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Multidisciplinary dermatology–rheumatology management for patients with moderate-to-severe psoriasis and psoriatic arthritis: a systematic review

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Abstract The aim of the study was to analyze the efficacy and satisfaction of multidisciplinary dermatology–rheumatology management for patients with moderate-to-severe psoriasis and psoriatic arthritis (PsA). We conducted a systematic literature search in MEDLINE, EMBASE, and Cochrane Library up to September 2015. Selection criteria include (1) adult patients with moderate-to-severe psoriasis and PsA, (2) assessed in a multidisciplinary consultation, (3) comparison with routine separate consultations, and (4) outcome measures to evaluate efficacy and/or satisfaction. Meta-analyses, systematic reviews, clinical trials, cohort studies, and case series were included. The quality of the studies included was graded according to the Oxford Level of Evidence scale. Of 195 articles, three studies complied with the inclusion criteria: two case series and one descriptive study in which 506 patients were evaluated. Patients were referred to the multidisciplinary consultation from dermatology and rheumatology consultations in all but one study, in which primary care was also involved. The reason for the referral was to confirm the diagnosis and/or treatment. Patients were evaluated on a weekly and monthly basis in two and one study, respectively. The evidence obtained is scarce but suggests the efficacy of multidisciplinary consultations in terms of improved skin and joint symptoms after changing treatment (82–56 %), showing higher scores for this type of consultation compared to the usual [4.91 vs. 2.85 (0–5)] and a high level of satisfaction among patients (94 % "very satisfied"). However, waiting times were higher. With the limited evidence found, multidisciplinary management seems to be more effective and more satisfactory for patients with moderate-to-severe psoriasis and PsA than conventional consultations, though this could not be conclusively demonstrated. The results of this review support the benefit of implementing this type of consultation.

Keywords Systematic review · Psoriatic arthritis · Psoriasis · Management · Multidisciplinary · Consultations

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Introduction

Psoriasis is an immune-mediated, chronic inflammatory skin disease characterized by raised, red scaly plaques. Psoriatic arthritis (PsA) is a heterogeneous chronic inflammatory disease that may affect the peripheral and axial joints, entheses, skin and nails, and other organs.

The estimated prevalence of PsA in patients with psoriasis is 30–40 % [1–3], and up to 29 % of patients with psoriasis seen by dermatologists have undiagnosed PsA [1]. Given that early treatment improves the prognosis of PsA [4, 5], improving the detection of PsA is crucial. As around 80 % of patients with PsA develop psoriasis before musculoskeletal manifestations, dermatologists are in a unique position to recognize the early symptoms of PsA. While dermatologists are familiar with the skin and nail features associated with PsA, they may have difficulties in recognizing some musculoskeletal symptoms, due to the clinical heterogeneity of PsA. Two main approaches have been suggested to improve the detection of PsA in the dermatology clinic. First, some clinical signs and symptoms which dermatologists should be searching for in a psoriasis patient in addition to specific skin features and nail involvement have been suggested [2, 6–8]. Second, several self-administered PsA screening questionnaires have been developed and validated for use in psoriasis patients, but they are rarely used due to issues of diagnostic sensitivity and specificity [9–13]. Conversely, rheumatologists may have difficulties in identifying some psoriasis lesions in patients with musculoskeletal disease, resulting in a delayed diagnosis. As PsA patients are managed by dermatologists and rheumatologists separately, one important question is whether coordinated management by the two specialties would result in better outcomes of both skin and musculoskeletal manifestations. Therefore, there is increasing interest in coordinated management by dermatologists and rheumatologists both for the early diagnosis of PsA and for the therapeutic management of PsA patients with moderate-to-severe cutaneous and/or musculoskeletal involvement. Recommendations for the coordinated management of the disease based on PsA screening in dermatology and rheumatology clinics and on a concerted monitoring and treatment plan have been developed [7]. Another option is multidisciplinary consultations [14, 15], which are supported by the experience of multidisciplinary ophthalmology–rheumatology clinics. Acute anterior uveitis is often associated with spondyloarthritides and may be the first disease manifestation. Close collaboration between ophthalmologists and rheumatologists has improved the assessment and treatment of these patients [16, 17].

While there is some consensus on the need for a concerted assessment, it remains unclear what the best is or whether all options are equally valid.

The aim of this study was to evaluate the efficacy and level of satisfaction of combined management in multidisciplinary dermatology–rheumatology consultations compared with routine independent assessments in patients with PsA and psoriasis. We made a systematic literature review in the framework of the drawing up of the axial spondyloarthritis (AS) and PsA guidelines of the Spanish Society of Rheumatology.

