protein concentration (1500 mg/l) with a normal cell count. An electromyogram showed signs of denervation, moderately decreased motor nerve conduction velocities, moderately decreased amplitude of muscle potentials, increased distal latencies and F waves, and no sign of a conduction block (table). The results of tests of liver and renal functions, concentrations of porphyrins, thyroid hormones, and serum vitamins, and for syphilis and diabetes mellitus were normal. She denied having taken any other drugs or suffering from any other symptoms of neuropathy before admission. The cranial nerve palsies disappeared by the beginning of March, the weakness in the arms by the beginning of April, and the weakness in the legs by the beginning of June. The cerebrospinal fluid still contained an increased protein concentration (970 mg/l) in March but was normal in June.

In August 1986 investigations showed mild symmetrical weakness and amyotrophy in the proximal parts of the arms and legs, resulting in a rolling gait, normal stretch reflexes, and normal sensation. An electromyogram showed the same signs as before (table).

Comment

The time course of the events and the absence of other factors related to neuropathy indicate that amitriptyline was responsible for this patient's condition. In three previously reported cases sensorimotor polyradiculo-

neuropathy occurred in the legs of patients treated conventionally and improved when the drug was stopped.¹⁻³ In another two cases acute polyneuropathy occurred 24 hours after overdoses (1250 mg and 2200 mg) and improved very slowly^{4,5}; in both cases examination of biopsy specimens, not performed in our patient because of typical signs of axonal polyradiculoneuropathy, suggested mixed axonal and myelinic degeneration.

The signs in our patient suggested a diagnosis of acute polyradiculoneuropathy. The initial urinary retention was probably due to the atropinic action of amitriptyline. Compared with two previously reported cases of polyradiculoneuropathy after amitriptyline overdose^{4,5} she showed fewer sensory disturbances and improved with fewer sequelae.

The basis of the toxic effects of amitriptyline on the peripheral nerves is unknown but is probably different after overdose from that after chronic administration.⁴ Predisposing factors such as diabetes mellitus or previous chronic administration might favour this toxic reaction.⁵ We do not think that the mechanism is immunological because of the briefness of the period between ingestion and polyradiculoneuropathy. The rapid onset of the condition, and the absence of multiorgan dysfunction and sepsis, do not suggest neuropathic causes in such critically ill patients.

We thank Professor A Durocher for referring the patient and Harold M Andrieux for revising the English manuscript.

- 1 Isaacs AD, Carlsh S. Peripheral neuropathy after amitriptyline. *Br Med J* 1963;ii:1739.
- 2 Nimmo Smith RC, Grieve RC. Peripheral neuropathy after amitriptyline. *Br Med J* 1963;iii:254.
- 3 Casarino JP. Neuropathy associated with amitriptyline. *NY State J Med* 1977;77:2124-6.
- 4 Boudouresques J, Khalil R, Pellissier JF, et al. Polynévrite au décours d'une intoxication par l'amitriptyline. *Marseille Médical* 1978;167:29-34.
- 5 Le Witt PA, Forno LS. Peripheral neuropathy following amitriptyline overdose. *Muscle Nerve* 1985;8:723-4.

(Accepted 4 November 1986)

Departments of Neurology and Neurophysiology, University of Lille, France

DIDIER LEYS, MD, assistant in neurology
FLORENCE PASQUIER, MD, resident physician in neurology
MARIE DOMINIQUE LAMBLIN, MD, assistant in neurophysiology
FRANÇOIS DUBOIS, MD, assistant in neurology
HENRI PETIT, MD, professor of neurology

Correspondence to: Dr D Leys, Service de Neurologie, Hôpital B, F59037 Lille Cédex, France.

Social future of elderly admitted to acute care hospital: opinion of patient or family as predictive factor of subsequent transfer to long term care

Age, mental state, and female sex have been considered to be of value in predicting the outcome of elderly patients after an admission to hospital for acute care.¹⁻³ None of these factors, however, has been studied prospectively. Furthermore, the opinion of family members who share primary responsibility for the care of the dependent elderly⁴ has rarely been considered when the question of outcome has arisen. We have assessed prospectively (a) the classical predictive factors reported to be of value and (b) the predictive value of the opinion of the patient or his family, or both, about transfer to long term care after acute care.

Patients, methods, and results

We evaluated for the study all consecutive medical patients presenting to the emergency department of a large acute care hospital. Over five weeks 125 patients satisfied the criteria for inclusion—namely, age 75 or over; admission to an acute medical care unit; ability to complete the questionnaire within 48 hours after admission; and alive at discharge. The table lists the items included in the questionnaire. The initial opinion of the patient or family, or both, about the need for subsequent transfer to long term care was considered positive when expressed either personally by the patient or by the family, or both. Outcome was recorded at the time of discharge as discharged home or discharged to long term care.

