Idiopathic normal pressure hydrocephalus gait disturbance

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- Evaluating longitudinal changes of gait parameters following shunt placement in patients with idiopathic normal pressure hydrocephalus
- Diagnostic efficacy of radionuclide scintigraphy in detecting lumboperitoneal shunt obstructions in idiopathic hydrocephalus and intracranial hypertension
- Clinical Features and Diagnosis of Normal Pressure Hydrocephalus
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Gait disturbance is assessed by raters of different professions or with different degrees of experience. Agreement studies are usually done by two raters or more, and comparisons among multiple groups of raters are rare.

Ishikawa et al. aimed to examine the agreement among multiple groups of raters on gait patterns and a grading scale through a video-assisted gait analysis in patients with iNPH. Fifteen participants with iNPH were enrolled. Gait was assessed according to seven patterns, including freezing and widebased gaits. The levels of severity (evident, mild, none) were rated by three groups of raters (two neurosurgeons [DR2], three experienced physiotherapists [PTe3], and two less experienced physiotherapists [PTI2]) through a simultaneous video viewing session. Severity of gait disturbance (GSg) was rated using the Japanese iNPH grading scaleiNPHGS, and Krippendorff alpha was computed to assess agreement, with alpha \geq 0.667 indicating good agreement and alpha \geq 0.8 indicating excellent agreement. For group comparisons, 84%, not 95%, confidence intervals were applied. Among the seven gait patterns in the first assessment, excellent agreement was observed in widebased and short-stepped gaits in only DR2. Good agreement was observed in four patterns, but the agreement by the two groups was in shuffling and wide-based gait. There were no gait patterns showing good agreement among the three groups. In the second assessment, excellent agreement was observed in three patterns but no gait patterns showed good agreement between two groups or more. The learning effect was observed only for standing difficulty in DR2. In contrast, good or nearly good agreement on GSg was observed among the three groups with excellent agreement in the two groups. Agreement on gait patterns among the three groups of raters was not high, but agreement on the iNPHGS was high, indicating the importance of a precise description facilitating differentiation between neighboring grades ¹⁾.

Although no one feature is pathognomic of the gait disturbance in NPH, the most common descriptors include "shuffling," "magnetic," and "wide-based".

Disequilibrium and slowness of gait (due to short steps and gait apraxia) are common, and the latter feature is more likely to respond to shunting.

The slowness of both upper and lower extremities is common as well and can improve with shunting.

Appendicular tremor is present in 40% of NPH patients, is rarely of a parkinsonian (resting) quality, and does not respond to VPS.

1)

Ishikawa M, Yamada S, Yamamoto K. Agreement study on gait assessment using a video-assisted rating method in patients with idiopathic normal-pressure hydrocephalus. PLoS One. 2019 Oct 24;14(10):e0224202. doi: 10.1371/journal.pone.0224202. eCollection 2019. PubMed PMID: 31648232.

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