



Adult Hydrocephalus Log: A New Tool that Refines the Normal Pressure Hydrocephalus Diagnosis

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Introduction

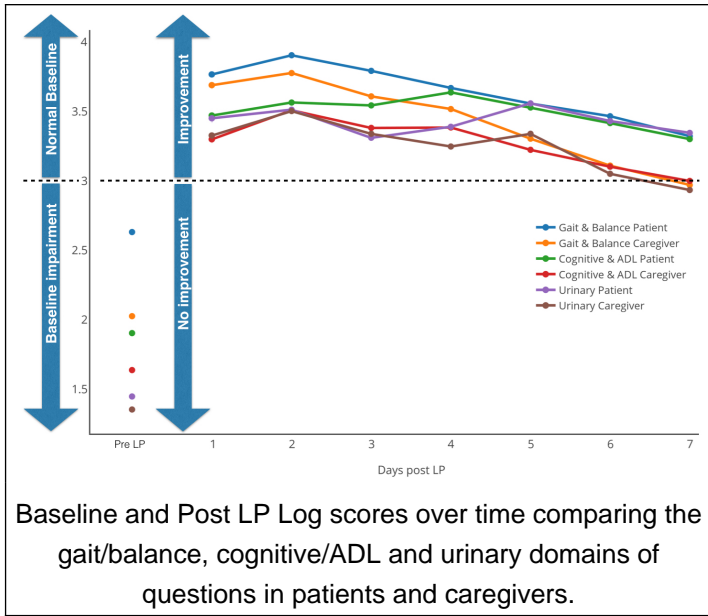
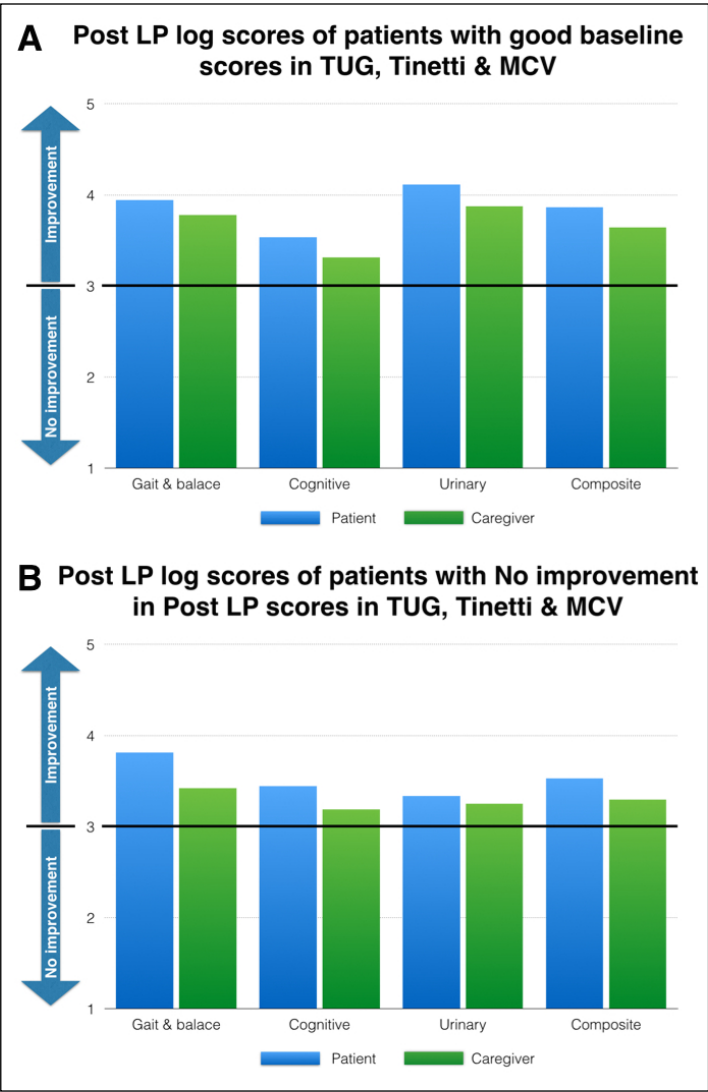
Early treatment in Normal Pressure Hydrocephalus (NPH) yields better post-operative outcomes. Our current tests often fail to detect significant changes at early stages. We developed a new scoring system (LP log score) and sought a “proof of concept” that this tool is more sensitive in detecting clinical differences than the current scales.

Methods

We prospectively studied 62 consecutive new patients with suspected idiopathic NPH. Secondary, previously treated and obstructive cases were not included. We collected age, pre and post Lumbar Puncture (LP) Tinetti, Timed Up and Go (TUG), European NPH scale and LP log scores. LP log score is recorded at baseline and for 7 consecutive days after removing 40 cc of CSF via LP. We studied the diagnostic accuracy of the tests for surgical indication and shunt response, defined as at least 5 points of post-operative improvement in European NPH scale.

Results

Median age at presentation was 76 years old. NPH triad was present in 27% of cases. TUG ($p<0.0001$) and Tinetti ($p<0.0001$) showed significant differences between presentation and post-LP scores. LP log scores showed significant differences between pre-LP and post-LP ($p<0.0001$). Improvement of at least 1 second in preLP-postLP TUG ($p>0.05$) and at least 1 point in preLP-postLP Tinetti was not associated with surgical indication ($p>0.05$) and shunt response ($p>0.05$). Positive LP logs were associated with surgical indication OR: 24.5 95%CI (3.15-513.87) ($p=0.00677$) and shunt response OR: 3 95%CI (1.46-6.76) ($p=0.004$). Surgery was indicated in 80% of patients. There was statistical significant improvement between presentation and post-operative European NPH scales ($p<0.0001$), with 78.8% shunt response.



Conclusions

Our data shows promising results. LP log had more association with surgical indication and shunt response than the current diagnostic approach. Our next step is to conduct a cross-validation analysis of the diagnostic and prognostic accuracy of this new tool.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of early diagnosis and treatment of idiopathic Normal Pressure Hydrocephalus 2) Identify Lumbar Puncture log as a new and more accurate diagnostic tool for surgical indication and shunt response in idiopathic Normal Pressure Hydrocephalus.

References

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