Differences between the two groups were analysed by χ^2 or Student's *t* test. As factors could be correlated with each other a multivariate analysis was also performed using stepwise logistic regression (Biomedical data package statistical software).

Results of electrophysiological tests

Nerve	February 1984		July 1986		Mean (SD) control
	Right	Left	Right	Left	
<i>Motor nerve conduction velocities (m/s)</i>					
Ulnar	41.8	42.0	45.5	45.7	58.0 (15.0)
Median	45.0	46.2	42.1	47.8	55.0 (9.0)
Peroneal	41.8	ND	32.4	36.4	48.5 (4.0)
<i>Motor distal latencies (m.s)</i>					
Ulnar	3.6	3.8	4.0	4.0	2.8 (0.3)
Median	4.5	5.0	4.4	5.2	3.0 (0.8)
Peroneal	6.3	6.2	6.5	5.7	4.5 (1.0)
<i>F waves (m/s)</i>					
Ulnar	33.0	32.8	31.6	28.1	23.0 (3.2)
Median	32.0	31.6	30.6	ND	25.0 (4.0)
Peroneal	46.0	46.0	47.0	46.0	45.0 (4.0)
<i>Sensory potential amplitude (µV)</i>					
Ulnar	4.3	4.0	5.0	5.0	12.0 (4.0)
Median	9.4	9.0	12.5	5.0	20.0 (15.0)
Tibial	ND	ND	15.0	10.0	5.0 (3.5)
<i>Nerve conduction velocities (m/s)</i>					
Ulnar	NP	NP	35.9	40.6	50.0 (10.0)
Median	41.0	40.6	41.7	32.6	48.5 (4.0)
Tibial	ND	ND	38.2	39.3	40.1 (4.0)
Latency H (m.s)	NP		37.1		29.5 (2.4)
H index (%)	NP		53		100 (7)
Amplitude ratio (H min/H max)	NP		51		<60

ND=Not detected. NP=Not performed.

The 125 patients comprised 89 women and 36 men aged 75 to 100 years (mean 82.7 (SD 4.8)). After their acute admission 86 patients (69%) were discharged home (group 1) and 39 (31%) transferred to a long stay hospital (group 2). The table compares the two groups. Among the 15 positive opinions recorded in group 2, six were concordant between patient and family and nine were discordant; eight positive responses were expressed by the family alone and one by the patient alone. In group 2 nine patients had no relatives near by; all gave a negative opinion. Thus 15 of the 21 positive opinions (71.4%) concerned patients in group 2. There was no relation between opinion and age. In multivariate analysis the difference was mainly explained by the opinion and length of the acute hospital stay.

Distribution of possible predictive factors of outcome in the two groups of patients. Except where stated otherwise figures are numbers (percentages) of patients

	Group 1: patients discharged home (n=86)	Group 2: patients discharged to long term care (n=39)	p Value
Age in years:			
75-79	31 (36.1)	8 (20.5)	NS
80-84	29 (33.7)	16 (41.0)	
≥85	26 (30.2)	15 (38.5)	
Sex:			
Women	66 (76.7)	23 (59.0)	p<0.05
Men	20 (23.3)	16 (41.0)	
Duration of illness before admission:			
<1 month	71 (82.6)	30 (76.9)	NS
≥1 month	15 (17.4)	9 (23.1)	
Mental impairment (Pfeiffer scale):			
None	54 (62.8)	18 (46.2)	NS
Mild	13 (15.1)	11 (28.2)	
Moderate	7 (8.1)	5 (12.8)	
Severe	12 (14.0)	5 (12.8)	
Opinion about transfer to long term care*:			
Positive	6 (7.0)	15 (38.5)	p<0.001
Negative	80 (93.0)	24 (61.5)	
Mean [SD] length of stay in acute ward (days)	15.5 [11.2]	24.2 [12.2]	p<0.001

*Opinion expressed by patient or family, or both.

Comment

Deciding early adequate discharge plans for elderly patients admitted for acute care is a real challenge in the emergency department, since acute illness may render these patients dependent and thus prolong their stay in acute care units. We recorded an average stay of nine days longer among the elderly group subsequently transferred to long term care.

When an acute health problem occurs in an elderly person immediate admission to hospital is often the only solution for the patient and his family. Though a large number of elderly already benefit from supportive social services, these services are overwhelmed at the time of hospitalisation. Thus discharge to care by the family or to a long term care unit until possible recovery of an autonomous state or availability of intermediate care facilities are the only alternatives.

