Scandinavian Journal of Primary Health Care

ISSN: 0281-3432 (Print) 1502-7724 (Online) Journal homepage: https://www.tandfonline.com/loi/ipri20

Identification and diagnostic evaluation of possible dementia in general practice

A prospective study

Frans Boch Waldorff, Susanne Rishøj & Gunhild Waldemar

To cite this article: Frans Boch Waldorff, Susanne Rishøj & Gunhild Waldemar (2005) Identification and diagnostic evaluation of possible dementia in general practice, Scandinavian Journal of Primary Health Care, 23:4, 221-226, DOI: 10.1080/02813430510031324

To link to this article: https://doi.org/10.1080/02813430510031324

Published online: 12 Jul 2009.

Scandinavian Journal of Primary Health Care, 2005; 23: 221–226

Taylor & Francis
Taylor & Francis Group

ORIGINAL ARTICLE

Identification and diagnostic evaluation of possible dementia in general practice

A prospective study

FRANS BOCH WALDORFF[1,2], SUSANNE RISHØJ[2] & GUNHILD WALDEMAR[2]

[1]*Research Unit and Department of General Practice, Institute of Public Health, University of Copenhagen, Denmark, and* [2]*Memory Disorders Research Unit, The Neuroscience Centre, Rigshospitalet, Copenhagen University Hospital, Denmark*

Abstract

Objective. To investigate the rate of diagnostic evaluation of dementia for patients in whom a suspicion of dementia was raised, and to investigate reasons why a diagnostic evaluation was not always being performed. *Design*. A prospective study among elderly patients aged 65+, and a follow-up study. *Setting*. In all, 17 general practices in Copenhagen with 40 865 patients on their lists of whom 2934 were aged 65+. *Subjects*. A total of 793 patients consulting their GP regardless of reason of encounter, in October and November 2002. *Main outcome measures*. MMSE score $\leq$23, GP clinical impression of dementia, laboratory-screening tests prescribed by the GPs and referral status after 6 months, and follow-up questionnaire. *Results*. Of 793 patients a total of 138 patients were identified with possible dementia. Among the identified patients 26 (20%) were referred for further evaluation within 6 months, and 4 (3%) were treated for depression or referred for another condition. A total of 6 patients were lost to follow up. In the remaining 102 undiagnosed patients the main reasons for not performing a diagnostic evaluation of dementia were patient/relative hesitation (34%), the GP thought that it would not have any consequences for the patient, or the GP estimated that the patient was too fragile (21%). *Conclusion*. In 17% of elderly patients in general practice a suspicion of dementia could be raised based on the clinical impression of the GP or MMSE score. However, only 23% of this group were evaluated by their GP or referred to a memory clinic within a subsequent period of 6 months.

Key Words: *Dementia, diagnosis, general practice, quality of healthcare*

Dementia is common in the elderly, afflicting up to 7.5% of those above 65 years of age [1]. Identification and diagnostic evaluation of dementia is important in order to (1) identify potentially reversible causes of cognitive deficits, (2) classify the cause of dementia in order to initiate specific treatment, and (3) provide goal-oriented support to the patient and caregivers [2,3]. The GP is in a unique position to identify dementia [4] and is expected to conduct the initial diagnostic evaluation [2,3,5]. However, previous surveys have indicated that a substantial fraction of patients with cognitive symptoms are not diagnosed by GPs [6] and that diagnostic evaluation in general practice is difficult [7,8].

In this prospective GP study we aimed to investigate the rate of diagnostic evaluation of dementia for patients in whom a suspicion of dementia was

Diagnostic evaluation of dementia is important in order to optimize treatment and provide goal-oriented support to patients and caregivers.

- Few patients (23%) suspected with dementia in general practice were actually evaluated by their GP or referred to memory clinics after a period of 6 months.
- Barriers for diagnostic evaluation of dementia exist among patients, caregivers, and GPs.

Correspondence: Frans Boch Waldorff, Research Unit for General Practice, Øster Farimagsgade 5, P.O. box 2099, DK-1014 Copenhagen K, Denmark. E-mail: fbw@gpract.ku.dk

(Received 1 November 2004; accepted 19 April 2005)

ISSN 0281-3432 print/ISSN 1502-7724 online
DOI: 10.1080/02813430510031324

raised. Furthermore, in a retrospective survey we aimed to investigate reasons why a diagnostic evaluation was not always being performed, by asking the GPs.

Material and methods

Subjects

All 17 practices with 24 GPs in the central district of the municipality of Copenhagen, Denmark, participated in this study. A total of 40 865 patients were listed and 2934 were 65+ years of age.

