Reumatol Clin. 17 (2021) 343–350

Sociedad Española de Reumatología - Colegio Mexicano de Reumatología

Reumatología Clínica

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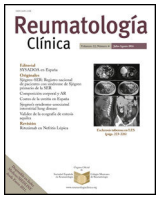

Original Article

Definition of Remission and Disease Activity Assessment in Psoriatic Arthritis: Evidence and Expert-Based Recommendations

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ARTICLE INFO

Article history:
Received 21 June 2019
Accepted 10 October 2019
Available online 16 December 2019

Keywords:
Arthritis
Psoriatic
Remission
Inflammation
Drug monitoring
Delphi technique
Outcome and process assessment (health care)

ABSTRACT

Objective: We aimed to reach a consensus on the best instruments to monitor disease activity in patients with psoriatic arthritis (PsA) and to develop a consensus definition of remission.
Methods: A modified Delphi approach was used. A scientific committee provided statements addressing the definition of remission and the monitoring of PsA in clinical practice. The questionnaire was evaluated in 2 rounds by rheumatologists with experience in managing PsA patients.
Results: A panel of 77 rheumatologists reached agreement on 62 out of the 86 proposed items (72.0%). The most recommended index for monitoring disease activity was DAPSA (cut-off values: ≤4 for remission and >4–14 for low disease activity ([LDA]), MDA (at least 5/7 criteria). In cases with axial involvement, ASDAS was the preferred index (cut-off values: <1.3 for remission and <2.1 for LDA). BASDAI (cut-off values: ≤2 for remission and ≤4 for LDA) may be used as an alternative. PsAID was the preferred tool to assess disease impact.
Conclusion: We propose a definition of remission in PsA as the absence of disease activity evaluated by DAPSA or MDA (ASDAS and/or BASDAI in patients with axial involvement), which would imply absence of signs or symptoms of inflammation, physical well-being, lack of disease impact, and absence of inflammation as measured by biological markers.

Definición de remisión y evaluación de la actividad de la enfermedad en la artritis psoriásica: recomendaciones basadas en la evidencia y la opinión de expertos

Palabras clave:
Artritis psoriásica
Remisión
Inflamación
Monitoreo de drogas
Técnica Delphi
Evaluación de procesos y resultados (atención de salud).

RESUMEN

Objetivo: Nuestro objetivo era alcanzar un consenso sobre los mejores instrumentos para monitorizar la actividad de la enfermedad en pacientes con artritis psoriásica (AP) y desarrollar una definición consensuada de remisión.
Metodología: Se utilizó una metodología Delphi modificada. Un comité científico propuso aseveraciones relacionadas con la definición de remisión y la monitorización de la AP en la clínica. El cuestionario fue evaluado en 2 rondas por reumatólogos con experiencia en el manejo de la AP.
Resultados: Un panel de 77 reumatólogos alcanzó un acuerdo en 62 de los 86 ítems propuestos (72,0%). El índice más recomendado para monitorizar la actividad de la enfermedad fue DAPSA (valores de corte: ≤ 4 para la remisión y > 4-14 para baja actividad de la enfermedad ([LDA]), MDA (al menos 5/7 criterios). En los casos con afectación axial, el índice preferido fue ASDAS (valores de corte: < 1,3 para remisión y < 2,1 para LDA). Como alternativa puede usarse BASDAI (valores de corte: ≤ 2 para remisión y ≤ 4 para LDA). PsAID fue la herramienta preferida para evaluar el impacto de la enfermedad.

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https://doi.org/10.1016/j.reuma.2019.10.003

Conclusión: Proponemos una definición de remisión en pacientes con AP como la ausencia de actividad de la enfermedad evaluada mediante DAPSA o MDA (ASDAS y/o BASDAI en pacientes con afectación axial), lo que implicaría ausencia de signos o síntomas de inflamación, bienestar físico, ausencia de impacto de la enfermedad y ausencia de inflamación medida por marcadores biológicos.

Introduction

Psoriatic arthritis (PsA) is a chronic heterogeneous inflammatory disease with a complex and varied clinical presentation. Its wide range of clinical manifestations and highly variable course make difficult the assessment of disease activity in routine clinical practice and in clinical trials.[1]

In recent years, significant advances have been made in the management of PsA with the introduction of innovative drugs, new treatment strategies, such as the 'treat to target' (T2T), and the development of instruments and scales to assess the activity of the disease combining patient and physician perspectives together with results from objective tests.[2] The primary goal of the treatment is the achievement of a state of clinical remission, including all the clinical features or domains of the disease, like musculoskeletal (arthritis, spondylitis, enthesitis, dactylitis) and skin involvement, as well as extra-articular manifestations. However, there is no universally accepted definition of remission for this entity.[1,3,4]

The objective of this article was to reach a consensus on the definition of remission in patients with PsA and give recommendations on the monitoring of the disease in clinical practice.

