

Editorial

# The Opportunities and Challenges of Telemedicine in the Management of People With Rheumatoid Arthritis

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As a specialty, rheumatology predominantly provides care for people living with chronic musculoskeletal disease. Most of the patient care delivered in contemporary rheumatology services is provided on an outpatient basis, whereas the need for inpatient care has declined over the last 2 decades in parallel with the expanding availability of effective therapeutics that can be administered by patients in their own home. Therefore, regular in-person review has traditionally been undertaken to evaluate therapeutic response, optimize achievable outcomes, mitigate against—and minimize—any risks associated with treatment, provide appropriate education, and address any broader issues that the patient may have with respect to their disease management. In the case of many inflammatory arthritides, and rheumatoid arthritis (RA) in particular, much emphasis has been placed on regular, in-person clinical assessment for evaluation of disease activity. These assessments allow for adjustments of medication as required, with a view to attaining and sustaining an ideal therapeutic target of remission in early-phase disease or, where that is not possible, and particularly in later-phase disease, a target of low disease activity (LDA) based around the principles of shared decision making between the patient and their rheumatologist, in a treat-to-target approach. The evidence is compelling that this improves the prognosis of patients with RA, and it has become a core principle of the RA treatment recommendations of the European Alliance of Associations for Rheumatology (EULAR) and the American College of Rheumatology.<sup>1-3</sup> However, for selected patients who have attained and sustained a desired

treatment target, there has long been interest in the potential for telemedicine consultation as a time-effective, alternative means of follow-up with several associated, potential advantages. These include convenience for patients for whom travel is difficult, reduction in time that is required to be absent from employment, prioritization of available in-person clinic review slots for those whose needs are most urgent, reduction of the impact of nonattendance, and provision of continuity of care in the face of workforce shortages.

Only limited research findings on the effectiveness and acceptability of telemedicine approaches in rheumatology have been published prior to the beginning of the SARS-CoV-2 pandemic.<sup>4</sup> These included 2 randomized controlled trials and 2 observational studies that specifically evaluated disease activity outcomes and collectively concluded that telemedicine follow-up was noninferior to in-person visits with respect to disease activity control and function.<sup>5-8</sup> Of note, patients randomized to the telemedicine arm in a Canadian study<sup>8</sup> more frequently assessed their care as being “excellent,” and a survey of patients receiving rheumatology care by telemedicine in Australia,<sup>9</sup> where there is a long history of remote clinics, reported an overwhelmingly positive experience that was related to the convenience of reduced travel, stress, cost, and time away from work.

When the SARS-CoV-2 pandemic began suddenly and unexpectedly in early 2020, it catalyzed a widespread shift in rheumatology outpatient care to remote delivery methods to protect patients, clinicians, and hospital staff. For the majority of rheumatologists who were without prior experience or training in telemedicine, the suddenness of changing circumstance represented a challenging start to this new approach to care. In the current volume of *The Journal of Rheumatology*, Prof. Avouac and colleagues describe their experience within the French healthcare system in the form of a retrospective, observational study of case notes from 143 people with RA whose scheduled face-to-face outpatient review had to be changed to a telemedicine consultation during the first wave of the SARS-CoV-2 pandemic.<sup>10</sup> The authors report the information that was documented during the telemedicine consultation; where a change in management was

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recommended, they provide details of treatment changes and the factors that informed the change. About three-quarters of remote consultations were by telephone and the remainder by video. C-reactive protein (CRP) elevations and patient self-reported flare were identified as particularly important “red flags” and confirmed as relevant factors in triggering a management change. Further, at face-to-face clinic follow-up appointments, clinical evaluation validated the appropriateness of the management decision in 9 of the 10 patients with self-reported RA flares and elevated CRP and in all remaining 133 patients, based on the variables ascertained during the preceding telemedicine consultation. However, recent CRP data were not available in 46% of the medical records.<sup>10</sup> This serves as a reminder of the importance, where feasible, of access to blood monitoring tests during a telemedicine consultation. Further, patients themselves should be reminded to attend for their scheduled blood tests.