Patients aged 65+ consulting their GP, regardless of reason for the encounter, were asked to participate in the study. Patients not able to speak or read Danish, patients not able to sign informed consent, and patients with severe acute or terminal illness and patients already diagnosed with dementia were excluded (Figure 1). Patients were included in October and November 2002 and were followed up until 1 June 2003. Each practice kept a log of all visits and consultations. All patients gave informed written consent for participation in the study. In conjunction with the planned patient consultation, the GP completed a baseline questionnaire, and a Mini Mental Status Examination (MMSE) was performed. The collection of data was monitored on a weekly basis by site visits from a study nurse.

At the initiation of the study all GPs and their staff participated in a 3-hour seminar, where they were trained in the principles for diagnostic evaluation of dementia and in administration and interpretation of the MMSE score. The GPs received an honorarium (€133) for participating in the seminar.

Definition of patients with possible dementia

Possible dementia was defined as: GP-estimated dementia (based on the reply to an item in the baseline questionnaire) and/or an MMSE score ≤ 23 [2]. All patients with possible dementia were followed by registry data (laboratory screening tests and hospital referrals) for 6 months.

Mini Mental Status Examination (MMSE)

The MMSE, a widely distributed test recommended in GP guidelines as a cognitive screening test [3,5], was completed *after* the completion of the baseline questionnaire. For each completed MMSE the GP received an honorarium of €47 as part of an agreement with the municipality of Copenhagen.

Diagnostic evaluation of dementia

If indicated, the GP had the possibility to perform a preliminary diagnostic evaluation of dementia, which would include laboratory screening tests, and to refer to a memory clinic for further diagnostic work-up. However, the diagnostic evaluation of dementia was not part of the research protocol and no specific guidelines were applied for the decision to perform further investigations, a decision that was based on the clinical judgement of the individual GP. The GPs were not informed of our plans to prospectively register the number of diagnostic evaluations until after the end of the study.

Information regarding GPs and practices was provided from the National Health Register [9]. We obtained data on laboratory tests using routine data from the municipality of Copenhagen 2 months before the start of the inclusion period and 6 months after the end of the inclusion period and data on referral status from the local memory clinic 6 months after the end of the inclusion period. Laboratory screening for dementia in general practice was defined as the combination of the following tests: haematology, biochemistry, thyroid stimulating hormone (TSH) and Vitamin B_{12} [8].

Baseline questionnaire

The questionnaire, which dealt with issues relating to the GP's clinical impression of dementia (see Table II), was developed together with two of the GPs and tested in a pilot survey. It was completed by the GP *before* administrating the MMSE test.

Follow up questionnaire

We mailed a brief questionnaire to the GP for each patient in whom no laboratory screening tests had been performed and who had not been referred to the memory clinic within 6 months after the inclusion period. The items in the questionnaire were defined and selected based on a previously reported group interview with GPs [10].

The GP was reminded that this patient had possible dementia according to his or her previous evaluation or according to the MMSE score performed 6 months earlier. The GP was then asked whether he or she made the decision to perform a diagnostic evaluation of dementia, and why a diagnostic evaluation had not been performed if relevant. The GP was asked to tick either "yes" or "no" for the following items:

1. Yes, I did offer further diagnostic evaluation, but did not refer:
   - The patient did not want further evaluation.
   - The relative(s) did not want further evaluation.
   - Other, specify.
2. No, I did not offer further diagnostic evaluation because:
   - I thought that the patient was too old.
   - I thought that it would not have any consequences for the patient.
   - I thought that the patient was too fragile.
   - I have bad experiences with referral of my patients.
   - Other, specify.

Statistics

Since observations within the same practice were observed to be correlated (cluster effect) the probabilities and corresponding 95% confidence intervals were estimated based on logistic regression analysis using with the GEE methods. We conducted a non-participant as well as a 6-month diagnostic evaluation status analysis using a logistic regression model with backward elimination and a significant level of 5% to stay in model.

Ethics

The Scientific Ethical Committee for Copenhagen and Frederiksberg Municipalities evaluated the project. The Danish Data Protection Agency and the DSAM Multipractice Study Committee approved the project.

Table I. Characteristics of participants and non-participants (n = 1080).