Material and methods

In this project, a consensus method (modified Delphi) were used,[5] which gathered the agreement of the experts based on their clinical experience and the available evidence. After an exhaustive review of the literature, a scientific committee composed of 5 renowned rheumatologists met to generate statements addressing the definition of remission of PsA in clinical practice. The questionnaire was submitted online in 2 rounds (September and October 2018) to a panel of Spanish rheumatologists with recognized experience in the management of PsA patients. The selection process of the expert panelists was based on: (1) more than 15 years of experience in the treatment of PsA; and (2) being part of multidisciplinary consultations with Dermatology. Additionally, preference was given to specialists who had participated in other studies on PsA. Their publishing activity on PsA was also taken into consideration. Most panelists were members of working groups focused on PsA (GEAPSOSER) or spondyloarthropathies (GRESSER) from the Spanish Society of Rheumatology.

Panelists assessed the statements with a nine-point ordinal scale (1 = full disagreement, 9 = full agreement). Responses were grouped into three categories: 1–3 = disagree; 4–6 = neither agree nor disagree; and 7–9 = agree. Consensus on a statement was reached when the median of the responses was within the 7–9 category (consensus on agreement) or within the 1–3 category (consensus on disagreement) and less than one-third of the panelists voted outside these categories. In addition, the interquartile range (IQR) should have been less than 4. Items on which panelists did not reach consensus in the first round were re-evaluated during a second round using the same criteria.

Results are shown in tables as median and IQR of the answers and degree of agreement, which was defined as the percentage of panelists who voted within the category that included the median of the answers. Taking into account the consensus statements, the scientific committee developed a table of conclusions and recommendations.

Results

The questionnaire consisted of 86 items divided into 3 blocks (Tables 1–3) and was submitted to a panel of 130 rheumatologists. In the first round of evaluation 79 out of 130 panelists responded to the questionnaire. Consensus was reached on 60 out of the 86 statements evaluated in the first round. Twenty-six questions on which there was no consensus were subjected to a second round of evaluation with the participation of 77 panelists out of the 79 panelists that had taken part in the first round. After the second round, a consensus was reached on 2 of them. Subsequently, after 2 rounds of evaluation, a consensus was reached on 62 out of the 86 proposed items (72.0%). All of them reached consensus on agreement. Table 4 summarizes the main statements agreed by the panelists and shows recommendations on the monitoring of the disease and a proposal for the definition of remission.

Discussion

Currently, there is not a universally agreed definition of 'remission' in PsA.[1,3,4] Equally, the best ways and instruments to monitor disease activity and adequate response to therapy remain uncertain.[6] In this article, a significant number of rheumatologists with experience in the management of PsA reached a consensus on aspects related to the definition of remission and provided insights on how to monitor activity.

Block I. State of the question and general concepts

Firstly, the panel agreed on certain variables that should be included in the definition of remission such as: the absence of signs and symptoms, physical well-being, the absence of impact of the disease, the absence of inflammation in imaging tests and the absence of inflammation measured by biomarkers.

The panelists did not reach an agreement on the inclusion of the 'absence of functional impairment' in the concept of remission in PsA. Functional status is a crucial aspect of the disease, but we agree with other authors that inclusion of functional status in the definition of remission is not that straightforward, because functional status is not influenced by disease activity alone.[1,4] Functional impairment may be due to previous sequelae (related or not to arthritis) despite the fact that the patient may be in remission, so it does not necessarily correlate with the current inflammatory activity of the disease but rather with the residual structural damage.[7] In addition, functional status is influenced by other factors such as age or comorbid conditions. These arguments may explain why functional status, was not included into the definition of remission by the panel although it is critical for the patients.

Similarly, the inclusion of 'psychic well-being' and 'social well-being' in the definition of 'remission' in PsA presents serious difficulties, because there are multiple external factors that may influence these aspects and not only the disease activity itself. The panel considered particularly important that the presence of con-

Table 1
Results block I. State of the question and general concepts.

