



Curr Pharm Des, 2013 Sep 18. [Epub ahead of print]

Multiple Hormonal Dysregulation as Determinant of low Physical Performance and Mobility in older Persons.

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Abstract

Mobility-disability is a common condition in older individuals. **Many factors, including the age-related hormonal dysregulation, may concur to the development of disability in older individuals.** In older persons **there is an imbalance between anabolic hormones that decrease (testosterone, dehydroepiandrosterone sulphate (DHEAS), estradiol, insulin like growth factor-1 (IGF-1) and vitamin D and catabolic hormones (cortisol, thyroid hormones) that increase across age.** We start this review focusing on the mechanisms by which anabolic and catabolic hormones may exert opposite effects on physical performance and mobility. To address this hypothesis, we described and discussed the contribution of the single hormonal derangement to mobility. The criteria of inclusion for the studies used in this review was the period of time of publication from 2002 to 2013 and the age (65 yr or older) of the participants. We devoted particular attention to anabolic hormones (DHEAS, testosterone, estradiol, vitamin D and IGF-1) to test their effects on skeletal muscle mass and strength, and other objective indicators of physical performance. We also analyzed the reasons beyond the inconclusive data of RCTs using sex and thyroid hormones, and vitamin D (dosage, duration of treatment, baseline hormonal values and reached hormonal levels). **We introduced the concept of multiple hormonal dysregulation to prove the hypothesis that the parallel and contemporary decline of anabolic hormones has an higher impact than single hormonal derangement on adverse outcomes in older population.** Given the multifactorial origin of low mobility and the higher incidence of side effects in older individuals we underlined the need of future synergistic optional treatments (micronutrients and exercise) to improve the effectiveness of hormonal treatment and to safely ameliorate the anabolic hormonal status and mobility in older individuals.