	Participants (n = 793)	Non-participants (n = 287)
Mean age in years[1], n = 1080 (SD)	75.1 (7.0)	75.3 (7.1)
Proportion of female[1], n = 1080	62%	69%*
Living in nursing home[2]	2.3%	5.2%**
Average GP–patient relationship in years[1], n = 1001 (SD)	10.9 (7.7)	10.6 (7.4)

[1]Based on data from questionnaires. [2]Based on data obtained from public databases. *Odds ratio 1.3 (1.1;1.6). **Odds ratio 4.7 (3.2;6.7).

Results

A total of 1180 patients 65+ years of age were screened for eligibility in the study period and 100 were excluded from the study (Figure 1). Of the eligible patients, 73% (793) with a mean age of 75.1 years accepted to participate in the study (Table I). Of the 793 patients, a total of 138 patients (17.4%) were identified with possible dementia based on: An MMSE score ≤23 (24/138), the baseline GP questionnaire (81/138), or a combination of both (33/138). The mean MMSE score of the identified patients with possible dementia was 24.6 (SD 4.7).

In the 138 identified patients 26 (20%) were referred by their GP for further diagnostic evaluation of dementia in the subsequent 6-month follow-up period. In the laboratory registries, we did not identify the recommended laboratory-screening tests in any of the remaining patients. Thus, in a total of 112 patients no diagnostic evaluation of dementia had been identified despite the fact that a suspicion

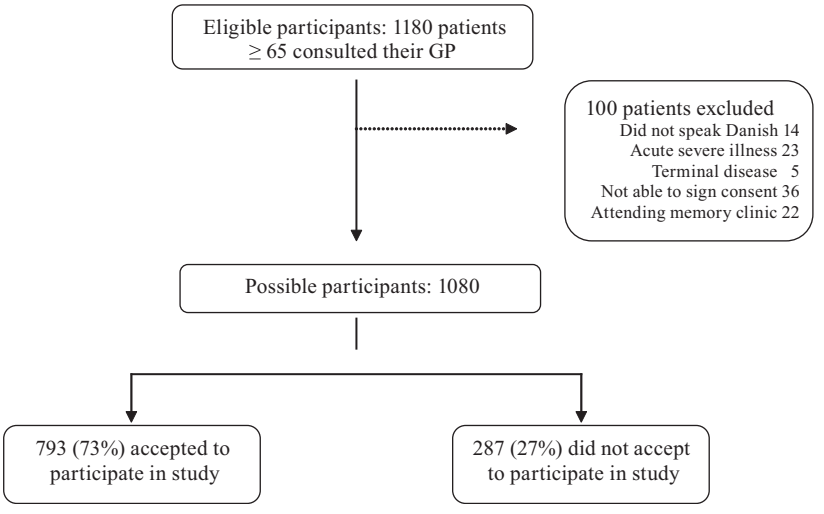

Figure 1. Flow chart of the study.

of dementia had been raised. We received additional information from the GPs in the follow-up questionnaire for 106 of the 112 patients. Based on the responses in the questionnaires we identified an additional four patients with relevant actions initiated by the GP: three patients had depression and one was referred to another relevant department, leaving 102 patients with possible dementia and no diagnostic evaluation or referral. Characteristics of the patients with possible dementia and their diagnostic evaluation status after 6 months are listed in Table II.

None of the 15 patients with possible dementia living in nursing homes was evaluated or referred. A subsequent analysis without nursing home residents revealed that the only significant predictor for a diagnostic evaluation to be performed was proxy information about memory problems (odds ratio 3.9), whereas age, sex, GP–patient relation in years, GP estimation of dementia, patient complains, and MMSE score not seemed to be influential.

The main reasons stated by the GPs for not having conducted a basic diagnostic evaluation or for not referring patients were: (1) the patient and/or relatives did not want further evaluation (34%), (2) the GP thought that a diagnosis would have no consequences or that the patient was too fragile (21%). Table III summarizes the results in more detail (n = 102).

Table II. Characteristics of patients with possible dementia and their diagnostic evaluation status after 6 months (n = 132).

	Evaluated n = 30	Not evaluated n = 102
Mean age in years[1], n = 132 (SD)	79.4 (7.0)	80.1 (8.2)
Proportion of female[1], n = 132 (%)	67	61
Average duration of GP–patient relationship in years[1], n = 123 (SD)	9.7 (7.5)	11.6 (8.2)
Nursing home dwellers[2]	0	15
Patient complained to GP about memory problems[1], n = 128 (%)	12 (40)	20 (20)
Proxy informed GP about memory problems[1], n = 129 (%)	10 (33)*	14 (14)
GP clinical impression of dementia[1], n = 129 (%)		
Moderate/severe dementia	10 (38)	24 (24)
Mild dementia	15 (46)	62 (62)
No cognitive decline	5 (15)	12 (12)
Not able to state	–	1 (1)
MMSE score, n = 125 (%)		
0–23	12 (41)	35 (36)
24–27	9 (31)	28 (29)
28–30	8 (28)	33 (33)

[1]Based on data from questionnaires. [2]Based on data obtained from public databases. *Odds ratio 3.9 (1.4;11.2). In this analysis patients living in nursing homes were excluded (n = 117).

