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General practitioners facing dementia: are they fully prepared?

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Abstract We assessed knowledge about Alzheimer's disease (AD) in a sample of Italian general practitioners (GPs). We first carried out a propedeutic study to verify the ability of an Italian version of the University of Alabama at Birmingham's AD Knowledge Test for Health Professionals to distinguish between 20 AD specialists and 20 non-specialists and to gain reference values. We then administered the test, together with a short questionnaire, to 139 GPs attending an educational programme in November 2000. The cut-off score for discriminating specialists from non-specialists was ≥9. Among the 95 GPs who performed the AD Knowledge Test (68.3% response rate), 21% had a total score ≥9. Our findings suggest that particular focus should be given to dementia in continuing medical education (CME) programmes for GPs.

Key words Alzheimer's disease • Dementia • Knowledge testing • Primary healthcare • Healthcare professionals

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Introduction

General practitioners (GPs) are crucial in screening patients for dementia, and they provide care for demented patients and their caregivers [1, 2]. In September 2000, the Italian Health Ministry launched the Progetto Cronos to monitor use of anticholinesterase inhibitors for the treatment of Alzheimer's disease (AD). The project acknowledged GPs as having a leading role in the management of AD [3]. The agreement between the Federazione Italiana dei Medici di Medicina Generale (representing about 50% of Italian GPs) and the Federazione Alzheimer Italia (a patients' association and the Italian representative of Alzheimer Disease International) states that, on average, each Italian GP cares for 15 people with dementia [4]. This statistic refers to the 6.4% prevalence of dementia among Italians aged over 65 years (calculated by the Italian Longitudinal Study on Aging [5]) and the approximated ratio of one GP for every 1000 citizens.

When the present study was carried out, there was a lack of recent information concerning how knowledgeable GPs or primary care physicians are about dementia [6–11]. The most recent study, from the U.S., showed limited knowledge of AD among primary care physicians [12]. We found no published information regarding the Italian setting. One study suggested that primary care physicians fail to recognise and manage patients affected by dementia according to available standards of care [13]. This study had the precise goal of assessing Italian GPs' knowledge about and their attitudes towards AD and related disorders, in order to provide indicators for educational and health policy planning.

Subjects and methods

First, we carried out a propedeutic study to evaluate whether the AD knowledge test for health professionals, developed at the University of Alabama at Birmingham (UAB) [12], differentiated specialists in

dementia from non-specialists in an Italian setting. This study was used to calculate the best differentiating cut-off point. We then conducted a survey in which a sample of GPs was asked to complete the UAB AD knowledge test and a questionnaire about their skills and attitudes towards AD management.

Propedeutic study

We selected, through personal contacts, two convenience samples of hospital doctors, matched for age, years since graduation and position. The specialists group consisted of 20 clinicians managing AD patients in routine hospital practice; in this group, 15 were specialised in neurology, 3 in psychiatry and 5 in geriatrics (3 clinicians had more than one specialisation). The non-specialists group comprised 20 physicians not concerned with dementia and with other specialties (4 in anesthesiology, 2 in otolaryngology, 2 in internal medicine, 4 in haematology, and 1 each in oncology, dermatology, orthopaedics, occupational medicine, cardiology, general surgery, paediatrics and endocrinology).

The UAB AD Knowledge Test is a questionnaire with proven psychometric features, including internal consistency, test-retest reliability, validity and responsiveness [12]. It contains 12 four-option multiple choice questions and covers five domains: assessment, clinical course, terminology, legal issues and patient management (Table 1). In addition to its psychometric properties, its brevity makes it suitable for this type of research. We translated and adapted into Italian the original test. Briefly, a professional translator with experience in scientific medical language translated the questionnaire. The Italian text was back translated into English by another professional translator and the equivalence between the original and the back-translated versions was checked by the two translators. The acceptability and clarity of the Italian version of the questionnaire was preliminarily discussed by the translators and two investigators (E.P. and F.A.), and a final version was drawn up. Both the final Italian version and the original UAB Test were given to the participants to acquaint them with the original test (it was supposed that physicians could read scientific English).