	Median (IQR)	Degree of agreement	Result
1. In the management of psoriatic arthritis, there is no consensus definition of "remission".	8 (7–9)	87.3%	Agreement in 1st round
The definition of "remission" in PsA should include:			
2. Absence of symptoms and signs of inflammation.	9 (9–9)	100.0%.	Agreement in 1st round
3. Absence of functional impairment.	4 (2–7)	22.1%	No consensus
4. Physical well-being.	7 (7–8)	77.2%	Agreement in 1st round
5. Psychic well-being.	6 (3–7)	18.2%	No consensus
6. Social welfare.	5 (2–7)	19.5%	No consensus
7. Absence of impact of disease (e.g., PsAID < 1.4).	7 (7–8)	83.5%	Agreement in 1st round
8. Absence of progression in imaging tests.	8 (8–9)	86.1%	Agreement in 1st round
9. Absence of inflammation in imaging tests.	8 (7–9)	84.8%	Agreement in 1st round
10. Absence of inflammation measured by biological markers.	8 (8–9)	96.2%	Agreement in 1st round
11. Withdrawal of treatment.	3 (2–5)	62.3%	No consensus
12. The therapeutic goal of psoriatic arthritis should be to achieve remission, or if this is not possible, minimal disease activity	9 (9–9)	100.0%	Agreement in 1st round
13. In usual clinical practice, some activity evaluation index is systematically used	7 (5–8)	55.8%	No consensus
14. There is no consensus recommendation on which activity evaluation index should be used to monitor the therapeutic response in psoriatic arthritis	8 (7–9)	92.4%	Agreement in 1st round
15. In usual clinical practice, the strategy of treatment by objectives (treat to target) is not usually used for the treatment of people with psoriatic arthritis.	7 (4–8)	51.9%	No consensus
16. There is a need to define a minimum of variables that should be measured during consultation when treating a patient with psoriatic arthritis taking into account the time constraints.	9 (8–9)	94.9%	Agreement in 1st round
17. It is necessary to take into account the opinion of the patient when determining disease remission	8 (7–9)	94,9%	Agreement in 1st round
18. The disease impact on the patient should be quantified through validated questionnaires	9 (8–9)	96.2%	Agreement in 1st round
19. The psychosocial aspect of remission must be taken into account, because it may alter the definition of remission.	8 (6–9)	72.2%	Agreement in 1st round
20. To determine disease remission, it is necessary to take into account coexisting factors (fibromyalgia, etc.) that can alter the activity indices of the disease.	9 (8–9)	94.9%	Agreement in 1st round
21. During the evaluation of psoriatic arthritis patients, the presence of comorbidities must be added to the value obtained by the composite indices.	7 (5–8)	67.1%	Agreement in 1st round
22. In usual practice, rheumatologists do not have a high level of knowledge of the tools available to measure the activity of the disease.	7 (4.5–7)	51.9%	No consensus
23. In usual practice, rheumatologists do not adequately use the tools available to measure the quality of life.	7 (6–8)	68.4%	Agreement in 1st round

comitant fibromyalgia should be taken into account, since it has a remarkable effect on measures of impact of the disease.[8]

The panelists agreed that the therapeutic goal of PsA should be to reach remission. However, this is not always possible, therefore, low or minimal disease activity is an acceptable goal. This statement is in line with recent guideline recommendations on the pharmacological management of PsA.[6,9]

Some studies, including one randomized clinical trial[10] and real-world studies,[11,12] have emphasized the need to apply a treatment strategy based on objectives (T2T) in PsA, but our panel did not agree on this. The use of T2T approach may be limited due to lack of universal consensus on how to measure this objective (remission or low activity). The application of this strategy comes from rheumatoid arthritis (RA) data, where the objective is usually defined based on DAS28. However, PsA has a much more heterogeneous presentation and it is more difficult to define a single objective. Therefore, different objectives may be defined taking into account all domains of the disease, as the Group for Research and Assessment of Psoriasis and Psoriatic Arthritis (GRAPPA) suggests.[13] Implementing this strategy may also require a more exhaustive follow-up, which is not always feasible in busy outpatient units.

The panelists did not agree on the item that assessed to what extent the rheumatologists know the different instruments to measure disease activity. Rheumatologists are likely to have little knowledge about the instruments used in the assessment of patients with PsA. The infrequent use of these indices in clinical practice may be associated with the wide range of instruments available, their complexity, their limitations to cover the entire spectrum of the disease, and the lack of consensus in the literature regarding which tool should be applied routinely in real world setting. In our opinion, in clinical practice many rheumatologists may be using DAS28 because they are more familiar with the use of this instrument even though it was developed for the assessment of RA and not for PsA. However, the use of DAS28 has important limitations in PsA: it only adequately evaluates polyarticular forms (≥5 joints), the 28 painful/swollen joints count does not include some that are frequently affected in PsA patients, and other domains such as skin involvement or enthesitis are not assessed. In any case, it would be interesting to carry out studies to determine to what extent clinicians know and use the different measurement instruments and strategies such as the T2T in clinical practice, since there is significant scarcity of data in this regard.

