

STEM CELL SOURCES IN ORTHOPEDICS - CLINICAL PRACTICE BETWEEN ORTOBIOLOGICS AND ADVANCED MEDICINAL PRODUCTS

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Background. The use of stem cells, particularly mesenchymal stem cells has emerged as an incoming tool for advanced therapeutics aiming to improve orthopedic practice.

Aim of the study. The presentation will introduce basic notion regarding stem cell types, function, and their importance for the rising field of regenerative orthopedics. The two major modalities to implementing the use of stem cell use in clinical practice- third generation orthobiologics and stem cell based advanced medicinal products will be described and briefly presented.

Materials and methods. The currently used tissue sources of stem cells in orthopedic: bone marrow derived mesenchymal stem cells, adipose derived stem cells, peripheral blood derived stem cells and existent modalities to procure them will be detailed. Several main indications and current limitations of using various sources of stem cells as injection therapy or as augmentation of existent orthopedic procedures will be briefly presented.

Conclusion. General considerations and recommendation for the use of orthobiologics will be provided together with selected available results. In parallel, existent available stem cell-based products available for clinical use will be named along with principal regulatory landscape that govern their marketing approval.

Keywords: stem cells, mesenchymal stem cells, orthobiologics, orthopedics, advanced therapies medicinal products

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