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Contribution of 3D gait analysis to spasticity management in adult subjects

G. Stoquart
Cliniques universitaires Saint-Luc, Université catholique de Louvain, Bruxelles, Belgium

The lack of knee flexion during the swing phase (stiff-knee gait) and the equinovarus of the foot are some of the impairments that restrict the walking ability among patients with spastic hemiparesis. Several factors are likely to explain these gait patterns. The most relevant factors of stiff-knee gait seem to be the spasticity of the quadriceps (rectus femoris, vastus intermedius), the spasticity of planar flexors and the weakness of the iliopsoas. The quantified gait analysis can help to target the treatment. For example, the botulinum toxin type A injections in the rectus femoris alone seem sufficient to improve kinematics in patients with a knee flexion greater than 10° prior to treatment, while multi-site site injections (e.g., quadriceps, triceps surae . . . ) seem necessary when the knee flexion is lower than 10°. The equinovarus can also be explained by various factors (e.g., spasticity or fixed contracture of triceps surae, weakness of the dorsal flexors and eversors . . . ). The use of gait analysis is really interesting, in association to local anesthetic motor blocks, to improve the effectiveness of the treatment (e.g., botulinum toxin, tibial neurotomy, tendon transfers and lengthening . . . ).

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Acquired deforming hypertonia and contractures in elderly subjects: Definition, prevalence, and therapeutic options

P. Dehail
Service de MPR, CHU de Bordeaux, EA 4136, Université de Bordeaux, Bordeaux, France

The term “contractures” have often been used to describe abnormal postures or joint deformities affecting the upper and lower limbs in dependent elderly subjects confined to a bed or a wheelchair. However, no standard definition has validated this term. The lack of a standard definition explains the varying prevalence reported in the literature. According to the different authors and criteria selected, 20 to 75% of elderly institutionalized subjects would present at least one contracture on a limb. Recently, a new terminology (acquired deforming hypertonia or ADH) was suggested. ADH was defined as any joint deformity with decreased ROM and increased resistance to passive movements, regardless of its cause, which promotes functional impairments, discomfort or any other limitation in activities of daily living. According to this new definition, the purpose of the communication will be to present the results of the French ADH survey concerning prevalence of ADH in geriatric institutions, and to discuss clinical characteristics, consequences, etiopathogenic factors and therapeutic options available to improve care management for these patients.

Further reading

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Lectures

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G. Stoquart
Cliniques universitaires Saint-Luc, Université catholique de Louvain, Bruxelles, Belgium

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