Discussion

In 17% of elderly patients consulting their GP regardless of reason for encounter a suspicion of dementia could be verified based on the clinical assertion of the GP and/or a memory test (MMSE). However, despite the fact that a suspicion of dementia was raised, a diagnostic evaluation was not performed in the majority of patients, and none of the nursing home residents underwent diagnostic evaluation.

This study was planned to prospectively include all patients aged 65+ consulting their GP regardless of encounter. Although the GPs kept logbooks and received site visits from a study monitor, we cannot rule out the possibility that some patients qualified to participate in our study might have not been invited. However, as many as one-third of the total number of listed elderly patients in the 17 practices were invited to participate within the two-month inclusion period. The study prompted the GP to consider dementia at every consultation. Therefore the GPs may have been more focused on dementia than in the routine GP setting and may have over-diagnosed possible dementia. However, the clinical impression of possible dementia was supported by an MMSE score ≤ 23 in 43% (57/138).

Table III. GP statements concerning patients with possible dementia in whom no subsequent diagnostic evaluation was performed within 6 months after consultation (n = 102).

	Number of patients (%)
The patient or their relatives did not want further evaluation	35 (34)
I thought that the patient was too old	1 (1)
I thought that it would not have any consequences or that the patient was too fragile	21 (21)
I have had bad experiences with referral of my patients	0
Other, specify	
Problems in the interpretation of the MMSE–score	15 (15)
Living in nursing home	14 (14)
Still considering referral	3 (3)
Other reasons	13 (13)

Studies have reported that many GPs have low expectations about what general practice can offer to patients with dementia [7,11–13]. GPs may feel uncertainty about the diagnosis during the early stages, or even embarrassment about conducting a cognitive examination [14], and this could be a possible explanation for the low rate of diagnostic evaluation in general practice [6] and the observed low referral rate to outpatient clinics in our study [15].

The GPs stated that as many as one-third of the lacking diagnostic evaluations were due to patient or relative hesitation. Patient or relative hesitation concerning a diagnosis of dementia has previously been reported as a challenge by GPs [16] but not to the same extent as in our study. It is difficult to establish the exact reason for patient or relative hesitation, because the design did not allow us to verify or explore this aspect further by interviewing patients or relatives. It is a limitation of our study that the reported results are entirely based on the perception of the GPs. It is possible that the patient/relative's perception was different from that stated by the GP.

None of the nursing home dwellers with suspected dementia had a diagnostic evaluation and in 14 out of the 15 nursing home dwellers their living status was stated by the GPs as the main reason for not conducting a diagnostic evaluation. As patients with a verified diagnosis of dementia were excluded from our study, we believe that this result indicates a quality problem for general practice. GPs should draw more attention to diagnostic evaluation of nursing home dwellers, and the living status should not in and of itself represent a limiting factor for a diagnostic evaluation.

The study revealed that GPs in general did not consider age as a barrier for a diagnostic evaluation, but do take the overall clinical situation – e.g. the fragility of the patient – into consideration. It is important to stress that a diagnostic evaluation should always be considered in patients with possible dementia, although the extent of the diagnostic evaluation may be individualized. Our study indicated that information about memory problems from a proxy seemed to be a strong predictor for a diagnostic evaluation, whereas the GP's own clinical impression of dementia was not. Thus, a future strategy to improve the proportion of patients with possible dementia undergoing diagnostic evaluation could be to include input from a proxy as well as the GP.

Diagnostic criteria are not systematically implemented in general practice in Denmark, and we wanted our study to reflect current standards. We cannot rule out the possibility that some of the patients not identified with possible dementia in fact would have dementia according to current diagnostic criteria.

A higher proportion of the non-participants were females or living in nursing homes. This may introduce a bias, because patients living in nursing homes are more fragile and more often suffer from dementia than patients living at home. It may have been difficult for the GP to register the participant and complete the questionnaires in the nursing home, compared with in-surgery consultations, where staff were available. We do not have any explanation for the slightly higher proportion of females among the non-participants. In 15 cases diagnostic evaluation of the patient was not performed owing to problems with the interpretation of the MMSE score. This illustrates the need for further education and training in diagnostic evaluation of dementia.

