CO23-002-e

Sarcopenia
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Sarcopenia is defined by loss of muscular mass, strength and quality that occurs in elderly. It has become an important area of research because of its frequency and its responsibility for a significant part of the mobility disability in older people. Understanding and treating sarcopenia could probably have a dramatic impact on the disability process.

A definitive consensual clinical method to assess sarcopenia is still needed in everyday clinical practice and clinical research. The different characteristics defined that sarcopenia are usually studied separately. The loss of muscular mass and muscle strength is mainly caused by low physical activity, aged-related changes in steroids hormones and inflammatory processes. Treatment relies on a multidimensional approach. Preventing loss of muscular mass and preserving muscle strength is relevant if it prevents decline in physical performance and mobility disability. Identifying target elderly populations for specific treatment in clinical trial is an important issue. To date, strength training is the only efficient approach to treat and prevent sarcopenia. So far, no pharmacological treatment has proven definitive evidence to treat or prevent sarcopenia.

On-going and future pharmacological clinical trials may radically change our therapeutic approach of mobility disability in elderly. The endpoint prevention of mobility disability should be added to the well-established outcomes of treatment of the loss of muscular mass, muscle strength or muscle quality.

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Spatial-temporal gait analysis in Normal pressure hydrocephalus and Parkinson’s disease
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Positioning backward hypertonic disequilibrium in geriatrics
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Positioning backward hypertonic disequilibrium; Geriatrics; Positioning wheelchair

Objective.– The loss of functional abilities in the elderly, such as backward hypertonic disequilibrium, is frequently accompanied by the emergence of postural disorders in seated position. Wheelchair positioning belts are currently used for elderly people, essentially to prevent falls. The objective of this work is to characterize, in the context of backward hypertonic disequilibrium, seated position, environment and compensation strategies to provide technical aid to the appropriate posture.

Materials and methods.– Six patients over 80 years, without neurological or orthopedic pathology, but with a psychomotor regression, were analyzed in a sitting position. The evaluation consisted of:

– a measurement of Sitting Postural Control in Adults (MCPAA grid) associated with groundwater pressure measurements;
– an assessment of repositioning strategies and transfer to the wheelchair (grid qualitative);
– a neuro-orthopedic classic.

Results.– Backward hypertonic disequilibrium combines a slide-forward by retroversion of the pelvis and loss of lumbar lordosis, inducing a growing phenomenon in attempts to reposition (enhancements).

To stabilize the slip before, two factors appear important: the bevel crural to elevate the femoral segments and a basin ischio-sacral segment to stabilize the pelvic skin without increasing pressure on the ischial pressure sheet. A pelvic thrust, with curved posterior part, can be adjoined to limit the phenomenon, stabilize the pelvis in the sagittal plane and avoid excess pressure at the pubic symphysis.

Discussion.– Knowledge of the biomechanical characteristics associated with normal aging and/or pathological (backward hypertonic disequilibrium) is essential to evaluate and adjust the seating position in the elderly. The evaluation of the sitting begins to be coded and must be based on multidimensional rating scales. This must be part of a comprehensive disabilities and limitations of activities of the individual in its environment, including handling and wheelchair propulsion.

Further reading

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Keywords: Normal pressure hydrocephalus; Parkinson’s disease; Gait analysis; Free speed; Fast speed

Introduction.– The spatial-temporal gait disorders associated with normal pressure hydrocephalus (NPH) [1] and Parkinson’s disease (PD) [2] are classically considered difficult to distinguish from each other clinically.

Methods.– Three age-matched groups participated in this study: subjects with idiopathic NPH (n = 12, 68 ± 12 years), subjects with early to moderate PD (n = 25, 69 ± 8 years, Hoehn & Yahr 2-3, OFF) and control subjects (CTL, n = 14, 66 ± 12 years). Each subject walked 8 m barefoot on a baropodometric carpet (GaitRite™), at free and fast speed. We analyzed speed, cadence, step length and width, a cadence index (CDI) and step length index (SLI) that represent the relative contribution of each parameter to speed increase, as follows:

\[
CDI = \frac{\log(CD_{fast}/CD_{free})}{\log(SP_{fast}/SP_{free})} \times 100.
\]

\[
SLI = \frac{\log(SL_{fast}/SL_{free})}{\log(SP_{fast}/SP_{free})} \times 100.
\]

Results.–

Free speed

The NPH group was slower than normal (CTL, 1.07 ± 0.21 m/s, NPH, 0.73 ± 0.28 m/s, P = 0.022) with increased step width (CTL, 0.10 ± 0.04 m, NPH, 0.13 ± 0.05 m, P = 0.049). In the PD group, cadence was normally

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The objective is to determine whether or not the Stroop interference effect is modified during the dual-task (DT) performance (stimulus interference). We tested 35 older adult autonomous volunteers, without any pathology likely to influence walking or posture, and applied the Stroop test in a psychological environment. The Stroop test consists in a mental inhibition task that is affected by normal and pathological aging [1]. The objective is to determine whether or not the Stroop interference effect is heightened in various walking situations according to the type of cognitive impairment and if it is able to detect cognitive impairment.

**Method.**

Population
Thirty-five older aged, autonomous volunteers without any pathology likely to influence walking or posture were given a psychometric test (MMSE, BREF, Dubois, WAIS, electronic version Corsi Block Test CBT) and an instrumented 10 m walking test (GaitRite). We divided the participants into subgroups by applying the Petersen criteria: 14 healthy older adults (HO), 7 amnestic MCI (aMCI), 9 non-amnestic MCI with executive function impairment (naMCI), 6 mild MCI (mMCI), 10 moderate MCI (mMCI), 4 severe MCI (sMCI). In all the tests, alterations of multi-domain MCI performances (vs. those of the other groups) show that the cognitive functions involved in the dual-task W-CBT associate working memory with the other executive functions.

**Protocol**
In dual-task performance (DT), we created the Walking Stroop Carpet (WSC). We tested and compared the walking performance of the WSC with the musical Stroop Corsi test (W-CBT) for dual task locomotor performance. We tested the gait parameters of the subjects with an electronic carpet during the walking exercise. WSC is a complex DT task facilitating early detection of dysexecutive impairment.

**Conclusions.**
- The Stroop interference effect is markedly modified during the walking exercise. WSC is a complex DT task facilitating early detection of dysexecutive impairment.

**References**

**Keywords:** Locomotion; Stroop; Inhibition; Dual-task

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