Do children with attention deficit and hyperactivity disorder (ADHD) have a different gait pattern?
Relationship between idiopathic toe-walking and ADHD


Abstract

INTRODUCTION:
Idiopathic toe-walking (ITW) is described as a gait pattern with no contact between the heels and the ground in children older than 3 years. The diagnosis is clinical, making it necessary to rule out other neurological and orthopaedic conditions. A relationship between ITW and vestibular dysfunction and/or proprioceptive sensibility has been proposed. Children with neurodevelopmental disorders (autism, language and cognitive disorders) often have ITW.

OBJECTIVES:
To determine the frequency of ITW in children with attention deficit disorder and hyperactivity (ADHD).

PATIENTS AND METHOD:
A study was conducted on children diagnosed with ADHD, with normal neurological examination, with no alterations in MRI scan, cognitive disorder or autism. A complete clinical anamnesis was performed and Achilles shortening was measured with a goniometer.

RESULTS:
The study included 312 children with a mean age of 11 years (73.7% boys). The ADHD combined subtype was the most frequent (53.8%), followed by the inattentive (44.9%), and hyperactive (1.3%). ITW was observed in 20.8% of patients, particularly in the combined subtype (P=.054). Only 32 of them (49.2%) had Achilles shortening. ITW was associated with sociability disorders (P=.01), absence of pain in legs (P=.022), and family history of ITW (P=.004). Only 11% had previously visited a doctor for this reason.

CONCLUSIONS:
As in other neurodevelopmental disorders, children with ADHD have frequently more ITW and Achilles shortening than controls, especially if they presented with a social communication disorder or a family history of ITW. An early diagnosis is essential to establish effective treatments.