Editorial

Innovations in orthopaedics: Pioneering technique and technologies

In the dynamic field of orthopaedics, we are privileged to be a part of a profession that is as rewarding personally as it is beneficial to our patients and society at large. As orthopaedic surgeons, we are well compensated for our dedication to a craft that is not only our passion but also a means to significantly improve individual lives, healthcare systems, and community wellbeing. Our profession requires a perpetual commitment to innovation and learning, ensuring that we are equipped to make the best decisions for our patients who entrust us with their care.

Innovation, however, is a journey fraught with challenges and obstacles. The pioneers of our field have often encountered failure before achieving success [1]. When a new innovation surfaces, it must undergo rigorous scrutiny to establish its safety and efficacy. Yet, the measure of an innovation’s worth extends beyond its functionality. It must be assessed on whether it enhances outcomes, expedites recovery, mitigates risk [2], improves efficiency, is cost-effective, and what its environmental impact may be [3].

One of the more recent innovations in orthopaedics is the introduction of biotechnologies in sports medicine [4]. Platelet-rich plasma (PRP) therapy is one such breakthrough. It has shown considerable promise in improving the recovery and performance of athletes by accelerating the healing of sports-related injuries. PRP therapy’s rise in popularity has sparked a broader discussion about its potential orthopaedic applications.

Similarly, the diagnosis and management of knee instability, particularly after traumatic ligament injuries, such as those to the Anterior Cruciate Ligament (ACL), Posterior Cruciate Ligament (PCL), Anterior Lateral Ligament (ALL), and Medial Collateral Ligament (MCL), have been significantly refined through the advent of specialised instrumented tools. Innovations range from wearable sensors that monitor joint movement in real time to sophisticated laxity testers that provide objective data. These tools have transformed the diagnostic landscape, allowing for more accurate and individualized treatment strategies for patients with knee instability.

In the conversation about innovation, artificial intelligence (AI) stands out as the contemporary buzzword, with the potential to redefine patient treatment in the near future [5]. In our decision-making processes, we grapple with a complex interplay of internal biases and external pressures. As AI becomes increasingly integrated into our practice, it will reshape how we approach medicine, placing a greater emphasis on evidence-based decision-making. This era of AI integration into health care promises to be transformative, albeit not without challenges as we navigate the balance between human intuition and machine learning.

The past decade has seen a rapid evolution in medical innovations, accompanied by inevitable costs. Any introduction of new technology comes with financial and organisational implications. The justification for these expenditures requires clear, objective evidence of the benefits these innovations bring, a responsibility we owe to all stakeholders involved.

The excitement surrounding these advancements has been palpable, leading to fervent discussions within the medical community. As we move forward, it is imperative that this enthusiasm is matched with robust scientific research to discern true innovation from mere novelty.

The articles presented in this special issue aim to address this critical juncture. They delve into the core of the current innovations, separating empirical evidence from hyperbole. The current issue includes an article discussing the original publication of Dohan Eherenfest on classification of Platelet Concentrates by Marin Fermin et al. [6], a systematic review on instrument-based anterolateral rotatory laxity by Martinez-Can et al. [7], a current concept on AI in orthopaedic surgery [8] amongst other manuscripts with original research.

As practitioners, it is our duty to remain judicious, embracing new technologies while also maintaining a critical eye. In doing so, we continue to uphold the highest standards of patient care, ensuring that the advancements we adopt are not only new but also truly better. This is the promise and the challenge of innovation in orthopaedic surgery—a field that remains as exciting as it is vital to advancing human health and mobility.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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