Letter to the Editor

Increased prevalence of normal pressure hydrocephalus in both variants of frontotemporal dementia: a 10-year retrospective study

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We read with great interest the article by Pouclet-Courtemanche and colleagues published recently in Brain Communications.1 The article reported an increased prevalence of idiopathic normal pressure hydrocephalus (iNPH) among patients with a behavioral variant frontotemporal dementia (bvFTD) (7.25%) in comparison to those with Alzheimer’s disease (1.1%). Therefore, we proposed to evaluate this high prevalence of iNPH in patients with FTD (not only focusing on bvFTD) followed at the Leenaards Memory Center of the Lausanne University Hospital (CHUV) between January 2013 and December 2022.

We selected FTD patients including bvFTD according to the Rascovsky criteria, 2 and primary progressive aphasia (PPA) according to Gorno-Tempini3 criteria. Our inclusion criteria were the presence of FTD without any other degenerative copathology, and an available brain MRI. The diagnosis of possible or probable iNPH followed the Relkin criteria4. For quantifying brain changes due to iNPH, we computed the iNPH Radscale5 for every comorbid iNPH patient. This study was approved by the local IRB (PACSMolis PB_2016-02582(390/15)).

We identified a total of 45 FTD patients (30 patients with bvFTD and 15 with PPA). Mean age was 72.6 years old (SD 14.8), 15 females and 30 males, and the mean MoCA score was 19.8/30 at the time of diagnosis. Among the 30 patients with bvFTD, mean age was 73.4 years old (SD 14.8), 9 females and 21 males with mean MoCa score of 18.9/30.

Among the 45 patients with FTD, 5 patients presented a comorbid iNPH (4 bvFTD and 1 PPA), corresponding to 11.1% of the FTD (13.3% for bvFTD and 6.7% for PPA). The mean Radscale was 5.6 (for the details of the subscores see table 1).

iNPH is frequent among older adults with a prevalence reaching around 6 % in adults older than 806. Furthermore, iNPH is already known as a frequent comorbid condition in other neurodegenerative conditions, such as Alzheimer’s disease (prevalence varying from 18 to 75%, increasing with more severe cognitive deterioration7). Interestingly, we previously reported that gait instability could be a supportive argument for bvFTD, following the demonstration of an increased gait variability in bvFTD patients in comparison to Alzheimer’s disease patients8.

Among the radiological features of iNPH evaluated with the iNPH Radscale, none of the patients had a narrowed vertex sulci, or a sharp callosal-marginal angle that is unusual for “classical” iNPH patients. In addition, the majority of the iNPH patients have an increased temporal horn that may reflect the temporal lobe atrophy found in patients with FTD. An increased temporal horn in patients with iNPH might rise the question of a degenerative comorbidity, as already suggested in a previous study9.

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In conclusion, our 10-year study reinforces the findings of Pouclet-Courtemanche et al. regarding the increased prevalence of iNPH among patients with FTD. Here, we further demonstrate that this increased prevalence concerns both bvFTD and PPA variants with a twofold higher prevalence of iNPH in the bvFTD compared to the PPA variants.

Table 1: Subject characteristics of patients with Evan’s index equal or superior to 0.3 and walking impairment

<table>
<thead>
<tr>
<th>FTD variant</th>
<th>Age (y.o.)</th>
<th>Sex</th>
<th>MoCA score</th>
<th>Radscale total score</th>
<th>Evan’s index</th>
<th>Narrow sulci</th>
<th>Sylvian fissure enlargement</th>
<th>Focally enlarged sulci</th>
<th>Temporal horn</th>
<th>Callosal angle</th>
<th>Periventricular hypodensities</th>
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<tbody>
<tr>
<td>bvFTD</td>
<td>81</td>
<td>M</td>
<td>27/30</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>PPA</td>
<td>77</td>
<td>M</td>
<td>20/30</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
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<tr>
<td>bvFTD</td>
<td>79</td>
<td>F</td>
<td>28/30</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
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<tr>
<td>bvFTD</td>
<td>61</td>
<td>M</td>
<td>26/30</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
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</tr>
<tr>
<td>bvFTD</td>
<td>76</td>
<td>M</td>
<td>27/30</td>
<td>6</td>
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<td>0</td>
<td>1</td>
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<td>2</td>
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</tbody>
</table>

Data availability
Data sharing is available upon request.

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Competing interests
The authors report no competing interests.

References