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Suicidal behaviour in frontotemporal dementia patients—a retrospective study

Introduction

Frontotemporal dementia (FTD) is a focal clinical syndrome characterised by profound changes in personality and social conduct, associated with circumscribed degeneration of the prefrontal and anterior temporal cortices.

Despite some scattered reports about suicidal behaviours in FTD patients, to our knowledge, there are no studies of such issue. Thus, we present a retrospective matched case–control study that addresses the relation between FTD and suicide attempts.

Sample population and method

We used the clinical database records from the Memory Unity (MU) of the Neurology Department of Braga Hospital. We selected all the patients diagnosed with FTD [$n = 59$ (29 men and 30 women), with an average age of 68 years (minimum, 45; maximum, 81)]. The diagnosis had been made upon clinical judgement, neuropsychological and neuroimaging assessment. We then compared the frequency of suicidal behaviours of FTD patients with those of age- and gender-matched controls [$n = 59$ (29 men and 30 women)]. Using odds ratio (Figure 1), we examined the risk of suicidal behaviours among people who did or did not have FTD. An odds ratio > 1 meant that the risk of suicidal behaviours was more likely among those who had FTD.

The p-value was calculated using the Pearson's chi-squared test* (the result was said to be statistically significant for a p-value of less than 0.05). Suicidal behaviour was defined here as a deliberate act of self-harm with the clear purpose of a fatal outcome. Suicidal ideation (recurrent thoughts of self-harm or suicide) or parasuicide (defined as an act of nonfatal outcome with an identifiable personal gain) was not included.

Results

The odds ratio between patients with FTD and age- and gender-matched controls was 3.810 (Figure 1) [$p = 0.040$ (Pearson's chi-square test)].

Of FTD patients, 86% ($n = 51$) had the behavioural variant, 8% ($n = 5$) primary progressive aphasia and 5% ($n = 3$) semantic dementia.

All the patients with suicidal behaviours [17% ($n = 10$)] had the behavioural variant. In 7% of these patients ($n = 4$), apathy and blunted affect ('depressive' presentation) were the presenting symptoms of the disease, followed by the onset of behavioural symptoms, and 8% ($n = 5$) of those that presented with behavioural symptoms had a previous history of recurrent depression (DSM-IV-TR criteria) since young adulthood.

In one 84-year-old patient, without neuropsychiatry history or any identifiable social precipitant, the suicidal attempt was the presenting symptom of FTD.

Discussion

The odds ratio value shows that the risk of suicidal behaviours is more likely among those who suffered from FTD as compared with age- and gender-matched controls ($p < 0.05$). However, these results should be interpreted cautiously because of the several uncontrolled co-variables that could have influenced the outcome (e.g. past neuropsychiatric history, comorbidities and medication in use).

The higher percentage of patients with the behavioural variant of FTD is in accordance with the literature that identifies it as the more frequent subtype of FTD (Neary *et al.*, 2005). Curiously, despite different clinical presentations, all our FTD patients that attempted suicide had the behavioural variant. Impulsiveness is a well-known trait of FTD, which can partly explain these suicidal behaviours. The malfunction of the prefrontal cortex mediates this impulsiveness, increasing the risk of suicide (Mann, 2003). Furthermore, several neuroanatomical, genetic and neurotransmitters studies suggest a neurobiological vulnerability to suicide (Knibb *et al.*, 2006).

Interestingly, our data suggest that FTD patients with a previous history of recurrent depressive episodes appear to have a higher probability of attempting suicide. According to several studies, depressive suicide attempters of all ages have impaired executive function (Haw *et al.*, 2009; Rogers *et al.*, 2004). These data raise the possibility that FTD can worsen the previous frontal

*Calculated by the software Statistical Package for the Social Sciences.

Figure 1 Calculation of the odds ratio.

dysfunction of patients with depression adding to the risk of suicide or self-harm.

The 84-year-old patient mentioned earlier alerts that the initial symptom of FTD can be a behavioural act with a fatal outcome. Why this is so remains unclear. However, we can argue that the severity of the FTD-related brain changes can precipitate such a self-harm behaviour through impulsiveness, as discussed previously.

Study limitations

Retrospective studies have several known limitations. However, our topic seemed appropriate for such a study because we had few patients and there are few specialised units and articles addressing this issue.

The specific limitations of our study included collecting data from past medical records, a poorly defined target population, the risk of selection bias and the difficulty to ascertain cause and effect because of the several confounding factors. Nevertheless, our data suggest a relevant association between FTD and suicide that can be addressed later by a prospective study.

Conflict of Interest

None declared.

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Diagnosis of delirium in older people

De Lange and colleagues (2013) published an interesting review of delirium in older people. They made an exhaustive literature search and found several studies. I had not detected in reviewing 710 keydelirium articles. I would appreciate the authors' comments on several concerns: (i) Were hearing tests such as the whisper test employed prior to testing attention, memory, orientation and executive function? In my review of 710 key delirium articles, hearing testing is recorded in the methods section in less than 2%. Elderly people who cannot hear a question seldom ask for clarification – instead, they answer the question they suspect was asked. (ii) When hearing was impaired despite hearing aids, did the investigators use an additional device such as a portable amplifier with headphones? This battery-powered instrument weighs 60 g and costs around 100 euros or 100 US dollars. Only 1.26% of the 710 articles I surveyed used portable amplifiers. (iii) Could the authors split Table 1 into two analyses: community-dwelling elderly people surveyed at home and community-dwelling elderly people surveyed