Table 1—Prescription of regular neuroleptic treatment to 217 residents of nursing homes in Glasgow

	No of residents
Thioridazine:	
≤ 50 mg daily	124
> 50 mg daily	37
Chlorpromazine:	
≤ 50 mg daily	7
> 50 mg daily	13
Haloperidol:	
≤ 1 mg daily	18
> 1 mg daily	14
Other antipsychotics	14

psychotics were prescribed more than one anti-psychotic drug and over a third (78, 36%) were taking amounts equivalent to more than 50 mg thioridazine daily.

The number of patients being prescribed potentially inappropriate and large doses of neuroleptics gives us cause for concern. None of these drugs is without hazard, and long term use has problems, including an increased risk of fractured neck of femur,² increased constipation,³ and impaired cognitive function,⁴ as well as the more generally recognised problems of akathisia, drug induced parkinsonism, and tardive dyskinesia. Several neurotransmitter systems in elderly people are particularly susceptible to these drugs—for example, thioridazine is a particularly potent anticholinergic agent. The neuroleptic malignant syndrome is a potentially fatal reaction of all neuroleptics.

With the closure of large institutions and long stay hospital beds, residents of nursing homes are becoming a frailer and more dependent population, with a high incidence of coexistent illnesses and therefore an

increased susceptibility to the side effects of neuroleptics. In addition, several American studies have shown little, if any, deterioration in behaviour after cutting down or stopping these drugs.⁵ One large study showed that antipsychotics could be stopped in 45% of residents with dementia alone and in 25% of those with a psychiatric diagnosis.⁵

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Cases of euthanasia and assisted suicide reported to the public prosecutor in North Holland over 10 years

Gerrit van der Wal,
Bregje D Onwuteaka-Philipsen

Institute for Research in Extramural Medicine, Vrije Universiteit, 1081 BT Amsterdam, Netherlands
Gerrit van der Wal, medical inspector and professor of quality of care
Bregje D Onwuteaka-Philipsen, health scientist

Correspondence to:
Mr Onwuteaka-Philipsen.

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Euthanasia and physician assisted suicide are still forbidden in the Netherlands and cases have to be reported to the public prosecutor as unnatural deaths. Doctors will not, however, be prosecuted if they have acted in accordance with the requirements for prudent practice.¹ Before the 1980s doctors never reported such cases, but the numbers of reported cases have increased since then, from 19 in 1984 to 1318 in 1993.¹ We wanted to gain insight into the characteristics of reported cases of euthanasia (including assisted suicide): which physicians perform it and with what kind of patients?

Methods and results

Data were collected from each reported case of euthanasia in the province of North Holland (2.3 million inhabitants) from 1984 to 1993. The source was reports compiled by the public prosecutor when a

doctor reported a case to the coroner or the police. These reports always included a doctor's report and a coroner's report and sometimes reports from the doctor who gave a second opinion, a living will, or a report by the Medical Inspectorate. Among others the following variables were registered: the doctor's specialty and the patient's sex, age, and diagnosis. Diagnoses were classified according to the International Classification of Diseases (ICD-9). We grouped the diseases on the basis of their occurrence among the reported cases of euthanasia.

From 1984 to 1993, 1707 cases of euthanasia were reported. The number of cases reported increased from 1 in 1984 to 426 in 1993. Most cases were reported by general practitioners (74%). Specialists and nursing home physicians reported fewer cases (22% and 3%). There were more male patients than female (57% v 43%). The average age was 62 years for men and 65 years for women (SD 15 years). Table 1 shows that 78% of the cases concerned patients with cancer and 9% patients with AIDS.

To compare the number of cases of euthanasia with the total number of deaths due to a specific disease, we derived data on the total number of deaths in North Holland per diagnosis per year from Statistics Netherlands. From 1984 to 1993, 0.82% of all deaths were due to reported cases of euthanasia (table 1). The percentage of cases of euthanasia was higher for patients with AIDS (13.41%), multiple sclerosis (5.35%), amyotrophic lateral sclerosis (4.08%), and cancer (2.26%). It was particularly low for patients with diseases of the circulatory system (0.05%).

Comment

This is the first study of this scope that provides insight into the characteristics of cases of euthanasia reported to the public prosecutor. One limitation is that it deals only with reported cases of euthanasia and therefore does not extend to the "dark numbers"—cases that were not reported. Nevertheless, our results may apply also to unreported cases since an earlier study found no differences in age, sex, and diagnosis between cases of euthanasia reported by general practitioners and those cases they did not report.²

The increase in the number of reported cases may be due to an increased willingness of patients to seek doctors' help with euthanasia, although earlier research suggests that at least part of the increase is due to doctors' increased willingness to report cases.²

Table 1—Diagnoses for reported cases of euthanasia and assisted suicide (n=1707) compared to diagnoses for all deaths (n=206 777) in North Holland 1984-93 (values are numbers and rounded percentages)

Diagnosis	All deaths	Euthanasia and assisted suicide	Cases of euthanasia and assisted suicide as percentage of all deaths (95% confidence interval)
Malignant neoplasms	58 629 (28)	1326 (78)	2.26 (2.14 to 2.38)
Diseases of the respiratory system	5351 (3)	31 (2)	0.58 (0.38 to 0.78)
Diseases of the circulatory system	85 530 (41)	41 (2)	0.05 (0.03 to 0.06)
Multiple Sclerosis	318	17 (1)	5.35 (3.14 to 8.42)
Amyotrophic Lateral Sclerosis	539	22 (1)	4.08 (2.57 to 6.11)
AIDS	1104 (1)	148 (9)	13.41 (11.4 to 15.4)
Other causes of death	55 306 (27)	117 (7)	0.21 (0.17 to 0.25)
Total	206 777 (100)	1702* (100)	0.82 (0.78 to 0.86)

*Five missing cases.