Based on our findings, we conclude that there are several barriers for diagnostic evaluation in patients and their caregivers as well as among GPs. Our study shows that GPs frequently see patients in whom dementia might be suspected and diagnostic evaluation should be offered to a majority of these patients. Diagnostic criteria should be introduced and implemented in general practice and there is a need for more systematic training of GPs in the identification and diagnostic evaluation of dementia.

Acknowledgements

The authors wish to thank the participating GPs and their staff. Funding was received from the Danish Alzheimer Foundation, the Health Insurance Fund, the General Practitioners' Foundation for Education and Developments, the Quality Development Foundation for General Practice in Copenhagen Municipality and the Copenhagen Municipality. Pfizer Ltd and Lundbeck Ltd supported the study with unrestricted grants.

References

[1] Lobo A, Launer LJ, Fratiglioni L, Andersen K, Di Carlo A, Breteler MM, et al. Prevalence of dementia and major subtypes in Europe: A collaborative study of population-based cohorts. Neurologic Diseases in the Elderly Research Group. Neurology 2000;54(Suppl. 5):S4–9.

[2] Cummings JL, Frank JC, Cherry D, Kohatsu ND, Kemp B, Hewett L, et al. Guidelines for managing Alzheimer's disease, Part I: Assessment. Am Fam Physician 2002;65: 2263–72.

[3] Eccles M, Clarke J, Livingstone M, Freemantle N, Mason J. North of England evidence based guidelines development project: guideline for the primary care management of dementia. BMJ 1998;317:802–8.

[4] Olafsdottir M, Marcusson J. [The role of the general practitioner seen from a perspective of family medicine. Competence about dementia should be developed]. Lakartidningen 1997;94:957–60.

[5] Rubak J, Bro F, Dinesen O, Rytter L, Vass M, Bisgaard A. Klinisk vejledning – Identifikation og udredning af demens og demenslignende tilstande i almen praksis (Clinical Practice Guideline – Identification and diagnostic evaluation of dementia and dementia-like conditions in general practice). Dansk selskab for Almen Medicin/Tidsskrift for Praktisk Lægegerning 1999.

[6] O'Connor DW, Fertig A, Grande MJ, Hyde JB, Perry JR, Roland MO, et al. Dementia in general practice: The practical consequences of a more positive approach to diagnosis. Br J Gen Pract 1993;43:185–8.

[7] Renshaw J, Scurfield P, Cloke L, Orrell M. General practitioners' views on the early diagnosis of dementia. Br J Gen Pract 2001;51:37–8.

[8] Waldorff FB, Almind G, Makela M, Moller S, Waldemar G. Implementation of a clinical dementia guideline: A controlled study on the effect of a multifaceted strategy. Scand J Prim Health Care 2003;21:142–7.

[9] Olivarius NF, Hollnagel H, Krasnik A, Pedersen PA, Thorsen H. The Danish National Health Service Register: A tool for primary health care research. Dan Med Bull 1997; 44:449–53.

[10] Waldorff FB, Bulow LB, Malterud K, Waldemar G. Management of dementia in primary health care: The experiences of collaboration between the GP and the district nurse. Fam Pract 2001;18:549–52.

[11] Boise L, Camicioli R, Morgan DL, Rose JH, Congleton L. Diagnosing dementia: Perspectives of primary care physicians. Gerontologist 1999;39:457–64.

[12] De Lepeleire J, Heyrman J. Diagnosis and management of dementia in primary care at an early stage: The need for a new concept and an adapted procedure. Theor Med Bioeth 1999;20:215–28.

[13] Olafsdottir M, Foldevi M, Marcusson J. Dementia in primary care: Why the low detection rate? Scand J Prim Health Care 2001;19:194–8.

[14] van Hout H, Vernooij-Dassen M, Bakker K, Blom M, Grol R. General practitioners on dementia: Tasks, practices and obstacles. Patient Educ Couns 2000;39:219–25.

[15] De Lepeleire J, Aertgeerts B, Umbach I, Pattyn P, Tamsin F, Nestor L, et al. The diagnostic value of IADL evaluation in the detection of dementia in general practice. Aging Ment Health 2004;8:52–7.

[16] van Hout H, Vernooij-Dassen M, Poels P, Hoefnagels W, Grol R. Applicability of diagnostic recommendations on dementia in family practice. Int J Qual Health Care 2001;13: 127–33.