Functional cognitive disorders: memory clinic study

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‘Functional cognitive disorders’ (FCD) is a terminology suggested to denote patients who present with memory complaints but in whom no underlying cognitive disorder is found. Rather than a diagnosis of exclusion, FCD may be positively identified on the basis of typical symptom profiles. Dr Bharambe and Dr Larner examine their data from a dedicated memory clinic, in which historically >50% of patients have not received a diagnosis of either dementia or mild cognitive impairment. The frequency of FCD was examined, along with any factors helpful in diagnosis. FCD accounted for more than 50% of clinic attenders and the data also revealed other common aspects about the FCD patients.

Disorders of functional aetiology are well recognised in neurological practice, for example those manifesting clinically with seizures, movement disorders, or dizziness. Whereas previously these have often been diagnoses of exclusion, usually applied after extensive negative investigation, more recent approaches have advocated making a positive diagnosis of functional neurological disorder based on typical profiles of clinical features. This approach may also be applicable to cognitive disorders of functional aetiology.

Many individuals who present with a complaint of cognitive problems, with symptoms principally related to memory, are found to have no evidence for the presence of an underlying cognitive disorder to account for their symptoms following clinical, cognitive screening, neuroimaging, and formal neuropsychological assessment. For example, a report from 30 Alzheimer’s Centers in the USA reported that 50% of patients seen were diagnosed as having normal cognition. The exact nature of the problem(s) in these non-demented patients remain(s) unclear, but the grouping is probably heterogeneous, as reflected in the various diagnostic labels which have sometimes been applied, including ‘memory complainers’, ‘worried well’, subjective memory impairment, mild cognitive dysfunction, and functional memory disorder.

Recently Stone et al. proposed that positive diagnosis of ‘functional cognitive disorders’ (FCD), analogous to other functional neurological (eg movement, epilepsy) disorders, may be made based on typical symptom profiles, featuring in particular inconsistency or incongruence of symptoms. This positive approach contrasts with the diagnosis of exclusion, which has been the norm hitherto.

Data on the prevalence of newly defined or recently redefined disorders are difficult to obtain. One retrospective memory clinic database study diagnosed one third of patients presenting with cognitive complaints below the age of 60 years with FCD. Previous experience in our dedicated cognitive disorders clinic based in a secondary care (neurosciences centre) setting has shown that more than 50% of patients referred are not diagnosed with dementia or mild cognitive impairment and that this has been a consistent observation over a number of years (Table 1, Figure 1).

We undertook a study with the following objectives: firstly to measure the frequency with which a diagnosis of FCD was made in patients attending a dedicated

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>Any cognitive disorder/cognitive impairment (% of N)</th>
<th>No cognitive disorder/cognitive impairment (% of N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>249</td>
<td>106 (42.6)</td>
<td>143 (57.4)</td>
</tr>
<tr>
<td>2010</td>
<td>233</td>
<td>96 (41.2)</td>
<td>137 (58.8)</td>
</tr>
<tr>
<td>2011</td>
<td>227</td>
<td>92 (40.5)</td>
<td>135 (59.5)</td>
</tr>
<tr>
<td>2012</td>
<td>245</td>
<td>107 (43.7)</td>
<td>138 (56.3)</td>
</tr>
<tr>
<td>2013</td>
<td>323</td>
<td>154 (47.7)</td>
<td>169 (52.3)</td>
</tr>
<tr>
<td>2014</td>
<td>323</td>
<td>153 (47.4)</td>
<td>170 (52.6)</td>
</tr>
<tr>
<td>2015</td>
<td>328</td>
<td>139 (42.4)</td>
<td>189 (57.6)</td>
</tr>
<tr>
<td>2016</td>
<td>340</td>
<td>145 (42.6)</td>
<td>195 (57.4)</td>
</tr>
<tr>
<td>Total (%)</td>
<td>2268</td>
<td>992 (43.7)</td>
<td>1276 (56.3)</td>
</tr>
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</table>
cognitive disorders clinic; and secondly to examine whether any of the following factors were helpful in FCD diagnosis: basic demographic information; reported administration of a cognitive screening instrument in primary care prior to referral (as examined in previous cohorts from this clinic); and observation of a simple, non-canonical, clinical sign, the ‘attended alone’ sign, which has previously been shown to be a sensitive marker of cognitive health (conversely, the ‘attended with’ sign is very sensitive for the presence of cognitive impairment).

