Biologics in Orthopaedic Surgery

Mazzocca AD, Lindsay A. Biologics in Orthopaedic Surgery. Elsevier Health Sciences; 2018.


Biologics are defined as therapies that are created from living sources, such as human, animal, or microorganisms. In the context of orthopaedics, these therapies include platelet-rich plasma (PRP), mesenchymal stromal cells (MSCs), and growth factors.

The high prevalence of painful and disabling orthopaedic conditions, coupled with the rise in the number of clinical trials evaluating the use of PRP and MSCs, has likely contributed to the growing interest in these treatments. However, there is limited evidence to support their efficacy, and there is a lack of consensus on their optimal preparation and use.

While biologics may have the potential to treat many common orthopaedic injuries and conditions, there is limited evidence to support their efficacy. For example, in a study comparing the use of PRP with traditional rehabilitation in patients with chronic knee pain, there was no significant difference in pain and function outcomes between the two groups.

There has been considerable progress in sports medicine where clinicians can turn to different evidence-based guidelines. For example, in "A Practical Guide for the Current Use of Biologic Therapies in Sports Medicine," Lamplot et al. (2020) summarize findings of Level 1 and Level 2 studies examining the safety and efficacy outcomes of using PRP and/or cell therapy for sports injuries.

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