Key messages

- Advance directives could potentially be useful for patients with dementia as a means of extending their autonomy when they become incompetent
- Competence to complete an advance directive involves understanding possible future clinical situations
- Vignettes presenting hypothetical medical problems were tested in 100 elderly people, and were found to validly and reliably discriminate between volunteers living in the community and patients with dementia
- We suggest that two clinical vignettes, each followed by a semistructured interview comprising 10 points, can aid in the assessment of competence to complete advance directives

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Contributors: SF, the principal researcher, conceived and designed the study; conducted the interviews; collected, analysed, and interpreted the data; and drafted the article, and gave final approval for it. TH conceived and designed the study; analysed and interpreted the data; and helped draft the article critically revised it, and gave final approval for it. RJ contributed to the study design; analysed and interpreted the data; and helped draft the article, critically revised it, and gave final approval for it. SF, TH, and RJ will act as guarantors for the paper.

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Database study of antibiotic resistant tuberculosis in the United Kingdom, 1994-6

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The global increase in tuberculosis which has occurred in the 1980s and 1990s, and the associated re-emergence of resistance to antituberculous drugs, has focused attention on recent trends in resistance in Europe and the United States.[1–3] In the United Kingdom overall drug resistance levels have been low.[4] A surveillance system, the UK Mycobacterial Resistance Network (MYCOBNET), was established in 1994 by the Public Health Laboratory Service to record drug resistance in laboratory isolates of tuberculosis. We used data from this network to examine resistance among people with newly diagnosed tuberculosis.

Subjects, methods, and results

We analysed the data on initial isolates of *Mycobacterium tuberculosis* complex referred to United Kingdom reference laboratories[5] during 1994 to 1996. Initial isolates were defined as the first positive culture from a person from whom no positive culture had been recorded during the past 12 months. Since *M bovis* isolates are intrinsically resistant to pyrazinamide these were excluded from estimates of pyrazinamide resistance.

We calculated the resistance to each first line antibiotic and multidrug resistance (resistance to isoniazid and rifampicin with or without resistance to other antituberculous drugs) together with 95% confidence intervals. The incidence was assumed to follow the Poisson distribution. A χ^2 test for trend was used to investigate changes in isoniazid and multidrug resistance over time.

Of 10 142 isolates recorded for 1994-6, 599 (5.9%; 95% confidence interval 5.5% to 6.4%) were resistant to isoniazid, 174 (1.7%; 1.5% to 2.0%) to rifampicin, 90/7494 (1.2%; 1.0% to 1.5%) to pyrazinamide; and 71 (0.7%; 0.6% to 0.9%) to ethambutol; 152 (1.5%; 1.3% to 1.8%) showed multidrug resistance.

The number and proportion of isolates resistant to isoniazid or with multidrug resistance increased from 1994 to 1996 (table). However, these increases were not significant ($\chi^2=0.797$, df $=1$, $P=0.372$ for isoniazid resistance; $\chi^2=1.253$, df $=1$, $P=0.263$ for multidrug resistance). People aged 15 to 44 had the highest percentage of initial isolates with isoniazid resistance (8.1%) and multidrug resistance (2.0%) (table). A slightly higher percentage of males than females showed isoniazid resistance (6.2% *v* 5.6%) and multidrug resistance (1.8% *v* 1.2%).

In all, 568 (5.6%) patients had a known history of tuberculosis. These patients had a higher percentage of

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Isoniazid and multidrug resistance in isolates from patients with newly diagnosed tuberculosis in United Kingdom, 1994-6

