Do children and adolescents with idiopathic short stature show postural alterations? Possible influence of SHOX haploinsufficiency in a pilot study

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Purpose: Needs in terms of quality of life (QoL), consisting of physical, emotional and social domains, represent a hot spot in idiopathic short stature (ISS). Between ISS, it is estimated that 12% can have SHOX deficiency. Furthermore, SHOX deficiency can affect posture and GH treatment ameliorate their QoL. Although scientific research has investigated many fields of the physical domain, very few studies highlighted how this pathological condition may affect posture. The aim of this study was to evaluate postural characteristics in patients with ISS.
Methods: 16 children and adolescents with ISS (8 males; 8 females, age mean: 11,06±3,02 years; height: 129,31±15,19 cm; weight: 28,81±7,93 kg) were recruited at the University Pediatric Unit of Palermo. Each participant performed a posturographic assessment using the freeMed® baropodometric platform (Sensor Medica®) which included a baropodometric test and a stabilometric test in order to evaluate plantar features and body balance, respectively. Data were analyzed using Statistica Software 12 (StatSoft®).
Results: For the baropodometric test, the sample showed a non-physiological plantar pressure distribution with a prevalence of pressure on left foot compared to right foot (56% vs. 44% respectively). Moreover, our results indicated that the sample reported an alteration on the pressure distribution between forefoot and rearfoot (45% vs. 55% respectively) for both feet. As concern the stabilometric test, our results showed a greater significant energy expenditure in order to control body balance (i.e. Sway Length / Sway Area ratio >1). Two of these ISS patients were later identified as SHOX deficiency.
Conclusions: The findings of the present pilot study confirmed our research hypothesis and results suggest that in children with ISS the pathological physical characteristic could influence the postural profile. Considering these preliminary outcomes, we deem necessary to conduct further investigations concerning the relationships between ISS and body posture and to study the real impact of SHOX haploinsufficiency on postural prophile of ISS patients.

References

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