Block II. General recommendations in the follow-up

In this block of statements, the panel agreed on some practical recommendations on how to monitor disease activity. Firstly, it is recommended to use a composite index specifically designed for PsA to be used for the assessment of this condition. The panel considered that a minimum of variables should be included in the assessment of PsA in the outpatient setting, such as: joint pain, joint swelling, enthesitis, dactylitis, skin, nails, physical function,

Table 2
Results block II. Specific recommendations on the use of disease activity indices.

	Median (IQR)	Degree of agreement	Result
24. It is advisable to use a composite index to monitor the activity of the disease in people with psoriatic arthritis.	9 (8–9)	89.9%	Agreement in 1st round
25. In case of measuring disease activity, it is advisable to use indices designed specifically for psoriatic arthritis.	9 (8–9)	97.5%	Agreement in 1st round
The clinical assessment of a patient with psoriatic arthritis in the consultation should include minimum the evaluation of:			
26. Joint pain.	9 (9–9)	100.0%	Agreement in 1st round
27. Enthesitis.	9 (9–9)	98.7%	Agreement in 1st round
28. Dactylitis.	9 (9–9)	98.7%	Agreement in 1st round
29. Skin.	9 (7–9)	91.1%	Agreement in 1st round
30. Nails.	8 (7–9)	86.1%	Agreement in 1st round
31. Physical function.	8 (7–9)	87.3%	Agreement in 1st round
32. Fatigue.	6 (5–8)	29.9%	No consensus
33. Axial involvement.	9 (9–9)	97.5%	Agreement in 1st round
34. Quality of life.	8 (7–9)	82.3%	Agreement in 1st round
35. Emotional well-being.	6 (4.5–7)	29.9%	No consensus
36. Structural damage by means of imaging techniques.	8 (7–9)	87.3%	Agreement in 1st round
37. PCR.	9 (8–9)	96.2%	Agreement in 1st round
38. Cost-benefit of drugs.	7 (3–8)	51.9%	No consensus
39. Overall assessment of the patient.	9 (8–9)	97.5%	Agreement in 1st round
40. Skin assessment by the patient.	7 (6–9)	73.4%	Agreement in 1st round
41. Overall assessment of musculoskeletal manifestations by the physician	9 (8–9)	93.7%	Agreement in 1st round
42. Overall skin assessment by the physician	8 (7–9)	81.0%	Agreement in 1st round
43. Extra-articular manifestations.	9 (8–9)	92.4%	Agreement in 1st round
44. The use of treatment by objectives strategy (treat to target) in the management of patients with severe psoriatic arthritis with high risk of poor outcome is adequate.	9 (8–9)	96.2%	Agreement in 1st round
45. The aim of treatment should be the clinical remission of musculoskeletal, skin and nail inflammatory manifestations.	9 (8–9)	96.2%	Agreement in 1st round
46. Low or minimal disease activity may be an alternative treatment objective.	9 (8–9)	98.7%	Agreement in 1st round
47. Clinical remission should be defined as the absence of clinical and laboratory evidence of inflammatory activity.	9 (7–9)	84.8%	Agreement in 1st round
48. Clinical remission should be defined as the absence of clinical, laboratory and imaging evidence of significant disease.	8 (6–9)	73.4%	Agreement in 1st round
49. Imaging tests are not necessary to define clinical remission.	6 (3–8)	18.2%	No consensus
50. Follow-up of patients with an optimal state of disease control should be provided every 4 months.	7 (3–8)	51.9%	No consensus
51. Reviews of patients with a non-stabilized disease should be performed with an appropriate periodicity to achieve control of the disease in the shortest possible time.	9 (9–9)	97.5%	Agreement in 1st round
Blood laboratory tests when reviewing patients with psoriatic arthritis should include:			
52. Hemogram.	9 (9–9)	100.0%	Agreement in 1st round
53. Renal profile.	9 (8–9)	98.7%	Agreement in 1st round
54. Liver profile.	9 (9–9)	98.7%	Agreement in 1st round
55. Glycemia.	9 (8–9)	82.3%	Agreement in 1st round
56. C-reactive protein.	9 (9–9)	100.0%	Agreement in 1st round
57. Lipid profile.	8 (7–9)	88.6%	Agreement in 1st round
58. Laboratory tests when reviewing patients with psoriatic arthritis should include a urinalysis.	6 (3–7.5)	19.5%	No consensus
59. During the follow-up of patients with psoriatic arthritis, simple x-rays should be performed annually during the early stages of the disease (the first 3–4 years).	8 (7–9)	79.7%	Agreement in 1st round
60. During the follow-up of patients with psoriatic arthritis, ultrasound or MRI should be performed when there is a discrepancy between disease activity and clinical indices.	8 (8–9)	88.6%	Agreement in 1st round
61. During the follow-up of patients with psoriatic arthritis, ultrasound or MRI should be performed whenever it is considered necessary to make decisions regarding treatment.	9 (8–9)	94.9%	Agreement in 1st round
62. During the follow-up of patients with psoriatic arthritis, ultrasound or MRI should be performed to establish a differential diagnosis with other processes.	5 (3–7)	26.0%	No consensus

axial involvement, quality of life, structural damage by means of imaging techniques, C-reactive protein (CRP) levels, patient global assessment, assessment of the skin by the patient, physician global assessment of musculoskeletal manifestations, physician global assessment of the skin, and extra-articular manifestations. However, it has been pointed out that the application of these instruments can be time-consuming and it is not always realistic to evaluate all of these variables in routine clinical practice.

