

M1 A role for iNKT cells in sarcopenia

Topic medical

Presentation oral

Quality project Ik neem deel aan de « Grant College for Quality Project »

First author Anton De Spiegeleer
Universiteit Gent
anton.despiegeleer@ugent.be
junior

Other authors Hasan Kahya, Nele Van Den Noortgate, Evelien Wynendaele, Tine Decruy, Srinath Govindarajan and Dirk Elewaut Hierboven de 6 co-auteurs (bij orale presentatie zal 2e auteur Hasan Kahya presenteren, gezien Anton De Spiegeleer andere abstract reeds heeft ingediend voor orale presentatie)
Universiteit Gent

Abstract title A role for iNKT cells in sarcopenia

Abstract body

Objective: Sarcopenia or the detrimental muscle ageing, represent an important unmet clinical health problem. Most pathophysiological studies suggest an effect of the immune system, primarily through catabolic cytokine productions such as IL-6. Also endoplasmic reticulum (ER) stress is considered to be an important pathway favouring muscle wasting. ER stress in turn plays an important role in innate-like T cells, particularly invariant natural killer T cells (iNKT cells), by controlling their cytokine production. As such we reasoned that iNKT cells may play a role in muscle homeostasis through their excessive cytokine production. Previous studies have highlighted the importance of these cells in a wide range of diseases such as cancer and metabolic disorders.

Methodology: We investigated the in vivo role of iNKT cells in muscle homeostasis by comparing wild-type (WT) versus iNKT cell deplete mice (J α 18 KO) for clinical, histological and gene expression differences in lower limb skeletal muscle.

Results: Interestingly, we found that iNKT cell depleted mice (J α 18 KO) had a lower relative muscle weight, i.e. a sarcopenic phenotype, compared to WT mice. This clinical sarcopenia was associated with a decrease in oxidative enzymatic activity (SDH histology). Moreover J α 18 KO mice showed a decreased transcription of genes involved in skeletal muscle growth and differentiation (follistatin and myogenin), sarcomere assembly (myosin-3) and neuromuscular junction function (neuronal acetylcholine receptor subunit alpha-1).

Conclusion: Taken together, our results suggest a role for iNKT cells in muscle wasting diseases like sarcopenia.