Frequency and diagnostic utility of cognitive test instrument use by GPs prior to memory clinic referral

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Background. Previous studies have indicated not only that cases of dementia are missed in primary care but also that many non-demented patients are referred for evaluation to secondary care.

Objectives. To measure frequency of cognitive test instrument use in primary care prior to patient referral to secondary care and to assess the relationship between instrument use and ultimate diagnosis.

Methods. This was a prospective study conducted in a Cognitive Function Clinic, Regional Neuroscience Centre setting. The referral letters for all patients seen in the clinic over a 2-year period (n = 231) were examined for mention of cognitive test instrument use. Patients were evaluated by standard clinical, neuropsychological and neuroimaging methods and diagnoses were made according to widely accepted diagnostic criteria for dementia and dementia subtype. Primary care cognitive test use and final diagnosis were then compared.

Results. Evidence of cognitive test use in primary care was found in 20% of referrals. Patients evaluated with cognitive test instruments in primary care were more likely to receive a diagnosis of dementia, whereas those not tested were more likely to receive a diagnosis of ‘not demented’.

Conclusions. Use of simple cognitive test instruments in primary care may improve dementia diagnosis and reduce the rate of referral of non-demented patients.

Keywords. Dementia, diagnosis, primary care.

Introduction

Dementia was recently included for the first time in the Quality and Outcomes Framework (QOF) of the GP contract in the UK as one of the chronic conditions meriting special attention.\textsuperscript{1} Guidelines exist for the primary care management of dementia,\textsuperscript{2} and recent guidelines from the Scottish Intercollegiate Guideline Network have recommended that GPs have a more proactive approach to dementia management.\textsuperscript{3} However, an Audit Commission study in 2002 reported that less than half of GPs felt they had sufficient basic and post-qualification training in dementia.\textsuperscript{4} This may explain why previous studies have suggested that cases of dementia are missed in primary care.\textsuperscript{5} Furthermore, a recent 2-year audit from a dedicated memory disorders clinic in a Regional Neuroscience Centre found that only 40\% of patients referred by GPs had dementia, compared to 75\% and 58\% of referrals from neurologists and psychiatrists, respectively, suggesting a high referral rate of patients with memory complaints who were not demented from primary care.\textsuperscript{6}

How might the detection of dementia in primary care be improved? Although simple clinical observations may raise the clinical index of suspicion,\textsuperscript{7} the use of brief (bedside) neuropsychological test instruments to identify cognitive impairment may assist with diagnosis.\textsuperscript{2,8} A number of brief cognitive instruments are available, including the Mini-Mental State Examination (MMSE)\textsuperscript{9} and the Abbreviated Mental Test Score (AMTS),\textsuperscript{10} and some have been specifically designed for use in primary care\textsuperscript{11} (e.g. 6-Item Cognitive Impairment test,\textsuperscript{12} Memory Impairment Screen,\textsuperscript{13} Mini-Cog,\textsuperscript{14} GPCOG,\textsuperscript{15} Memory Alteration Test\textsuperscript{16}).
A prospective observational study was undertaken to ascertain the cognitive instruments used by GPs prior to referral to a dedicated Cognitive Function Clinic (CFC) through examination of referral letters and to assess the relationship between instrument use and ultimate diagnosis in these referrals. The wide catchment area of the clinic, serving a large population of patients (>3 million) and GPs, precluded analysis of referrals from individual GPs.

Methods

All referral letters \((n = 231)\) to the CFC over a 2-year period (October 2004 to September 2006 inclusive) were examined for explicit information about the use of named cognitive test instruments for patient assessment prior to referral.

Patients were then assessed in the CFC and diagnoses made using standard clinical diagnostic criteria for dementia (DSM-IV) and dementia subtype, based on clinical interview, informant interview (where possible), bedside and formal neuropsychology testing and neuroimaging, as previously reported in this clinic.\(^{17}\)

Final diagnoses and instrument use were then compared, and the relative risk of dementia in GP versus non-GP referrals, and in GP referrals with and without evidence of cognitive test use prior to referral, was calculated.\(^{18}\) Standard statistical methods (chi-square, Z test) were used to see if group differences were significant.\(^{19}\)

Results

Over the 2-year period, 231 referrals were seen in the CFC, of whom 117 (51%) received a diagnosis of dementia.