Table 3
Results of block III. General recommendations during the consultation.

	Median (IQR)	Degree of agreement	Result
63. The most recommended index to use during the consultation with the objective of monitoring the activity of the disease is the DAPSA.	7 (6–8)	74.7%	Agreement in 1st round
64. The most recommended index to use during the consultation with the objective of knowing if the patient has reached the minimum activity of the disease is the MDA.	8 (7–9)	79.7%	Agreement in 1st round
65. It is advisable to use DAPSA or MDA during all follow-up visits.	7 (5–8)	54.5%	No consensus
66. It is advisable to do DAPSA during all follow-up visits.	7 (5–8)	58.4%	No consensus
67. It is advisable to do MDA during all follow-up visits.	6 (3–7)	31.2%	No consensus
68. It is advisable to do DAPSA plus an assessment of enthesitis during all follow-up visits.	7 (5–8)	59.7%	No consensus
69. It is advisable to count swollen (66) and painful (68) joints during all follow-up visits.	8 (5–8)	66.2%	No consensus
70. The tool for assessing disease activity depends on the type of patient.	8 (6–8)	70.9%	Agreement in 1st round
In case of using DAPSA or MDA in the evaluation of disease activity, the objective of the treatment should be:			
71. DAPSA ≤ 4	8 (7–9)	86.1%	Agreement in 1st round
72. DAPSA > 4 and <14 (low activity).	7 (6–8)	74.7%	Agreement in 1st round
73. MDA 5 out of 7.	8 (7–9)	87.3%	Agreement in 1st round
74. MDA 7 out of 7 (very low disease activity, remission).	7 (6–8)	68.4%	Agreement in 1st round
75. In patients with psoriatic arthritis, in case of predominantly axial involvement, it is advisable to evaluate the activity of this component through ASDAS.	8 (7–9)	93.7%	Agreement in 1st round
76. In patients with psoriatic arthritis, if there is involvement of axial predominance, it is advisable to evaluate the activity of this component through BASDAI.	7 (6–8)	68.4%	Agreement in 1st round
77. In patients with psoriatic arthritis, in case of predominantly axial involvement, it is advisable to evaluate the activity of this component through ASDAS and BASDAI.	8 (7–8)	89.6%	Agreement in 2nd round
78. We must collect the opinion of the patient about the impact of the disease during all visits.	8 (7–8)	76.6%	Agreement in 2nd round
79. It is necessary to assess the quality of life during all visits.	3 (2–6)	50.6%	No consensus
For the assessment of quality of life in clinical practice, it is recommended to use:			
80. PsAID: Psoriatic Arthritis Impact of Disease.	8 (7–8)	75.9%	Agreement in 1st round
81. EQ-5D: EuroQol five Dimension Scale.	6 (3–7)	31.2%	No consensus
82. SF-36: Medical Outcomes Study Short Form-36.	5 (2–7)	31.2%	No consensus
83. DLQI: Dermatology Life Quality Index.	6 (3.5–7)	40.3%	No consensus
84. PtGA: Patient Global Assessment.	8 (6–8)	72.2%	Agreement in 1st round
85. VITACORA-19.	5 (2–6)	46.8%	No consensus
86. It is advisable to use self-administered questionnaires to be filled in the waiting room or brought completed from home.	8 (7–9)	91.1%	Agreement in 1st round

Disease Activity Index for Psoriatic Arthritis, DAPSA); Minimal Disease Activity, MDA; Very Low Disease Activity, VLDA; Ankylosing Spondylitis Disease Activity Score (ASDAS); Bath Ankylosing Spondylitis Disease Activity Index (BASDAI

Fatigue was not included among the variables that might be routinely assessed. Although fatigue is prevalent in PsA patients, it may be the result of comorbidities or prior functional impairment not necessarily related to current disease activity.[14] Emotional well-being assessment can also create confusion due to similar reasons. Therefore, fatigue and emotional well-being might be included in the anamnesis, however they do not necessarily measure disease activity systematically. On the contrary, it is important to bear in mind that these variables may interfere with the assessment of disease activity.[15]

