

12th International Conference on
Central Nervous System

October 07, 2022 | Webinar

Received date: 26 July 2022 | Accepted date: 29 July 2022 | Published date: 20 October 2022

Theoretical discrimination index of postural instability in Amyotrophic Lateral Sclerosis

Jean Noel Vallée

Paris Nanterre University, France

Objective: To assess the usefulness of a theoretical postural instability discrimination index (PIth) in amyotrophic lateral sclerosis (ALS).

Methods: Prospective regression analyzes were performed to identify the biomechanical determinants of postural instability unrelated to lower limb motor deficits from gait initiation factors. PIth was constructed using a logit function of biomechanical determinants. Discriminatory performance and performance differences were tested.

Results: Backward displacement of the pression center (APAamplitude) and active vertical braking of the mass center (Braking-index) were the biomechanical determinants of postural instability. $PIth = -0.13 \times APAamplitude - 0.12 \times Braking-index + 5.67$, ($P < 0.0001$, $RSquare = 0.6119$). $OR(APAamplitude)$ and $OR(Braking-index)$ were 0.878 and 0.887, respectively, i.e., for a decrease of 10 mm in APAamplitude or 10% in Braking-index, the postural instability risk was 11.391 or 11.274 times higher, respectively.

PIth had the highest discriminatory performance (AUC 0.953) with a decision threshold value ≥ 0.587 , a sensitivity of 90.91%, and a specificity of 83.87%, significantly increasing the sensitivity by 11.11%.

Conclusion: PIth, as objective clinical integrator of gait initiation biomechanical processes significantly involved in dynamic postural control, was a reliable and performing discrimination index of postural instability with a significant increased sensitivity, and may be useful for a personalized approach to postural instability in ALS.

Recent Publications

1. Alexandre Vallée, Yves Lecarpentier, and Jean-Noël Vallée (2022). WNT/ β -catenin pathway and circadian rhythms in obsessive-compulsive disorder. *Neural Regen Res.* 2022 Oct;17(10):2126-2130
2. Alexandre Vallée, Yves Lecarpentier, and Jean-Noël Vallée (2021) Cannabidiol and the Canonical WNT/ β -Catenin Pathway in Glaucoma. *Int. J. Mol. Sci.* 2021, 22, 3798
3. Alexandre Vallée, Jean-Noël Vallée, Yves Lecarpentier (2021) Parkinson's Disease: Potential Actions of Lithium by Targeting the WNT/ β -Catenin Pathway, Oxidative Stress, Inflammation and Glutamatergic Pathway. *Cells.* 2021 Jan 25;10(2):230

valleejn@gmail.com