Qeios

Peer Review

Review of: "Magnesium Deficiency Accelerates Aging and Shortens Healthspan"

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Title: Magnesium Deficiency Accelerates Aging and Shortens Healthspan

This narrative review aimed to link some of the deleterious effects of a long-term Mg shortfall with the premature symptoms of aging and a shortened healthspan. The topic is relevant and important, as Mg plays crucial biological roles, and its deficiency is common.

However, this paper necessitates improvements before it can meet the publication standards of this journal. Some sections read like a list of fragmented mechanisms rather than a cohesive argument. Even though this review is narrative, you should still describe a structured search strategy, including clear criteria for study inclusion and exclusion, because it helps minimize concerns about selection bias and cherry-picking of evidence.

Some specific points should be considered:

Item II. MgD and inflammaging/oxidative stress/insulin resistance

This section is currently too brief. It needs a more comprehensive explanation of the topic, including a detailed discussion of the molecular mechanisms linking magnesium deficiency (MgD) to inflammaging, oxidative stress, and the development of insulin resistance. Other relevant pathways and mechanisms should also be described to strengthen the section.

III. IR and Age Accelerating Hormones

This section discusses the relationship between MgD and age-accelerating hormones such as ACTH, GH, and TSH. However, it is not clear how these hormonal alterations relate to insulin resistance (IR) or how they contribute to the aging process. The section should clarify the mechanistic links among MgD, hormonal dysregulation, IR, and accelerated aging.

doi.org/10.32388/AKAEWI

V. MgD and K/T, Ca:Mg, Gut Microbiome

This section discusses how the Ca:Mg ratio is associated with COVID-19 and other diseases; however, it does not explain how an altered Ca:Mg ratio and K/T may accelerate the aging process or shorten healthspan. A clearer description of the underlying biological mechanisms is needed to establish this connection.

VI. Therapeutic Interventions

You should use this section to present evidence on how magnesium-based therapeutic interventions affect aging and healthspan. This includes summarizing study results, highlighting clinical outcomes, and explaining whether magnesium supplementation has been shown to improve biomarkers, delay aging-related processes, or extend healthspan.

Declarations

Potential competing interests: No potential competing interests to declare.