The inclusion of imaging tests for the assessment of PsA provides an objective parameter, which could allow for the evaluation of both inflammatory activity and structural damage as well. However, there is currently no consensus on what tests should be done and how often. It has been established that radiography has a prognostic value in PsA, as joint damage detected by radiographs is an independent variable in the prognosis of further radiological progression.[16] In the clinical trial ADEPT, radiographs of hands and feet were used successfully to assess the inhibition of structural damage by adalimumab compared to placebo in PsA patients at 48 weeks and 2 years.[17] Furthermore, although ultrasonography (US) and magnetic resonance imaging (MRI) are more sensitive to detect erosions than radiography[16] and both are the most sensitive methods for soft tissue assessment,[16] their role in the follow-up of inflammatory activity has not been clearly established as yet.[18] These tests may be necessary in some patients when there are doubts about the type of inflammatory involvement (synovitis, enthesitis and/or dactylitis), in locations where physical examination has limitations (spine, sacroiliac joints), or when there is disagreement between the subjective assessment of the patient and the objective data obtained by physical examination, laboratory tests or disease activity indices. The detection of subclinical inflammation on medical imaging complicates the definition of remission because the meaning and implications of this activity are not completely understood. Some studies suggest that it is related to the development of flares and structural damage.[19,20] Persistent synovitis and enthesitis detected by US after 6 months of therapy might be predictors of subsequent structural progression. In addition, amongst patients with PsA in clinical remission, power Doppler ultrasound-detected synovitis is a strong predictor of short-term flare of the disease.[21]

Table 4
Conclusions and recommendations.

Current situation and general concepts about the remission in PsA
- Currently in the literature there is no agreed definition of the concept of "remission" in PsA.
- The definition of PsA remission should include: absence of signs or symptoms of inflammation, physical well-being, absence of disease impact, absence of progression in imaging tests, and absence of inflammation both by imaging tests and measured by biological markers.
- Although the ideal therapeutic goal in PAs should be to achieve remission, in the case this is not possible, low activity of the disease is considered to be an acceptable therapeutic objective.
- There is a need to define which are the minimum variables that should be measured during the consultation with a PA patient, taking into account the time constraints.
- When determining the remission of the disease, it is necessary to take into account the patient's opinion, their comorbidities, psychosocial aspects and possible confounding factors, such as fibromyalgia. The impact of the disease must be evaluated through validated questionnaires.
- It is necessary to improve the knowledge that rheumatologists have of the tools available to measure the quality of life.

General recommendations on disease monitoring
- It is advisable to use a composite index to monitor the activity of PAs through indexes designed specifically for this disease.
- It is recommended that the basic evaluation of a patient with PAs during the consultation includes assessment of: joint pain, enthesitis, dactylitis, skin, nails, physical function, axial involvement, quality of life, structural damage by means of imaging techniques, C reactive protein (CRP), global assessment of the patient, assessment of the skin by the patient, overall assessment by the doctor of musculoskeletal and skin manifestations and extra-articular manifestations.
- The use of treatment by objectives strategy (treat to target) in the management of patients with severe PAs or at high risk of structural progression is adequate.
- Reviews of patients with a non-stabilized disease should be performed with the appropriate periodicity to achieve control of the disease in the shortest possible time.
- The blood laboratory tests to review patients with PAs should include at least: full blood count, renal profile, liver profile, blood glucose, CRP and lipid profile.
- Regarding imaging tests, simple radiographs should be performed periodically during the early stages of the disease (first 3–4 years) and ultrasound or nuclear magnetic resonance (MRI) when there are discrepancies between disease activity and clinical indices, or whenever it is considered necessary for the decision making regarding treatment.

Specific recommendations on the use of activity indices
- The most advisable index during consultation to monitor the activity of the disease is the DAPSA (Disease Activity in Psoriatic Arthritis), with cut-off values of ≤4 for remission and >4–14 for low activity of the disease.
- The most advisable index during consultation to assess whether the patient has reached the minimum activity of the disease is the MDA (Minimal Disease Activity), with cut-off values of 5 criteria out of 7.
- It is recommended to perform these indices periodically, although there is no consensus on whether to perform them at all follow-up visits.
- In patients with PAs and axial involvement, the use of ASDAS (or BASDAI) is recommended.
- The Psoriatic Arthritis Impact of Disease (PsAID) and the PtGA (Patient Global Assessment) questionnaire is recommended for the evaluation of health-related quality of life.
- The proposed definition of clinical remission in PsA is the absence of disease activity evaluated by DAPSA or MDA (ASDAS and/or BASDAI in patients with axial involvement) which would imply absence of signs or symptoms of inflammation, physical well-being, lack of disease impact, and absence of inflammation as measured by biological markers.

