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Title: Interest of Locométrie to assess gait's profile in specific old populations.

Abstract:

Introduction: a global assessment is essential in geriatric situations. It is well known that alterations of gait appear early with cognitive decline.

An analysis of the gait profile is difficult in clinical practice; clinical procedures are useful to determine the risk of falling. A new instrumental method (Locometrix[®]) is tested to characterize the gait of old subjects.

Material and method: 47 patients were evaluated: 21 normal subjects (NS), 14 mild cognitive impairment patients (MCI), and 12 Alzheimer patients (AD). They were 65 years or older, with no fall or hospitalisation history in the last 6 months. They all walk easily, with no walking aid, without pain, they did not have any prosthesis and were living at home.

The patients were assessed by a walk of 40 meters with accelerometric device (Locometrix[®]). This procedure was realized in simple (ST) and dual task (counting down) (DT).

A neuropsychological evaluation (MMSE, Mattis scale, Grober and Buschke test, Rey complex figure test, divided attention test and Lawton scale) was performed to determine cognitive profiles. Petersen criteria were used to classify MCI.

Results: Locométrie shows that NS and AD subjects are different for speed in ST and DT, stride frequency in DT and stride length in DT with p value <0.05. Furthermore, MCI are different from NS by the frequency in TS (p< 0.05). Performance in counting down in ST permits to differentiate NS and AD subjects. In DT, performance in counting down is different between the three groups.

Conclusion: In simple and dual task, Locometrix[®] identifies specific parameters in correlation with cognitive profile. And the counting down in DT shows a significant difference between the three groups.