Direct referrals from primary care numbered 123 (53%), of whom 45 were diagnosed with dementia by the CFC (37%). Of the 108 referrals from hospital practitioners (psychiatrist 55, neurologist 39, physician 11, neurosurgeon 3), 72 received a diagnosis of dementia (66%). Hence, the relative risk of a patient referred by a GP having a diagnosis of dementia was 0.55 [95% confidence interval (CI) = 0.42–0.72] and 1.82 (95% CI = 1.39–2.38) in a patient referred by a hospital practitioner. The null hypothesis that the proportion of patients with dementia was the same in the GP and hospital practitioner referral groups was tested using the chi-square test (chi-square = 20.8, d.f. = 1, \(P < 0.01\)), causing the null hypothesis to be rejected, a finding corroborated by the Z test \((Z = 4.57, P < 0.01)\).

Of the 45 patients referred by GPs whose final diagnosis was dementia, 14 (31%) had been administered a cognitive test, whereas of the 78 GP referrals without dementia, only 11 (14%) had been tested. Hence, the relative risks of cognitive test administration in GP-referred patients subsequently diagnosed with dementia or ‘no dementia’ were 2.21 (95% CI = 1.10–4.45) and 0.45 (95% CI = 0.22–0.91), respectively. The null hypothesis that the proportion tested in each group was not different was rejected (chi-square = 5.1, d.f. = 1, 0.02 < \(P < 0.05\); Z = 2.26, 0.02 < \(P < 0.05\)).

In the 123 GP referral letters, explicit mention was made of the use of a specific cognitive test instrument in 25 cases (=20%). These were the MMSE (17), AMTS (6), Clock drawing (1) and the ‘Kingshill’ test (6CIT; 1). It was apparent in some other instances that GPs had asked questions to test cognitive function (e.g. name the prime minister, remember a name and address) but did not mention use of a specific test instrument.

Of the 25 GP-referred patients administered a cognitive test instrument prior to referral, 14 (56%) had dementia, whereas of the 98 not administered a test, 31 (32%) had dementia. Hence, the relative risks of dementia in GP-referred patients who had or had not been administered a cognitive test instrument prior to referral were 1.77 (95% CI = 1.12–2.79) and 0.56 (95% CI = 0.36–0.88), respectively. The null hypothesis that the proportion with dementia in each group was not different was rejected (chi-square = 5.1, d.f. = 1, 0.02 < \(P < 0.05\); Z = 2.22, 0.02 < \(P < 0.05\)).

Discussion

Comparing this study with a previous non-overlapping cohort of patients seen in the same clinic,\(^6\) the percentage of GP referrals to the clinic (53% versus 49%, respectively), of GP referrals with dementia (37% versus 40%) and the relative risk of dementia in GP referrals (0.55 versus 0.69), were all similar, suggesting that these figures do reflect local practice.

From the information contained in GP referral letters, it appeared that only one-fifth of patients had been assessed with a specific neuropsychological test instrument prior to referral. While we acknowledge that absence of evidence does not necessarily equate with evidence of absence, nonetheless it would seem unusual for GPs not to mention specific quantitative cognitive tests which they had performed when referring patients to a dedicated clinic.

A double dissociation was observed between test use/non-use and the diagnosis of dementia/not dementia. Since cognitive test use was more commonly performed in patients who subsequently had a diagnosis of dementia, and demented patients were more likely to have been tested, we conclude that testing is helpful in identifying patients with dementia. This finding may indicate that dementia diagnosis is a linear process,
supporting the possibility that simple clinical tests provide incremental added value. Conversely, since testing was less commonly performed in patients who subsequently had a diagnosis of ‘not dementia’, and non-demented patients were less likely to have been tested, we conclude that some of the individuals whose final diagnosis was not dementia (78/123) might have been spared a referral if a cognitive test had been performed. Of course, this study was not designed to quantify the number of patients assessed in primary care, with or without cognitive testing, who were not subsequently referred.

Of the cognitive tests mentioned in GP referral letters, in most instances (23/25 = 92%) the instruments used date from more than 30 years ago. While these instruments may be regarded as having stood the test of time, and are recommended in some guidelines, this unfortunately does not mean that they are efficacious in identifying dementia in the primary care setting: reservations have been expressed, for example, about the MMSE. Newer, brief, cognitive case-finding tests designed specifically for use in primary care appear to have made little impact, at least in this catchment area, despite some being reported to improve dementia identification in primary care. Instruments with clear management guidelines according to test score and which require little training to use, such as the DemTect, might also be useful in this setting. Educational interventions such as decision support software and practice-based workshops may also improve rates of dementia detection.

The introduction of dementia in the QOF, and future revisions thereof, provides an opportunity for wider dissemination and use of validated cognitive assessment tools, a resource that may prove welcome in the primary care setting.

Declaration

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Ethical approval: None.

Conflicts of interest: None.

References