**Method**

Consecutive new referrals to the clinic were recruited over a seven-month period (April–October 2017). Prior to consultation, it was noted whether or not patients who were referred from the primary care setting had been administered a cognitive screening instrument, as documented in their referral letter, as in previous studies. At consultation, it was noted whether or not the patient attended the clinic alone. All patients seen in the clinic receive a standard clinic appointment letter that informs them of the date, time, and location of their appointment and requests them to attend with a knowledgeable informant who can provide collateral history.

Patients underwent the standard assessment used in this clinic, namely semi-structured interview, collateral history (where available), administration of selected cognitive screening instruments, neuroimaging (CT +/- MRI), and neuropsychological assessment (Wechsler Adult Intelligence Scale Revised, National Adult Reading Test, Wechsler Memory Scale-III, Graded Naming Test, Rey-Osterrieth Complex Figure, Stroop colour-word test, Hospital Anxiety and Depression Score).

Based on clinical, cognitive screening, neuroimaging, and neuropsychological assessment, patients were diagnosed with cognitive impairment, either dementia or mild cognitive impairment (MCI), using standard criteria for these constructs (DSM-IV-TR and Petersen respectively). Some patients without evidence of current cognitive impairment had a history indicative of a cognitive disorder, such as transient global amnesia (TGA). This constituted the cognitive impairment/cognitive disorder group.

FCD was diagnosed on the basis of a typical profile of clinical features, including, but not limited to, the ability to describe in detail memory symptoms despite assertions of having a poor or terrible memory (often contrasted with a previously ‘brilliant’ memory); being more aware of the problems than others; variability of symptoms on a day-to-day basis, and a relative lack of impact on social and/or occupational function. Key to diagnosis was evidence of inconsistency or incongruence between reported memory symptoms and the detail with which these problems were reported. Hence, FCD was not simply a diagnosis of exclusion.

Demographic and clinical data from each group were compared (t tests for continuous variables, chi-squared tests for categorical variables).

**Results**

Of 169 consecutive new referrals seen over the study period (F:M, 89:80, 53% female; age range 16–93 years, median 60), 74 (44%) were diagnosed with a cognitive disorder: 30 with dementia (DSM-IV-TR criteria), 41 with MCI (Petersen criteria), and 3 with cognitive disorder without current cognitive impairment (e.g., TGA). The remainder (95; 56%) were diagnosed with FCD. The FCD patients were generally young: 80 were under 65 years of age (72.7% of <65s) whereas only 15 were ≥65 years of age (25.4% of ≥65s). There was a female preponderance, 54:41, constituting 60.6% of females but only 51.2% of males. The majority of FCD patients, 60, attended alone (89.6% of those attending alone) with only 35 attending with an informant (34.3% of those who attended with).

Comparing the groups with cognitive disorders and with FCD, there was no gender difference but the FCD group was statistically significantly more likely to be younger. Patients receiving an FCD diagnosis were more likely to have been referred
from primary than secondary care, and to attend the clinic alone (Table 2).

In those patients referred from primary care (n=127) a trend was observed towards FCD patients being more likely to have had a cognitive screening instrument administered prior to referral.

Discussion

These data suggest that functional cognitive disorders (FCD) account for more than half of the referrals seen in this dedicated cognitive disorders clinic. The frequency of FCD in this cohort was similar to that of patients labelled as ‘subjective memory complaint’ in previous cohorts seen in this clinic, the diagnostic category then in use for patients without evidence of traditional or textbook cognitive disorders (dementias, mild cognitive impairment, cognitive disorders with no persisting cognitive impairment, eg TGA). It would seem likely that many of the patients seen in previous cohorts would have qualified for a diagnosis of FCD. The observed frequency is higher than that reported in a retrospective database study from a memory clinic.8

This study involved a single clinic over a limited time frame. Inevitably this will entail biases in the population studied (selection bias, referral bias), although no age criteria for referrals operate in this clinic.9 The median patient age in this cohort (60 years) was typical of this clinic, and obviously younger than would be seen in cognitive disorders clinics based within geriatric or old age psychiatry settings. Thus the case mix may limit external validity and generalisability of our findings. However, looking at our longitudinal data, we believe that the current observations about FCD frequency are consistent with prior observations from this clinic setting. Future studies need to examine larger cohorts, in different settings. Our data suggest that a lower percentage of FCD patients might be anticipated in memory clinics based in old age psychiatry or geriatric settings where median patient age is likely to be significantly older than in this neurology-led clinic.

