

عنوان مقاله:

Circulating Cell-Free Nucleic Acids as Potential Biomarkers for Sarcopenia: A step toward personalized medicine

محل انتشار:

اولین کنگره پزشکی شخصی (سال: 1395)

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خلاصه مقاله:

Sarcopenia, a multifactorial geriatric syndrome, is characterized by age-related decline in muscle mass and function. There are multiple intrinsic (biological changes, inflammatory states; etc.) and extrinsic (decreased activity, malnutrition; etc.) factors that participate in the development of sarcopenia. Given the relatively high prevalence and related-outcome of the disease, correct diagnosis, screening, monitoring and treatment of sarcopenia are needed in clinical practice as well as for the conductance of beneficial interventions. In this regard, the global quantitative data from both genetic, biomarkers and body composition could provide a standardized and international comparable readout for successful care. Although, several biological markers have been found to be associated with age-related skeletal muscle decline, but they are not specific to muscle mass and function. Therefore, a good biomarker for sarcopenia must be specifically for muscle changes, accessible, reliable, non-invasive and cost effective. The biomarker could show specific biological processes of sarcopenia to understand specific therapy as a step toward personalized medicine. Recent advances in technologies provide an extraordinary capacity to characterize the genetic alterations and pathways in diseases comprehensively and make it possible to develop therapies, prevention and screening based on the genetic makeup of each disease. Circulating cell-free nucleic acids (ccfNA) in various body fluids have been explored as a novel biomarker in a variety of clinical conditions. The first studies concerning the detection of circulating cell free DNA (cf-DNA) was found in various cancers, metastasis and recurrence of tumor. Both apoptosis and necrosis are as the source of the cf-DNA and so, elevated cf-DNA levels have been observed in other conditions such as cardiovascular diseases, sepsis, and trauma. In the recent years, much attention and effort have been put into studies of other circulating nucleic acids, including circulating RNA, microRNA, mitochondrial DNA, mitochondria RNA than cf-DNA. In addition to assessing the quantities of circulating cf-DNA, qualitative features, such as the cf-DNA methylation level, mutations and fragment size have been offered to be useful diagnostic and prognostic markers in various diseases. Given that sarcopenia is accompanied with increased inflammation, apoptosis and necrosis mediate skeletal muscle fiber loss in age-related mitochondrial enzymatic abnormalities; it ... represents an amenable condition for which to assess cell free nucleic acids as a

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