In contrast with other reports,^{1,3} we did not find that great age, female sex, and altered mental state were contributory factors in the subsequent disposal of these patients. Family opinion was the only predictive factor, unrelated to the age or mental state of the patient. Hence we consider that family support was the most important factor determining patient outcome and suggest that this should be taken into account for early social assessment of the elderly.

We thank N Faustin and M Ducousset for secretarial work, A Rieuf and F Arette-Hourquet for help in collecting data, and Dr M Chassé for reviewing the manuscript.

1 Kane RL, Matthias R, Sampson S. The risk of placement in a nursing home after acute hospitalization. *Med Care* 1983;21:1055-61.

2 Kane RL, Matthias R. From hospital to nursing home: the long-term care connection. *Gerontologist* 1984;24:604-9.

3 Lamont CT, Sampson S, Matthias R, Kane R. The outcome of hospitalization for acute illness in the elderly. *J Am Geriatr Soc* 1983;31:282-8.

4 Lowther CP, Williamson J. Old people and their relatives. *Lancet* 1966;ii:1459-60

(Accepted 30 October 1986)

Hôpital Henri Mondor, 94010 Créteil Cédex, France

FRANÇOISE ROUDOT-THORAVALL, MD, assistant of public health

MARC BOUBERT, MD, general practitioner

VINCENT FOURESTIÉ, MD, assistant of internal medicine

JEAN-LOUIS LEJONC, MD, professor of therapeutics

Correspondence to: Dr Roudot-Thoraval, policlinique.

Recent trends in mortality from and incidence of myocardial infarction in Stockholm

Mortality from ischaemic heart disease increased in Sweden, in contrast to many other Western countries, during the 1970s,¹ and studies in Stockholm and Gothenburg have shown that mortality from and incidence of myocardial infarction rose during this period among middle aged men.^{2,3} Recently, however, statistics have shown a decline in mortality from myocardial infarction.

Estimates of the incidence of myocardial infarction may be obtained for Stockholm county by combining information from a register of all discharges of hospital inpatients with information from the national cause of death register.⁴ We report on mortality from and incidence of myocardial infarction during 1974-84 among men aged 30-64 and women aged 40-64 in Stockholm county.

Subjects, methods, and results

All deaths in Sweden are recorded in the national cause of death register. From this register we selected all those with myocardial infarction (International Classification of Diseases (ICD), 8th revision, code 410) as the underlying or contributory cause of death among residents in Stockholm aged 30-64 during 1974-84 (4910 deaths). A register of discharges of hospital inpatients has been kept for Stockholm county since 1969 and covers almost all discharges in the county. From this register we selected all those discharged with a diagnosis of myocardial infarction (ICD Swedish revision, codes 410.00 and 410.99) recorded during 1974-84.

The Swedish personal identification number was used to link the records. Because of inaccurate or incomplete identification numbers 110 patients (0.7%) were excluded. New cases of myocardial infarction were identified by combining information from the two registers with criteria previously described (15753 cases 30-64 years of age).^{2,4} The mean yearly population was used to estimate the number of person years at risk.

The maximum likelihood estimates of mortality and incidence for each year, related to the baseline year (1974), were calculated by a multiplicative model.⁵ Mean yearly changes in mortality and incidence were estimated similarly and are given below with 95% confidence intervals.

The estimated mean change in mortality during 1974-84 was 0.8% (0.2% to 1.3%) for men and -0.7% (-2.7% to 1.4%) for women. The mean yearly decline among men during 1982-4 was -13.0% (-19.1% to -6.4%). No corresponding change was observed for women.

The figure shows the incidence of myocardial infarction during 1974-84. The mean yearly percentage change during 1974-84 was estimated to be 0.7% (0.2% to 1.3%) for men and 1.1% (-0.1% to 2.3%) for women. The mean yearly decrease among men during 1982-4 was -6.6% (-10.3% to -2.7%). The mean yearly decrease in incidence among women during 1980-4 was -1.6% (-5.3% to 2.2%).

Incidence of myocardial infarction in Stockholm 1974-84 among men aged 30-64 (—) and women aged 40-64 (---).

Comment

Small changes in mortality from and incidence of myocardial infarction were observed among middle aged men and women in Stockholm during 1974-84. Among men, however, a rise during 1974-82 was followed by a decline during 1982-4. This decline may reflect a real change in the incidence of myocardial infarction but might have other explanations. Incidence in this study means the incidence of cases diagnosed by the medical services. A decrease in the patients' inclination to seek medical care for symptoms related to myocardial infarction would, for example, tend to be associated with a decline in observed incidence. Such a decrease, however, could not explain a decline in mortality. Furthermore, shifts in diagnostic practice or changes in the accuracy of the medical information systems used might have