Each participant was required to complete the Italian version of the UAB Test on his own within 15 minutes. Anonymity was attentively preserved. Unanswered questions were scored as errors.

Main study

Participants were GPs voluntarily attending a one-day educational programme on dementia in November 2000, supported by the local public health authority (Azienda Unità Sanitaria Locale, AUSL). Of the 204 GPs invited to participate by the local representatives of several scientific societies and by the local Medical Council, 139 (68.1%) attended the educational programme.

The procedure for administering the test was the same as that used in the propedeutic study. Each participant complied a 15-item questionnaire and the Italian version of the UAB AD Knowledge Test immediately before the start of the educational programme. The questionnaire anonymously collected personal data: age, gender, years since graduation, specialisations and number of residents assigned for primary care ("list size"). Furthermore, the questionnaire assessed some features of the GPs' clinical approach to patients with possible or defined dementia by inquiring about their estimation of the importance of dementia as a health problem, their perceived capacity to diagnose and manage dementia, and their need for educational programmes.

Table 1 Items and correct responses (in italics) to the UAB Alzheimer's Disease Knowledge Test for Health Professionals. Incorrect options are in parentheses. (Adapted from [12])

1. *Age* is one of the risk factors for the development of Alzheimer's disease. (hardening of the arteries; nutritional deficits; exposure to aluminium)
2. *Pick's disease* is a potentially treatable dementia. (pernicious anemia; subdural hematoma; normal pressure hydrocephalus)
3. When a patient develops a sudden onset of confusion, disorientation, and inability to sustain attention, this presentation is most consistent with the diagnosis of *delirium*. (AD; major depression; Pick's disease)
4. *Protein electrophoresis* is not a necessary part of the initial evaluation of a patient with possible AD. (thyroid function tests; serum electrolytes; vitamin B and folate levels)
5. The cognitive deficits which is most likely to occur first in AD is *disorientation to date*. (disorientation to place; inability to recognise family member; inability to name common objects)
6. To make a definitive diagnosis of AD, *microscopic examination of CNS tissue* is required. (MRI; MMSE; CAT scan)
7. According to the National Institute of Neurological and Communicative Disorders and Stroke and to the Alzheimer's Disease and Related Disorders Association, the criteria for the clinical diagnosis of probable Alzheimer's disease do not include *focal neurological findings*. (onset as early as 40 years old; deficits in two or more areas of cognition; no disturbance of consciousness)
8. The clinical finding which best differentiates vascular dementia from AD is *stepwise disease course*. (world finding problems; short term visual memory loss; presence of depression)
9. Of the following causes of severe memory loss in people over age 65, the most common is *AD*. (senility; normal aging; hardening of the arteries)
10. Physical restraints with patients with AD *can contribute to the development of physical health problems*. (restraints are usually necessary for patient safety; reassure patients by establishing limits; tend to calm agitated patients)
11. To be legally binding, an Alzheimer's disease patient's informed consent must be *voluntary, informed, and competent*. (voluntary, competent, and witnessed by a physician; voluntary and informed; voluntary, informed, and witnessed by a physician)
12. When someone with AD begins to have frequent lip-smacking movements, one should suspect an adverse reaction from a *phenothiazine*. (barbiturate, benzodiazepine, anticholinergic drug)

Statistical analysis

Percentages were compared using the χ^2 test or Fischer's exact test, as appropriate. Continuous data were compared on a two-tailed unpaired *t* test. Bonferroni's correction was used as a check for multiple comparisons (to maintain the type I error at the selected value α, each of the *K* tests to be performed was judged against the significance level α/K). The relationship between specificity and sensitivity was illustrated using a receiver operator characteristic (ROC) curve in order to establish the best discriminating cut-off of the UAB AD Knowledge Test. Finally, an association between percentages of correct responses and GPs' characteristics was carried out using Spearman's rank correlation coefficient. The selected level of statistical significance of differences was α=0.05; all statistical tests were two-tailed.

Results

In the propedeutic study, mean score on the UAB AD Knowledge Test was 10.2 (SD=1.0) among specialists and 6.6 (SD=1.6) for non-specialists (p<0.0001). The best cut-off score for discriminating specialists from non-specialists was 9.