		Isoniazid resistant		Multidrug resistant	
	All isolates	No (%)	95% CI	No (%)	95% CI
All 1994-6	10 142	599 (5.9)	5.5 to 6.4	152 (1.5)	1.3 to 1.8
Year:					
1994	3 253	181 (5.6)	4.8 to 6.4	43 (1.3)	1.0 to 1.8
1995	3 254	197 (6.1)	5.3 to 7.0	49 (1.5)	1.1 to 2.0
1996	3 635	221 (6.1)	5.3 to 6.9	60 (1.7)	1.3 to 2.1
Age (years):					
0-14	185	8 (4.3)	2.2 to 8.6	2 (1.1)	0.3 to 4.3
15-44	4 792	389 (8.1)	7.3 to 9.0	95 (2.0)	1.6 to 2.4
45-64	2 224	119 (5.4)	4.5 to 6.4	33 (1.5)	1.1 to 2.1
⩾65	2 492	58 (2.3)	1.8 to 3.0	17 (0.7)	0.4 to 1.1
Unknown	449	25 (5.6)	3.8 to 8.2	5 (1.1)	0.5 to 2.7
Sex:					
Male	5 780	361 (6.2)	5.6 to 6.9	105 (1.8)	1.5 to 2.2
Female	3 983	224 (5.6)	4.9 to 6.4	46 (1.2)	0.9 to 1.5
Sex unknown	379	14 (3.7)	2.2 to 6.2	1 (0.3)	0.0 to 1.9
History of tuberculosis:					
Previous tuberculosis	568	107 (18.8)	14.8 to 21.6	64 (11.3)	8.4 to 13.7
No known previous tuberculosis	9 574	492 (5.1)	4.7 to 5.6	88 (0.9)	0.7 to 1.1
Country in which diagnosed:					
England	8 731	546 (6.3)	5.8 to 6.8	140 (1.6)	1.4 to 1.9
Northern Ireland	170	6 (3.5)	1.6 to 7.9	1 (0.6)	0.1 to 4.2
Scotland	930	33 (3.5)	2.5 to 5.0	8 (0.9)	0.4 to 1.7
Wales	311	14 (4.5)	2.7 to 7.6	3 (1.0)	0.3 to 3.0
Place of diagnosis:					
London	3 731	299 (8.0)	7.2 to 9.0	85 (2.3)	1.8 to 2.8
Outside London	6 411	300 (4.7)	4.2 to 5.2	67 (1.0)	0.8 to 1.3
HIV infection:					
Positive	460	62 (13.5)	10.5 to 17.3	28 (6.1)	4.2 to 8.8
Negative or unknown	9 682	537 (5.5)	5.1 to 6.0	124 (1.3)	1.1 to 1.5

isoniazid resistance (18.8% *v* 5.1%) and higher percentage of multidrug resistance (11.3% *v* 0.9%) than those with no known history (table).

Resistance was higher among patients resident in England than in the rest of the United Kingdom (6.2% *v* 3.8% for isoniazid resistance, and 1.6% *v* 0.9% for multidrug resistance). Furthermore, patients diagnosed in London were more likely to have isolates resistant to isoniazid (8.0% *v* 4.7%) or multidrug resistant (2.3% *v* 1.0%) than those diagnosed outside London.

Resistance to isoniazid and multidrug resistance were observed among 13.5% and 6.1% respectively of the 460 patients known to be infected with HIV compared with 5.5% and 1.3% among the combined group of six HIV negative and 9676 patients whose HIV status was unknown.

Comment

This preliminary analysis of resistance in laboratory isolates establishes the importance of drug resistance in the United Kingdom and the need for continuing surveillance. Although overall resistance is low and the small increase was not significant, resistance remains a concern and should be considered in all newly detected cases. Action to prevent the emergence of new resistance by the supervision and completion of treatment and to stop the spread of established resistance is essential.

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Contributors: CI performed the main analysis and wrote the paper. JH coordinated data collection and collation and participated in data analysis and writing the paper. DB designed the surveillance system and managed its establishment. CG participated in data analysis. FD, RW, EGS, JGM, BW, and MC managed all laboratory investigations and coordinated management of the surveillance system. JMW coordinated management of the surveillance system, contributed to the design and writing the paper, and is the study guarantor.

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Correction

Preventing fatal diseases increases healthcare costs: cause elimination life table approach

An error occurred in this paper by Luc Bonneux and colleagues (volume 316, pp 26-9). In the table, allocated costs should have been in £1m units rather than £1000 units. The heading of the third column should have read: "All allocated costs (£1m [not £1000]; 1988)."