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Idiopathic normal pressure hydrocephalus and parkinsonism: a positive shunt response with a negative tap test

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Introduction: Idiopathic Normal Pressure Hydrocephalus (iNPH) is a complex and often misdiagnosed syndrome, whose major challenge is to identify which patients will benefit from surgery. Recent studies revealed high rates of neurodegenerative disorders in iNPH patients, including Lewy body disease co-pathology, which could contribute to a specific iNPH clinical phenotype.

Objective: The aim of this study was to compare performances of iNPH patients with and without parkinsonism at initial evaluation, 72 hours after cerebrospinal fluid tap test (CSF TT) and 6 months after ventriculoperitoneal shunt (VPS) surgery.

Methods: This is an observational prospective study on iNPH patients who underwent VPS. Patients were classified as iNPH with (iNPH-P+) and without (iNPH-P-) parkinsonism. An extensive clinical evaluation, including motor and functional performances, was performed at baseline, 72 hours after CSF TT and six months after VPS surgery.

Results: A total of 64 iNPH patients were included, 12 patients were classified as iNPH-P+ and 52 as iNPH-P-. Overall, iNPH patients showed significant improvement in all clinical parameters after VPS. In respect to iNPH-P-, iNPH-P+ patients showed worse performances in the majority of variables at the three observation times. In the iNPH-P- group, motor and functional performances improved both at 72h post CSF TT and 6 months after VPS. In the iNPH-P+ group, the majority of motor and variables showed an improvement at 6 months after VPS, despite none of these parameters showed a significant response after CSF TT.
Conclusions: Despite the iNPH-P+ group did not show a significant response in motor and functional performances after CSF TT, a significant improvement in the majority of parameters was observed 6 months after VPS. This finding could positively impact the clinical practice, as an unsatisfying response to CSF TT in iNPH-P+ patients should not be taken as an exclusion criterion from VPS surgery.