In the main study, of the 139 GPs attending the educational programme on dementia, 104 (74.8%) complied the questionnaire and 95 (68.3%) carried out the UAB AD knowledge test. Thirty-nine questionnaires (37.5%) were not completed on all items. The 95 participants who completed the UAB AD Knowledge Test did not significantly differ from the whole sample of 139 GPs (Table 2).

On the UAB AD Knowledge Test, 20 participants (21%) had a score of 9 or greater (Fig. 1). The difference in score between GPs (mean, 6.0; SD=2.6) and specialists investigated in the propedeutic study (mean, 10.2; SD=1.0) was significant (p<0.0001).

The percentages of correct responses for each item on the AD Knowledge Test are shown in Fig. 2 for both GPs and specialists. There were statistically significant differences between the two groups for half of the questions, i.e. items 3, 5, 6, 8, 11 and 12.

Spearman's rank correlation between percentage of correct responses and participant's age gave a coefficient ρ=0.11 (p=0.30; age was not available for 8 participants). Coefficient for years since graduation was 0.11 (p=0.31; 9 missing responses) and that for list size was 0.09 (p=0.40; 12

Table 2 Characteristics of GPs attending a 1-day course on dementia and responding to the Alzheimer's disease (AD) Knowledge Test for health professionals, from the University of Alabama at Birmingham [12]. Values are mean (SD) unless otherwise indicated. No difference between groups is significant

	All GPs invited at dementia programme (n=204)	AD knowledge test respondents (n=95)
Age, years	48.1 (6.4)	47.0 (4.7)[a]
Male, n (%)	169 (82.8)	74 (82.2)[b]
Time since graduation, years	20.6 (6.7)	20.0 (5.0)[c]
Patients followed, n	NA	1180 (395)[d]

NA, not available

[a] Data refer to 87 participants; [b] 90 participants; [c] 86 participants; [d] 83 participants

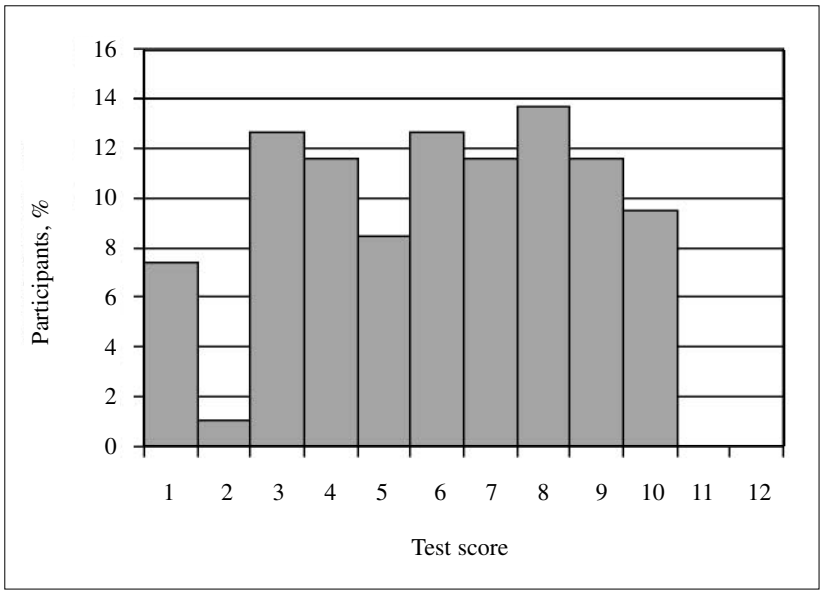

Fig. 1 Distribution of scores on the UAB AD Knowledge Test, for 95 Italian general practitioners. Possible scores range from 0 to 12

