

TOTAL TAU AS A PROGNOSTIC CLUE: NEUROPSYCHOLOGICAL PROFILES AND POTENTIAL OUTCOME IN IDIOPATHIC NORMAL PRESSURE HYDROCEPHALUS



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INTRODUCTION

Idiopathic normal pressure hydrocephalus (iNPH) is a neurological disorder characterized by cognitive deficit, parkinsonism and urinary dysfunction. At neuropsychological evaluation patients with iNPH typically present with a combination of cortical and subcortical deficits (attention, executive function, memory, and visuospatial abilities). By analysis of CSF we aim to demonstrate whether t-tau levels, as marker of neurodegeneration, are associated with specific patterns of cognitive deficit in patients with iNPH.

MATERIALS AND METHODS

We collected CSF samples of 29 patients with a clinical diagnosis of iNPH who demonstrated clinical improvement following a CSF “tap test” (we obtained a sample to assess the patients’

	t-TAU TERILES			p-value
	Low t-tau	Intermediate t-tau	High t-tau	
MMSE pre-test	25,44 (±1,38)	24,07 (±3,42)	23,92 (±4,66)	0,572
TMT-A pre-test	86,11 (±34,02)	116,25 (±52,45)	144,3 (±53,99)	0,032*
RAVLT IR pre-test	27,1 (±7,38)	29,66 (±7,30)	19,98 (±5,93)	0,028*
CDT pre-test	8,62 (±2,55)	8 (±3,46)	3,56 (±2,98)	0,013*
MMSE post-test	27,82 (±1,40)	24,45 (±3,29)	23,64 (±5,04)	0,005*
TMT-A post-test	63,6 (±27,37)	101,75 (±57,16)	139,3 (±51,72)	0,019*
RAVLT IR post-test	31,33 (±7,69)	29,06 (±8,5)	22,76 (±5,64)	0,049*
CDT post-test	8,75 (±2,31)	10 (±0)	4,5 (±3,31)	0,007*

Fig. 1 – Difference among groups pre- and post-“tap test”

A/T/N status). All patient underwent comprehensive neuropsychological evaluation at baseline and after the lumbar drainage. All patients underwent two comprehensive neuropsychological evaluations, which included assessments of attention and executive functions, visuospatial abilities, language, and memory (firstly, 6 ± 2 months prior to tap test, while the second was performed within 24 hours after the procedure). For the analysis we stratified patients into tertiles based on their t-tau level.

RESULTS

Patients with higher levels of t-tau (higher tertile) showed significant differences in baseline neuropsychological evaluation compared to those with lower levels: TMT-A score (p-value 0,032), RAVLT Immediate Recall score (p-value 0,028), and CDT score (0,013). After the tap test, cognitive measures that showed significant variation across higher t-tau group performed worse in: MMSE score (p-value 0,005), TMT-A score (p-value 0,019), Digit Span Forward (p-value 0,045), RAVLT Immediate Recall score (p-value 0,049), and CDT score (p-value 0,007) (Figure 1). Using MMSE baseline and follow-up scores as the primary variable of interest to assess potential improvement following the tap test, we compared cases that showed cognitive enhancement with those that did not across the three t-tau tertile groups (Figure 2).

CONCLUSIONS

Our results are consistent with some previous reports in the literature, which report that higher levels of tauopathy are associated with worse neuropsychological features. Moreover, highest levels of t-tau predict a poorer improvement in MMSE after tap-test with a potential role in indicating those individuals that would have a better response to VP.

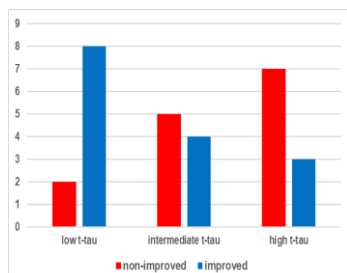


Fig. 2 – Improved and non-improved cases based on MMSE scores.



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