As there are currently, to our knowledge, no diagnostic criteria, either suggested or validated, for FCD, a pragmatic approach to making this diagnosis was used based on typical symptom profiles. Clearly this approach is open to criticisms. These include possible circularity, with inconsistency of application between different clinicians. Another criticism is the risk of misdiagnosis. Patients with subjective memory complaints are recognised to be at increased risk of developing cognitive impairment,10 so some patients labelled as FCD might in fact have MCI or presymptomatic AD (ie false negatives). Requirements for possible further investigation of clinically diagnosed FCD (for example, of defined biomarkers of dementia disorders) remain to be determined.

Development of diagnostic criteria for FCD is a task for the future, and may be tricky considering the heterogeneity envisaged within the FCD construct, although the commonalities may permit codification, as for persistent dizziness.3 Suggested FCD typologies include mood disorder, other functional disorders, medication effects, dementia health anxiety, normal cognitive experience, dissociative amnesia, malingering, or combinations thereof.7 These were not examined in the current study but are being explored in an ongoing study in this clinic.15 It would seem likely that any FCD diagnostic criteria must include factors such as the significant distress and/or functional impairment that the cognitive symptoms cause, and the fact that they are not better accounted for by another disease or disorder.

In terms of comparing the demographic factors and potential markers of FCD with a cognitive impairment/cognitive disorders group, both groups are likely to be heterogeneous. Future studies may analyse rather more restricted groups with cognitive impairment, such as those with Alzheimer’s disease based on the presence of biomarkers.

Factors which may assist in making a positive diagnosis of FCD have been suggested.7,16 This study

Table 2. Demographic and diagnostic details of consecutive patients (n=169) seen in cognitive disorders clinic April–October 2017

<table>
<thead>
<tr>
<th></th>
<th>Cognitive disorders</th>
<th>Functional Cognitive Disorder (FCD)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (n%)</td>
<td>74 (43.8)</td>
<td>95 (56.2)</td>
<td>-</td>
</tr>
<tr>
<td>Gender: F:M</td>
<td>35.39 (47.3%)</td>
<td>54.41 (56.8%)</td>
<td>&gt; 0.1</td>
</tr>
<tr>
<td>(% female)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age: range (mean +/- SD)</td>
<td>34.93 years (68.2 +/- 11.3)</td>
<td>16-82 years (51.7 +/- 14.7)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Referral source: Primary:</td>
<td>46.28 (62.2%)</td>
<td>81.14 (85.2%)</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Secondary care (% from primary care)</td>
<td>(41.3%)</td>
<td>(48.4%)</td>
<td>0.1 &gt; p &gt; 0.05</td>
</tr>
<tr>
<td>Primary care cognitive screening instrument use? (% from primary care)</td>
<td>19/46 (41.3%)</td>
<td>46/81 (48.4%)</td>
<td></td>
</tr>
<tr>
<td>Attended alone (%)</td>
<td>7/74 (9.5%)</td>
<td>60/95 (63.2%)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
indicated that FCD patients were younger, more likely to have been referred from primary care, and to attend the clinic alone. These factors might therefore be used to increase the clinical index of suspicion for FCD. Another possible sign of FCD, as previously suggested on the basis of data from a non-overlapping patient cohort, is the production of a written list of symptoms by the patient. This phenomenon, sometimes known as la maladie du petit papier, may also be a positive marker of FCD.17

Notwithstanding the acknowledged limitations, the data presented here may alert clinicians to the possible prevalence of FCD in dedicated cognitive disorders clinics, and suggest that clinicians working in these settings should familiarise themselves with the FCD construct as a prelude to more effective diagnosis, explanation and treatment of this substantial patient group.

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Declaration of interests
The authors declared no conflict of interest.

References