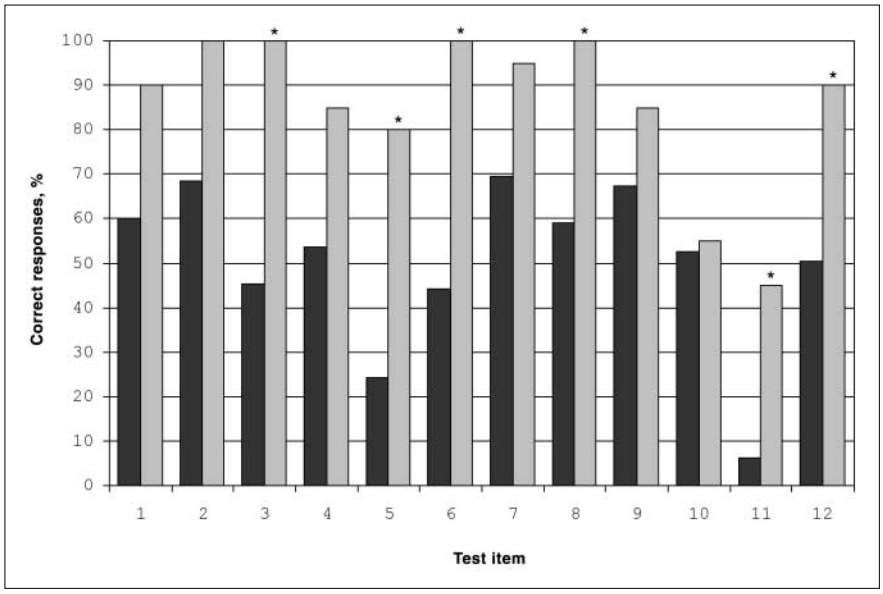

Fig. 2 Correct responses on the UAB AD Knowledge Test, by test item and study group. ■ General practitioners (n=95). ▨ Dementia specialists (n=20).
*$p<0.001$ for specialists vs. general practitioners

missing responses). Most respondents were men (Table 2). With the limitation of the unequal number in the comparison, no difference in test score between men and women was found ($p=0.45$).

On the questionnaire, 34 of 99 respondents (34%) maintained that dementia is not a severe health problem (5 participants did not respond). Approximately one-third of respondents did not feel capable of diagnosing (28 of 99) or managing (36 of 99) AD without consulting a specialist. Most respondents (89 of 96, 93%), however, considered educational programmes about dementia useful.

Discussion

The UAB AD Knowledge Test is a validated tool consisting of 12 items that are representative of specific features of dementia. Some limitations of this tool, also stated by the authors [12], must be pointed out. It is a brief screening test rather than a comprehensive test. It lacks items concerning AD-related topics because they are controversial areas which cannot reach a widespread consensus. In particular, the test fails to include elements concerning the management of comorbidities and issues related to family caregivers; these are topics of interest for GPs' practice but do not have widespread documented consensus. Finally, areas of knowledge concerning diagnosis are better represented than patient management and other topics. Thus the results should be interpreted bearing these limitations in mind. However, screening for dementia is considered a fundamental role for Italian GPs [2]. Thus, the UAB AD Knowledge Test was considered to be useful in evaluating gaps in the knowledge of AD among GPs, since they were expected to be more confident in managing than in diagnosing dementia.

Our study shows that, immediately after the launch of the Progetto Cronos by the Italian Health Ministry in September 2000, overall knowledge of dementia among this sample of Italian GPs was limited. Poor knowledge was found regarding the diagnosis of AD. This is testified by the result that 75.8% of GPs did not know that, in AD, disorientation to date is most likely to occur earlier than inability to recognise a family member, name common objects or orient one's self to place (item 5). Our findings seem to confirm the conclusion of other studies that dementia is often unrecognised in a primary care setting [12–15]. Only one recent Dutch study concluded that GPs are able to assess AD [16]. In a different study, however, the same group of researchers reported that GPs perceived diagnostic uncertainty during the early stages of dementia, causing diagnostic delay [17]. Comparisons of primary care settings of various countries would be of interest in identifying different training and clinical practice models and their efficiency in the diagnosis and management of dementia.

Knowledge regarding legal issues (item 11) and patient management (items 10 and 12, which more specifically concern behavioural disorders) was also shown to be poor. Similary, the 20 AD specialists who participated in the propedeutic study also frequently gave incorrect answers concerning management of behavioural disturbances and legal issues. Educational programmes targeting behavioural problems and legal and ethical issues may also be useful for specialists. The majority of these specialists, however, did not work in tertiary level dementia units.