Regarding acute phase response indices, such as CRP, it is important to emphasize that these laboratory markers of inflammation have limitations since both are elevated in only half of the patients with PsA. However, when these two markers keep increasing, their utility for the evaluation of disease activity is undeniable.[22]

No consensus was reached on what should be the optimal frequency of follow-up visits in patients who have achieved the objective of having the inflammatory activity of their disease controlled. A follow up at 4 months intervals has been suggested, but this may vary depending on several factors. We propose that in patients in clinical remission without treatment, the visits could be spaced even up to every 6–9 months. However, it is important to allow the patient the possibility to return in case of a flare. A plan that could be used is to progressively prolong the intervals between the visits once the patient has reached remission (6, 9, 12 months), especially if nursing consultations are used as suitable alternatives.

Block III. Specific recommendations on the use of activity indices

The panelists agreed that the most recommended tool to assess the disease activity in the clinic is the Disease Activity Index for Psoriatic Arthritis (DAPSA), with cut-off values of ≤4 for remission and >4–14 for low disease activity. Similarly, the most recommended index to assess whether the patient has reached minimum disease activity is the MDA,[23] when at least 5 out of 7 criteria are met. The Ankylosing Spondylitis Disease Activity Score (ASDAS)[24] may be used in cases with axial involvement, with the following cut-off values: <1.3 for remission and <2.1 for low disease activity. We propose that the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) (cut-off values: ≤2 for remission and ≤4 for LDA) may be used as an alternative to ASDAS. So the proposed definition of remission in PsA included: the absence of disease activity assessed by using DAPSA or MDA, and in patients with axial involvement, the absence of activity evaluated by ASDAS (or BASDAI as an alternative). There was also consensus to include the PsA Impact of Disease questionnaire (PsAID) and Patient Global Assessment questionnaire (PtGA) in the assessment of the impact of the disease during the follow-up visits.

DAPSA is an index that includes patient global and pain assessments, 68 tender joint count (68 TJC) and 66 swollen joint count (66 SJC) assessments, and CRP levels. One important advantage of DAPSA over other indices is that it provides a continuous measure and thresholds for high, moderate or low activity and remission based on a score.[25] Higher DAPSA scores are significantly associated with higher probability of structural progression.[23] Furthermore, DAPSA correlated with function[23] and with the impact of disease as measured by PsAID.[26] In addition, it has been validated in clinical trials.[25] Limitations of DAPSA are that it does not contain domains for skin, enthesitis, dactylitis, or axial disease assessments.[25]

On the other hand, MDA is a dichotomous instrument (Yes/No answers) that includes seven variables (tender/swollen joint counts, tender entheseal points, Psoriasis Area and Severity Index or body surface area, patient pain and global activity visual analog scale, and functional evaluation by Health Assessment Questionnaire [HAQ]). It has been widely used in clinical practice, including clinical trials using T2T approach, and in real life observational studies.[27] A sustained achievement of MDA is associated with

improved prognosis in terms of joint damage progression confirmed both by observational studies and registries, and likely with improvements in function and quality of life.[27] MDA has certain limitations as well. It has been argued that the lack of acute-phase reactants could limit the validity of MDA. Additionally, MDA includes a low level of HAQ, which may be difficult to be achieved in an established disease irrespective of disease activity levels.[27] Finally, it has been recently showed that DAPSA-based remission/low disease activity performs better than MDA to detect patient-defined remission or remission/low disease activity.[28]

In axial SpA, evidence suggests that the ASDAS better reflects the inflammatory disease processes (both with biomarkers of inflammation and MRI inflammation scores) than BASDAI.[29] In line with recent recommendations,[2] we considered that ASDAS is preferred, and BASDAI may be used as an alternative.

The assessment of quality of life is an important outcome measure from the perspective of the patient and includes aspects not evaluated in the usual activity indices. In this consensus, the Psoriatic Arthritis Impact of Disease (PsAID)[30] was the tool that obtained greater degree of agreement. The initial validation study by *Gossec et al.*[30] demonstrated that PsAID has good correlation with patient global assessment, little variability in a retest when the patient was asked again 2–10 days later, and an acceptable sensitivity for treatment changes.