Interestingly, treatment change was proposed in only 13/143 (9%) during a telemedicine appointment in the patient cohort reported by Avouac et al.<sup>10</sup> However, information regarding swollen joint counts (SJC) was rarely documented, although it is known that patients can be trained to reliably self-report SJC and tender joint count (TJC).<sup>11,12</sup> Yet traditionally, following the treat-to-target paradigm, the need for treatment change or otherwise would be determined by in-person assessment of composite measures of disease activity. In the Avouac et al study,<sup>10</sup> had it not been for the subsequent face-to-face reviews that confirmed the appropriateness of the clinical management recommendations during the telemedicine consultations, these data might have given rise to some nervousness regarding the potential to underestimate active disease and thereby miss the opportunity to intervene with an appropriate treatment change. The authors point out that use of patient-reported outcomes (PROs) was not widespread in their clinical practice when the first wave of the SARS-CoV-2 pandemic became apparent. However, when reflecting on the findings of their retrospective case study analysis, the authors acknowledged that there may be a place for the use of PROs to identify the most suitable candidates for telemedicine consultation. Physicians often express a preference for patients with established RA as being more suitable candidates for telemedicine consultations,<sup>6,7</sup> as was the case in the cohort described by Avouac et al.<sup>10</sup> If a relationship of trust has already been established in prior in-person consultations, it will be easier to ensure rapport during a telemedicine appointment. It will also allow the patient to proactively participate and provide information required to evaluate the status of disease activity and how this might affect their daily lives. Further, it will generally be those patients known, from prior in-person consultations, to be in stable remission or LDA who may be most suited to a telemedicine consultation. In the case of newly presenting patients, while the physician preference will generally be for a face-to-face appointment for initial assessment, there may be a case for the use of telemedicine reviews to triage referrals in order to prioritize the urgency of an in-person assessment and arrange for appropriate investigations to be undertaken in advance of that appointment.

The use of PROs is well suited to a telemedicine consultation, with a view to ensuring that disease activity is satisfactorily controlled and symptoms important to the patient are not missed.<sup>13</sup> The Routine Assessment of Patient Index Data 3 (RAPID3) is one of the most extensively validated PRO instruments, based solely on 3 subjective patient-reported domains: physical function, pain, and patient global assessment (PtGA).<sup>14</sup> It is quick to complete; shows a good correlation with composite scores of disease activity that include objectively assessed components, such as the Disease Activity Score in 28 joints (DAS28), Clinical Disease Activity Index, and Simplified Disease Activity Index; and can also be used to predict structural disease progression.<sup>15</sup> As such, RAPID3 could be suited for the purpose of telemedicine review in order to assess disease activity and detect flares that may indicate the need for closer patient monitoring or in-person assessment. However, in the previously reported findings from a prospective observational cohort, in which the longitudinal association between RAPID3 and DAS28 using erythrocyte sedimentation rate (ESR) and its individual components was tested, RAPID3 was most strongly associated with the subjective components of DAS28 (TJC and PtGA) but not with objective components (SJC and ESR).<sup>16</sup> The authors concluded that monitoring by RAPID3 alone is insufficient to follow disease activity in patients with RA in clinical practice.<sup>16</sup> Nonetheless, this finding does not exclude a potential utility for RAPID3 in the context of telemedicine assessment in selected patients. Another PRO with potential for similar use in the context of telemedicine consultations is the Rheumatoid Arthritis Impact of Disease (RAID) score, which could identify patients best suited to a telemedicine consultation and promote holistic management of subjective symptoms that might otherwise be overlooked.<sup>17</sup> RAID was developed as a EULAR initiative to combine the most important PROs into one measure.<sup>18</sup> This tool comprises 7 domains encompassing pain, fatigue, physical function, sleep, physical and emotional well-being, and coping. Each domain is scored using a numeric rating scale, giving a total score of 0 to 10, with higher scores indicating greater disease impact. In a recent study, Mistry et al<sup>19</sup> assessed the performance of the RAID score relative to the DAS28 in a cohort of 198 people with established RA. It was found that among 66 patients with a RAID score < 2, 92% to 97% met remission criteria and 98.5% were in remission or LDA according to DAS28-ESR or DAS28-CRP thresholds. A RAID score of < 2 is regarded as a patient acceptable symptom state (PASS)<sup>19</sup>; that is, a symptom state that the patient considers acceptable. These data provide confidence that in a telemedicine setting, patients reporting a RAID score of < 2 would have attained a DAS28 treat-to-target goal. Conversely, of the 134 patients in LDA or remission, 51.5% had a RAID score ≥ 2. The RAID domains that had the largest proportion of individuals with a score in the severe range (7-10) were fatigue (35.6%), sleep (33.3%), and emotional well-being (28.9%).<sup>19</sup> Even in the context of telemedicine consultations, inspection of scores across the RAID domains might help to quickly identify aspects of life most affected by RA for the individual patient and point toward nonpharmacological management approaches such as lifestyle

advice and cognitive behavioral therapy, both of which could be amenable to telemedicine delivery.<sup>20</sup>

In summary, the clinical data reported by Prof. Avouac et al<sup>10</sup> likely typify the experience of many rheumatologists for whom circumstance catalyzed a sudden shift to telemedicine outpatient care in the early days of the SARS-CoV-2 pandemic. The data highlight the need for further research and adoption of validated PROs. As many rheumatologists and patients have become more familiar with delivery of care by telemedicine, experience suggests that this option may continue to have a valuable role in the care of selected rheumatology patients, even following the lifting of pandemic-related societal restrictions, while recognizing that it will by no means be appropriate for all patients.

