Comment on “Twenty-two-year outcome of cartilage repair surgery by perichondrium transplantation” Maarten P. F. Janssen, et al

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We read with interest the article of Janssen and colleagues regarding the evaluation of perichondrium transplantation in patients affected by articular cartilage defects of the knee.1 The authors provided the failure rate of this cartilage procedure at a minimum of 22 years of follow-up, and the clinical outcome of the non-failed patients was evaluated using patient-reported outcome measurements (PROMs). They described an overall 66% survival of patients still without a major revision surgery (graft removal or arthroplasty) and they also underlined the influence of some factors such as age, previous symptoms duration, and previous surgery on the final outcome. Long-term evaluation is key to properly evaluate cartilage treatments and their potential to delay joint degeneration and the need for more invasive procedures. However, while we commend the authors for the high number of patients documented at long-term follow-up, with only 11% drop out rate, we would like to comment on the overall interpretation of the retrieved data.

As the authors themselves pointed out, there are different methods used to define failures. They choose to assess the risk of major revision surgery as their main study purpose. This led to a 34% failure rate, which is lower than what was previously reported at a much shorter follow-up (5-years) in the same cohort of patients, where a broader failure definition identified a 55% failure rate.2 Accordingly, caution is advised when interpreting failure data, as a narrower definition might lead to more positive conclusions regardless of the real outcome. Defining treatment failures only patients who underwent major revision surgery may lead to a plausible underestimation of the actual failure rate, as already shown for other cartilage procedures.3 In fact, the surgical definition might not provide an accurate assessment of the failure rate of a procedure performed mostly in young patients, where physicians and patients themselves might be more reluctant to undergo further procedures such as metal resurfacing, which are more invasive and might offer less satisfactory outcomes than in older patients. In this light, failure definitions based on clinical criteria might be better suited for evaluating young patient populations undergoing cartilage procedures.4 Clinical failures can be generally defined either based on functional score improvement from baseline, or on the achievement of a minimum absolute objective or subjective score value.3 For the International Knee Documentation Committee (IKDC) score, for example, a 10-points improvement from baseline or a threshold value of 60 at follow-up have been suggested in the literature to define patient response to treatment.3,5 While in the current study no basal values are available, thus impairing the possibility to investigate the improvement-based failure definition, the authors report a final median IKDC score of 39.08. This score is particularly low for cartilage treatments especially considering it referred to the non-failed patients. Based on the interquartile range of 25.57 to 53.74, most of these patients would be considered failures when applying the previously proposed 60 IKDC points threshold for failures.5 With this in mind and considering the substantially lower results compared to other studies on cartilage procedures at long-term follow-up,6-10 the interpretation of the authors’ findings on perichondrium transplantation might appear less satisfactory.

There is an increasing attention in our field on the importance to properly evaluate treatment results and recently the use of psychometric measures, such as the Minimal Clinically Important Difference (MCID) and the Patient Acceptable Symptom State (PASS), is gaining interest as a suitable method to interpret the clinical outcome of cartilage surgical procedures. These methods have been developed to implement the PROMs and better determine the clinical relevance of a treatment over the mere statistical significance.11 In particular, MCID is defined as the smallest difference in a specific PROMs score which patients perceive as beneficial referring to the amount of absolute change in a PROMs score that relates to a clinical improvement, while PASS defines a level of symptoms that discriminates between feeling well and unwell.12,13 While such psychometric measures are far from being free from pitfalls,12 they may still contribute to a better definition of the clinical results and thus the clinical failure of a specific treatment, also for cartilage repair. In particular, the authors of this study, reporting only data at final follow-up, could not evaluate the MCID, but they could still use the PASS threshold for their patients. Accordingly, the IKDC score reported for non-failed patients was lower compared to the
PASS value reported in the literature, which questions the benefit of the procedure regardless of the re-intervention rate with major surgeries of only 34% at 22 years. Long-term data are important, and large well-documented series like this one are also useful to define patient characteristics predictive of the outcome. The critical evaluation of the results through broader failure definitions, as well as psychometric measures like MCID and PASS, could further improve the impact of such studies by providing a better interpretation of the study findings to understand the real potential of cartilage treatments.

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