There are several limitations of our consensus that must be noted. The Delphi methodology prevents discussing the statements in detail and the questionnaire is designed by a limited number of experts so some issues may be overlooked. For instance, we do not include in the questionnaire statements related to other indices designed to evaluate disease activity. However, based on the evidence and our expertise we considered that the included indices were the most realistic in clinical practice. It might also be argued that the panelists agreed that the aim of treatment should be the clinical remission of musculoskeletal, skin and nail inflammatory manifestations, and that multiple domains should be evaluated, but they only selected tools to define remission that include a limited number of domains, such as DAPSA that only assesses the joints. Moreover, imaging is not directly included in these instruments. However, panelists' statements in block I and II are related to an ideal definition of remission while DAPSA or MDA could have been selected taking into account a more practical definition of remission in real life, with limitations but realistic and practical, having also in mind that achieving these goals is associated with less radiographic progression.[27]

Conclusion

Based on the opinion of a significant number of rheumatologists with experience in the management of PsA, we propose a definition of remission in PsA as the absence of disease activity evaluated by DAPSA or MDA (ASDAS and/or BASDAI in patients with axial involvement), which would imply absence of signs or symptoms of inflammation, physical well-being, lack of disease impact, and absence of inflammation as measured by biological markers. The recommended indexes for monitoring disease activity are DAPSA and MDA. ASDAS is preferred in cases with axial involvement, with BASDAI as an alternative. PsAID is the preferred tool to assess disease impact.

Funding support

Novartis Pharmaceuticals funded this work without participating in its design, analysis of data, or preparation of the manuscript. Panelists received no funding for their contribution.

Conflict of interest

Raquel Almodóvar has received payments for lectures, advisory services, attendance at conferences, training courses and development of educational programs from Abbvie, Celgene, Gebro, Janssen, Lilly, MSD, Novartis, Pfizer and UCB.

Juan D. Cañete has received payments by conference or scientific consultancies from Celgene, Gilead, Janssen, Lilly, Novartis, Pfizer and UCB.

Eugenio de Miguel has received payments for lectures or educational material, research funds and advisory services from Abbvie, Novartis, MSD, Pfizer, Roche, Jansen, Grunental, UCB and BMS.

José A. Pinto has received payments by conference or scientific consultancies from BMS, Celgene, Janssen, Novartis, Pfizer and MSD.

Rubén Queiro has received payments as panelist, lecturer, member of advisory councils and as researcher from Abbvie, MSD, Pfizer, Lilly, Novartis, Janssen, UCB and Celgene. He has also received research funds from Abbvie and Novartis.

Acknowledgements

Authors would like to acknowledge the contribution of the participating panelists, who voted the statements following the Delphi methodology: Alejandro Balsa, Agustí Sellas Fernández, Alberto Alonso, Ana Carro, Ana Laíz Alonso, Ana Urruticoechea Arana, Andrea Cuervo, Azucena Hernández Sans, Beatriz Esther Joven Ibáñez, Blanca Correa Rey, Carlos Alberto Montilla Morales, Carlos García Porrúa, Carlos Javier Rodríguez Lozano, Carmelo Tornero, Carolina Álvarez Castro, Charo García de Vicuña, Cristina Campos Fernández, Cristina Macía, Diana Peiteado, Elena Aurrecoechea, Elena Garmendia Sánchez, Emma Beltrán Catalán, Eva Galíndez Agirregoikoa, Eva Tomero, Fernando José Rodríguez Martínez, Francisco Maceiras Pan, Francisco Ortiz Sanjuán, Isabel de la Morena, Jaime Calvo, Javier Bachiller, Javier Godó, Javier Rueda Gotor, Jesús Sanz, Joaquín Belzunegui, José Francisco García Llorente, José Campos Esteban, José Javier Pérez Venegas, José Manuel Rodríguez Heredia, José Ramón Maneiro, Juan Carlos Nieto, Juan Carlos Quevedo Abeledo, Juan José Lerma Garrido, Juan Moreno Morales, Julio Medina Luezas, Julio Ramírez García, Laura Magdalena, Lourdes Mateo Soria, Luis Francisco Linares Ferrando, M. Dolores López Montilla, M. Luz García Vivar, Manuel Fernández Prada, Manuel José Moreno Ramos, Manuel Pombo Suárez, Manuel Pujol Busquets, María José Moreno Martínez, María Teresa Navío Marco, Mariano Andrés, Marta Valero Expósito, Mauricio Mínguez Vega, Natalia Palmou Fontana, Olga Maiz Alonso, Patricia Moya Alvarado, Paz Collado, Pedro Zarco Montejo, Pilar del Río, Rafael Ariza, Ramón Fontova Garrofé, Ricardo Gutiérrez Polo, Ruth Lopez González, Sabela Fernández Aguado, Santiago Muñoz Fernández, Santos Castañeda Sanz, Sergi Ordóñez, Teresa Clavaguera Poch, Vega Jovani, Victoria Navarro Compán.

The authors would like to acknowledge Dr. W. Alberto Sifuentes Giraldo and Dr. Pablo Rivas who provided medical writing and methodological support on behalf of Springer Healthcare, with funding from Novartis Pharmaceuticals.

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