## REFERENCES

1. Smolen JS, Landewé RBM, Bijlsma JWJ, et al. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2019 update. *Ann Rheum Dis* 2020;79:685-99.
2. Fraenkel L, Bathon JM, England BR, et al. 2021 American College of Rheumatology guideline for the treatment of rheumatoid arthritis. *Arthritis Care Res* 2021;73:924-39.
3. Smolen JS, Breedveld FC, Burmester GR, et al. Treating rheumatoid arthritis to target: 2014 update of the recommendations of an international task force. *Ann Rheum Dis* 2016;75:3-15.
4. Matsumoto RA, Barton JL. Telerheumatology: before, during, and after a global pandemic. *Curr Opin Rheumatol* 2021;33:262-9.
5. Wood PR, Caplan L. Outcomes, satisfaction, and costs of a rheumatology telemedicine program: a longitudinal evaluation. *J Clin Rheumatol* 2019;25:41-4.
6. de Thurah A, Stengaard-Pedersen K, Axelsen M, et al. Tele-health followup strategy for tight control of disease activity in rheumatoid arthritis: results of a randomized controlled trial. *Arthritis Care Res* 2018;70:353-60.
7. Ferucci ED, Day GM, Choromanski TL, Freeman SL. Outcomes and quality of care in rheumatoid arthritis with or without video telemedicine follow-up visits. *Arthritis Care Res* 2022;74:484-92.
8. Taylor-Gjevne R, Nair B, Bath B, et al. Addressing rural and remote access disparities for patients with inflammatory arthritis through video-conferencing and innovative inter-professional care models. *Musculoskeletal Care* 2018;16:90-5.
9. Devadula S, Langbecker D, Vecchio P, Tesiram J, Meiklejohn J, Benham H. Tele-rheumatology to regional hospital outpatient clinics: patient perspectives on a new model of care. *Telemed J E Health* 2020;26:912-9.
10. Avouac J, Molto A, Frantz C, et al. Evaluation of patients with rheumatoid arthritis in teleconsultation during the first wave of the COVID-19 pandemic. *J Rheumatol* xxxxxx.
11. Dougados M, Soubrier M, Perrodeau E, et al. Impact of a nurse-led programme on comorbidity management and impact of a patient self-assessment of disease activity on the management of rheumatoid arthritis: results of a prospective, multicentre, randomised, controlled trial (COMEDRA). *Ann Rheum Dis* 2015;74:1725-33.
12. Tam K, Hazlewood GS, Barber CEH. Effect of training on patient self-assessment of joint counts in rheumatoid arthritis: a systematic review. *ACR Open Rheumatol* 2021;3:860-9.
13. Fautrel B, Alten R, Kirkham B, et al. Call for action: how to improve use of patient-reported outcomes to guide clinical decision making in rheumatoid arthritis. *Rheumatol Int* 2018;38:935-47.
14. Hendrikx J, de Jonge MJ, Fransen J, Kievit W, van Riel PLCM. Systematic review of patient-reported outcome measures (PROMs) for assessing disease activity in rheumatoid arthritis. *RMD Open* 2016;2:e000202.
15. Berthelot JM. RAPID3? Aply named! *Clin Exp Rheumatol* 2014;32 Suppl 85:S80-4.
16. Boone NW, Sepriano A, van der Kuy PH, Janknegt R, Peeters R, Landewé RBM. Routine Assessment of Patient Index Data 3 (RAPID3) alone is insufficient to monitor disease activity in rheumatoid arthritis in clinical practice. *RMD Open* 2019;5:e001050.
17. Taylor PC. Adopting PROs in virtual and outpatient management of RA. *Nat Rev Rheumatol* 2020;16:477-8.
18. Gossec L, Dougados M, Rincheval N, et al. Elaboration of the preliminary Rheumatoid Arthritis Impact of Disease (RAID) score: a EULAR initiative. *Ann Rheum Dis* 2009;68:1680-5.
19. Mistry J, Sharif M, Prideaux A, et al. Use of rheumatoid arthritis impact of disease (RAID) in routine care; identification of DAS28 remission and unmet patient reported outcomes. *Rheumatol Adv Pract* 2020;4:rkaa013.
20. Taylor PC, Van der Laar M, Laster A, et al. Call for action: incorporating wellness practices into a holistic management plan for rheumatoid arthritis – going beyond treat-to-target. *RMD Open* 2021;7:e001959.