Materials and methods

A systematic review was conducted to identify all studies published up to September 3, 2015 providing information on the efficacy and satisfaction of multidisciplinary dermatology–rheumatology management in patients with moderate-to-severe psoriasis and PsA. An expert committee developed the research question and adjusted it according to the PICO (patients, intervention, comparator, and outcome) system.

Search strategy

A librarian (MG) designed a search strategy for the following biomedical databases: MEDLINE (PubMed) (1950–September 3, 2015), EMBASE (1980–September 3, 2015), and the Cochrane Library (Wiley Online) (up to September 3, 2015). Initially, key search terms in natural language were identified and assessed using the PICO format to frame the question. A generic search strategy was then designed, consisting of exploited controlled vocabulary (Medical Subject Headings—MeSH, Emtree, and other thesauri) and free language. This was later adjusted to redefine the most relevant terms. The strategy was complemented by field identifiers, wild cards, proximity operators, and Boolean operators. This strategy was adopted for the various resources selected. The searches were conducted with a language restriction (English, French, and Spanish), but without time or geographical limits. Finally, a hand search was performed by reviewing the references of the included studies and the abstracts of the ACR congress (2013 and 2014) and the EULAR congress (2013, 2014, and 2015). A description of the search strategy is shown in Appendix 1 in Supplementary Material.

Selection criteria

The studies retrieved with the above strategies were finally included if they met the following predefined criteria: (1) adult patients with moderate-to-severe psoriasis and PsA; (2) assessed in a multidisciplinary dermatology–rheumatology consultation; (3) comparison with care in usual rheumatology and dermatology clinics, (4) outcome measures to evaluate efficacy (clinical joint and/or cutaneous improvement, disease activity rates, etc.) and/or satisfaction. Meta-analyses, systematic reviews, randomized controlled trials, open clinical trials, cohort studies, and case series were eligible.

Selection of studies and data collection

EndNote X7® software was used to manage the records retrieved by searches of the different electronic databases and manual search methods. Articles were selected, according to the inclusion criteria, by two independent reviewers (TCI and VV). Firstly, articles were selected according to title and abstract, followed by a full-text reading. If any discrepancy arose in either of the two selection phases, consensus was reached with the aid of a third reviewer (DS). Articles with incomplete data or which did not comply with the inclusion criteria were excluded. Authors were contacted when the full article was not available. Supplementary information was obtained for one of the studies. A reviewer (TCI) compiled the information on the studies included using standardized forms. When the data were not included in the text, they were extracted from the tables and figure to obtain the necessary information.

Assessment of the methodological quality and data analysis

The Oxford Level of Evidence rating scale was used to evaluate the methodological quality of the studies (Appendix 2 in Supplementary Material) [18]. Due to the small number of studies and their design, we focused on describing the studies in evidence tables, their results, and a qualitative synthesis rather than a meta-analysis.

Results

The literature search produced 195 articles, of which 186 were excluded after screening the title and abstract, leaving nine for a full detailed review [2, 14, 19–25]. Another article was identified following the manual search [26]. Finally, only three studies complied with the selection criteria [23–25]. The flowchart of the literature search summarizes these results (Fig. 1). The characteristics of the studies included are described in the evidence table (Table 1).

The studies selected include two case series with a retrospective analysis and one descriptive study, evaluating 506 patients with a diagnosis of psoriasis alone or PsA, of which 270 had PsA. Two studies evaluated efficacy [23, 24], while the third assessed patient satisfaction with the multidisciplinary approach [25]. The percentage of patients according to sex and age was described in two studies (58 % male in one and 53 % female in the other), and the age ranged from 35 to 65 years [23, 24]. Referrals to the multidisciplinary consultation were from routine dermatology (40–43 %) and rheumatology (27–57 %) consultations in all but one study, in which primary care was also involved (23 %) [23]. Patients were seen by multidisciplinary consultations on a weekly basis in two studies [23, 24] and monthly in the other [25]. The reason for referral was to confirm a PsA diagnosis in patients with psoriasis and/or treatment in moderate-to-severe skin and/or joint involvement [23–25]. The diagnosis of PsA was made based on CASPAR criteria. The two efficacy studies showed that patients referred to multidisciplinary consultation received some of the following treatments: topical, phototherapy, and systemic biologic and non-biologic agents. Patients were followed until a clinically relevant improvement and stabilization was reached; the mean follow-up time was specified (9 months) in one study [24].

