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Opinion

Inertia to Integrate Orthobiologics into Orthopaedic Practise: Are We Asking the Right Question?

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One of the most ironic realities of orthopedic regenerative medicine practice is that, before being able to consider any treatment methods involving regenerative medicine, we frequently ask for high-quality evidence [1]. If we look closer, we must only consider only procedures with level 1 evidence from either randomized controlled trials (RCTs) or reviews of similar RCTs favoring their use in our orthopedic practice. However, one must realize that for a treatment method to reach such a high level of evidence, it needs to be embraced in the first hand considering the ingenuity and potential behind its usage from the preclinical and *in-vitro* studies backing their use. Moreover, these procedures need to travel a long way until it acquires a high-level research funding to generate sufficient high-quality evidence to grab its place in routine practice.

Orthobiologics are biologically inspired products aimed at facilitating tissue regeneration and aids in augmenting the existing stand of orthopedic care across various spectrum of disorders. Substances that are normally found in the blood depend on the biological features of their components. About 50 years ago, Urist., *et al*. [2] were the first to identify one such material called bone morphogenetic protein (BMP), which would help in bone regeneration. The discovery of BMPs paved the way for more and more studies, which has nevertheless opened up an enormous number of questions that were unanswered thereby paving the way for expanding the horizons of its understanding and utility. Meanwhile, in the last two decades, remarkable improvements in the medicinal application of orthobiologics have made them a choice of concern in tissues such as bone, ligament, tendon, and cartilage [3].

Let's take a look into the evidence supporting the two most widely used orthobiologics, Platelet Rich Plasma (PRP) and Bone Marrow Aspiration Concentrate (BMAC) [4]. Both of them were used to treat knee arthritis. If we look into the quality of evidence supporting their use, there are more than 2 dozen level 1 studies demonstrating that platelet-rich plasma is successful in the treatment of knee arthritis [5,6]. Also, long term high-quality studies proving the efficacy of BMAC in knee arthritis is on the rise [7,8]. If we start to compare the efficacy of the most commonly performed elective knee procedure in the United States, partial meniscectomy, the situation becomes worse. We found three level-1 studies stating that surgery is ineffective [9,10].

Moreover, the study by D Buford., *et al*. [1] on analyzing 1400 peer-reviewed publications found that the average level of evidence of research published in six leading orthopedic journals in a year was only Level 3 and the common study design performed was case-control studies since most of the evolving orthopedic interventions are invasive making controlled trials or blinded trials unethical or impractical. Hence, expecting level 1 evidence to translate the application of any potential treatment methodology with proven efficacy across ailments of similar pathology seems irrational and reflect their inertia to improvise the existing treatment methods traditionally utilized.

Some of the practicing orthopedic surgeons are threatened by the fact that these regenerative procedures may replace some of their surgeries in the future and ask for level 1 studies before they would consider or recommend others to consider regenerative therapies for expanding their orthopedic applications. In fact, as

shown earlier, these regenerative treatments used in orthopedic practice have better research evidence than the commonly performed orthopedic surgeries and holds a future in changing the perspective of management of degenerative disorders. It is evident from the above discussion that it is not the efficacy of the regenerative treatment method that needs to be questioned but it is the acceptance level of the surgeon to implement evolving treatment methods into their surgical practice. We urge the surgeons to be more receptive to embrace the newer regenerative treatment methods into their surgical practice which is of proven benefit to the patients who are the ultimate beneficiaries irrespective of any treatment methods utilized.

Conflicts of Interest

Nil.

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