The proportion of all deaths due to euthanasia varies greatly between different diseases. If death does not come unexpectedly, the decision to perform euthanasia apparently depends greatly on the extent to which intolerable and hopeless suffering are experienced. This study provides some evidence that this differs not only between patients but also between diseases.

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Growth in the use of antibiotics in the community in England and Scotland in 1980-93

P G Davey, R P Bax, J Newey, D Reeves,
D Rutherford, R Slack, R E Warren, B Watt,
J Wilson

The authors are members of the general practice group of the working party on antibiotic usage, British Society for Antimicrobial Chemotherapy.

Department of Clinical Pharmacology, Ninewells Hospital, Dundee DD1 9SY

P G Davey, reader in clinical pharmacology and infectious diseases

Smith Kline Beecham Pharmaceuticals, Harlow, Essex CM19 5AW

R P Bax, medical director

Weaver Vale, Hallwood Health Centre, Cheshire WA7 2OT

J Newey, general practitioner

Department of Medical Microbiology, Southmead Hospital, Bristol BS10 5NB
D Reeves, consultant in medical microbiology

Pipelands Health Centre, St Andrews KY16 8JZ
D Rutherford, general practitioner

PHLS Laboratory, Nottingham NG7 2UH
R Slack, consultant in medical microbiology

Public Health Laboratory, Shrewsbury SY3 8XQ
R E Warren, director

City Hospital, Edinburgh EH10 5SB
B Watt, consultant in medical microbiology

Nottinghamshire Family Health Services Authority, Nottingham NG1 5EP
J Wilson, pharmacist

Correspondence to:
Dr Davey.
p.g.davey@dundee.ac.uk

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In 1989 the British Society for Antimicrobial Chemotherapy set up a working party on the use of antibiotics, including a working group that was asked to identify sources of data about prescribing in general practice. The aim was to identify potential sources of data, analyse the available data, and make recommendations about further investigation.

Methods and results

Data about prescribing were obtained from the prescription pricing authorities in England and Scotland. In England complete data about prescriptions were available from 1980, whereas in Scotland data available before 1991 were only a 1% sample of all prescriptions. For statistical analysis the annual growth rate in prescribing in England was calculated from the following formula: growth rate (%) = $((P_{n+1} - P_n) / P_n) \times 100$, where P_n is the number of prescriptions in the baseline year and P_{n+1} is the number of prescriptions in the following year.

In England there has been a steady annual increase in the number of prescriptions for antibiotics (table 1) which has been greatest for the quinolones (22% increase). Most of the increase in quinolone prescribing came in 1986-91, when the average increase was 44% (95% confidence interval 15% to 74%). The available data on complete prescribing from Scotland show a broadly similar picture for overall prescribing, although the annual increase in quinolone prescriptions was not so great as in England (table 1). In both England and Scotland prescribing data are now adjusted for population, but the increase in total prescribing is similar to the increase in prescribing per 1000 population—for example, 11.5% v 10.6% for Scotland in 1992-3. The number of prescriptions per 1000 population is currently lower in Scotland than in England (956 in Scotland in 1992 v 1452 in England in

1991). The ingredient cost per prescription has also risen—for example, from £2.50 in 1980 to £6.01 in 1991 in England. Consequently, the annual increase in the cost of antibiotic prescribing is greater than the increase in the number of prescriptions.

Comment

The overall increase in the number of prescriptions for antibiotics in England was 45.8% from 1980 to 1991, which is greater than a previous estimate of 33% growth from 1978 to 1987 but still below the rate of growth over the same period in France (65%) and West Germany (78%).¹ Why has antibiotic prescribing increased inexorably over the past decade? Approximately half of all antibiotic prescriptions are for respiratory symptoms.² We believe that the overall increase in antibiotic prescribing is due in part to a gradual increase in the use of antibiotics for respiratory symptoms, but that hypothesis cannot be tested from the Scottish or English prescribing databases because they contain no information about indications for prescribing. Our analysis also shows that growth has been most rapid for recently introduced drugs or drugs that are still being heavily promoted by their manufacturers (aminopenicillins, cephalosporins, macrolides, and quinolones), which is consistent with the findings of a recent study from Northern Ireland.³ Increased prescribing of antimicrobials is associated with increased drug resistance, a global problem which recently prompted a parliamentary report in the United Kingdom.⁴ We believe that the reasons for increased prescribing should be investigated as well as the link between the level of prescribing and resistance.

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Table 1—Changes in prescribing of antibiotics in England and Scotland

Type of antibiotic	Mean annual % increase 1980-91 (95% confidence interval)	England			Scotland		
		Total prescriptions 1990 (thousands)	Total prescriptions 1991 (thousands)	% Increase	Total prescriptions 1992 (thousands)	Total prescriptions 1993 (thousands)	% Increase
Ampicillins	+4 (0 to 9)	15 437	17 521	+14	1926	2310	+20
Phenoxymethyl penicillin	-1 (-3 to +4)	4 257	4 387	+3	474	506	+7
Macrolides	+6 (-6 to +14)	5 414	5 924	+9	579	622	+8
Sulphonamides	+1 (-3 to +5)	4 151	4 300	+4	394	400	+2
Tetracyclines	-4 (-8 to -1)	3 768	4 019	+7	479	493	+3
Cephalosporins	+6 (+1 to +11)	3 298	3 576	+8	450	512	+14
Quinolones	+22 (-1 to +46)	572	860	+50	164	181	+11
All antibacterials	+5 (+2 to +7)	38 212	42 090	+10	4685	5226	+12