The 68.3% response rate of this study should be sufficient to generalise our findings, especially since respondents did not differ significantly from the initial group of GPs regarding age, gender and years since graduation. It should be noted that the original paper on the UAB AD Knowledge Test reported that on the final mail survey, the generalists' response rate was only 34% [12].

The range of clinical conditions encountered in primary care is too vast for high levels of personal knowledge to be maintained in all these areas. There are two considerations to be made on this. First, an unequivocal decision should be taken regarding the need for dementia to be considered as one of the most important areas of care in general practice. Around one-third of participants maintained that dementia is not a severe health problem. It seems that the generation of physicians now at work has been caught off-guard by the data, acquired during this last decade, illustrating the dramatic epidemiological impact of dementia in the ageing of the human population and the changes in the concept of dementia as an inevitable consequence of ageing [18]. Second, it may be more important for GPs to be able to access information when required, rather than to try to remain updated on this topic. Access to information can be properly provided through the availability of adequate contacts with a panel of health professionals with experience in dementia. GPs, empowered with dementia knowledge skills, could fulfil their role better as "case managers". In turn, GPs could more effectively disseminate information about dementia to other health professionals (e.g. clinicians, nurses, psychologists, social workers) who are part of an integrated process of dementia care. GPs could also be empowered to improve their communication skills with patients and their relatives. This seems to be a crucial issue in Italy, since a recent survey showed that caregivers consider it useful that their GPs are a source of information about dementia, while it was observed that GPs were only sources of information for 7.2% of relatives of patients with dementia [19].

Results from the questionnaire show that GPs in our study perceived themselves to have adequate knowledge about a topic in which their objectively measured knowledge base was slight. These facts raise the question of how to organise further educational programmes and enhance physicians' cultural attitudes towards the assessment of their knowledge and the lack of confidence they may have in their self-perceived educational needs [20].

Age, gender, years since graduation and list size did not correlate with the performance on the UAB AD Knowledge Test. This was somewhat unexpected because some of us thought that younger physicians would be more confident about dementia, since they have fresher training and since more emphasis has been placed on AD in the last decade. This fact should be interpreted with caution, but one may suppose that even recent university and post-graduate training may not have sufficiently emphasized dementia, even if it is a global public health problem. To this concern, the Edinburgh declaration [21] outlined that medical education should be reformed on the basis of national health priorities; this concept was more recently stressed by the World Health Organization [22]. Meanwhile, several educational programmes have been promoted [4, 23]. The overall efficacy of these educational programmes might be assessed by re-testing the sample studied and comparing the data with the results of the present study.

Since early diagnosis is possible only through action by GPs, the results of this survey suggest that this an area in which educational intervention should focus on particularly.

We believe that continuing medical education (CME) programmes on dementia are necessary for both specialists and GPs, and their attitudes towards participation should be improved. Of course, such CME programmes should be tailored to the specific roles of GPs and specialists. In light of the dramatic epidemiological data concerning dementia, and in spite of the strenuous effort and high costs required to train health professionals to become more confident in dealing with dementia, such training could lead to a final positive breakthrough in the effectiveness of healthcare management.

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Sommario *L'obiettivo dello studio era valutare la conoscenza della malattia di Alzheimer (AD) tra i medici di medicina generale. Lo studio è stato condotto somministrando la versione italiana di un test validato (*University of Alabama at Birmingham's AD Knowledge Test for Health Professionals*). Uno studio propedeutico in 20 specialisti "esperti" in AD ed in 20 medici ospedalieri con altre specializzazioni ha permesso di verificare l'applicabilità del test in Italia ed ottenere dei valori di riferimento. Il test è stato somministrato nel Novembre 2000 a 139 medici di medicina generale, appartenenti ad una Unità Sanitaria Locale e partecipanti ad un programma formativo. Il 21% dei medici di medicina generale partecipanti ha riportato un punteggio ≥9 al test, cioè uguale o superiore al miglior* cut-off *del test in grado di discriminare gli "esperti" dai "non esperti". I risultati hanno evidenziato una conoscenza limitata della AD e ciò suggerisce la necessità di adeguati programmi di educazione medica continua.*

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