The use of MSCs from adipose tissue in skeletal muscles regeneration, an immune modulation point of view

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Abstract

Mesenchymal stem cells (MSCs) are currently being tested in preclinical and clinical trials for their ability to foster wound healing and tissue regeneration.

They are well known to show a therapeutic potential largely depending on their ability to secrete proregenerative cytokines, making these cells an attractive option for improving the treatment of chronic wounds. The wound microenvironment is a miscellaneous key-factor in the local management of the healing process: players such as the extracellular matrix or the resident and recruited cells with paracrine activity are able to determine the way and the appropriateness of the regenerative processes.

Despite the multiple barriers to their clinical use, MSCs have shown sufficient promise to garner a primary place in the field of regenerative medicine. MSCs therapies have significant implications for human health: clinical studies are greatly needed to confirm or stimulate the basic and translational researches aimed to reach cutting-edge results.

Potential topics include, but are not limited to:

- Mesenchymal stem cells in translational research and therapeutic strategies towards tissue regeneration and wound healing
- Growth factors effects on mesenchymal stem cells
- Mesenchymal stem cells delivery/routes
- Inflammation/immunomodulation and mesenchymal stem cells activity
- Extracellular matrix and bioactive molecules
- New methodological paradigms that challenge current thinking in clinical mesenchymal stem cells research, including feasibility and “proof-of-concept” studies
- Development of clinical-grade mesenchymal stem cells under good manufacturing practice protocols/conditions as an essential step towards clinical application or other relevant topics