In the satisfaction study, a questionnaire was given to all new patients in the multidisciplinary consultation, which was voluntary and anonymous, over a period of 17 months [25].

The outcome measures described in the studies are listed in the evidence table (Table 1), together with the quality rating of the studies, which was low in all cases.

Efficacy

Two studies analyzed efficacy (Table 2). Velez et al. [23] conducted a case series with a retrospective analysis that included 270 adult patients with psoriasis and PsA who were assessed in a multidisciplinary consultation over a 6-year period. The efficacy of combined management was evaluated on two levels. On the one hand, the efficacy of screening for joint diseases in patients with psoriasis and musculoskeletal pain was determined. A total of 59 % of patients with psoriasis were diagnosed as having PsA, and the remaining 41 % had some other joint disease, the most common being osteoarthritis (14 %). On the other

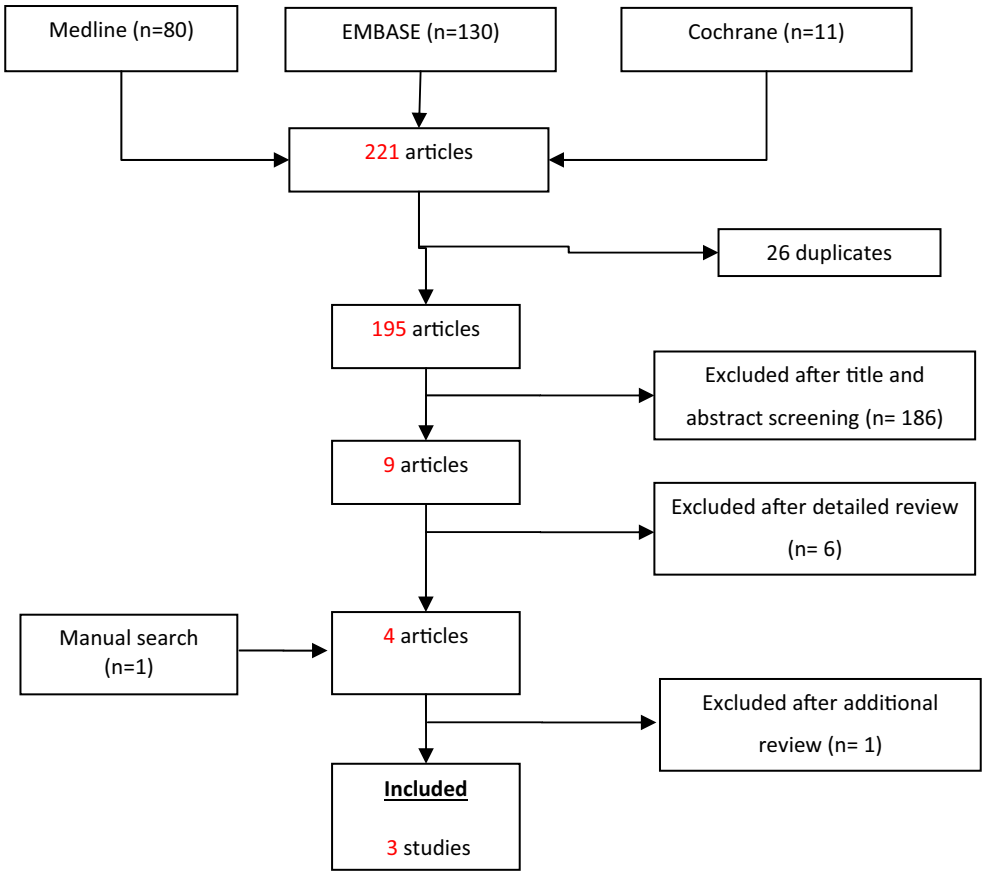

Fig. 1 Search strategy and results of the selection of articles

hand, clinical efficacy was measured as the percentage of improvement and discharges. To achieve this improvement, any adjustments made to treatments based on a combined consultation were also analyzed. In patients with psoriasis and PsA, the percentage using topical treatments decreased (50 vs. 38.8 %) and the percentage using systemic non-biologic treatments increased (14.6 vs. 25.4 %), reaching an OR of 5.1. In turn, the percentage use of systemic biologic treatments also increased (15.7 vs. 36.9 %). With these changes, improvements were seen in 82 % of referred patients who were discharged to the care of their usual physician.

Pérez-Barrio et al. [24] conducted a case series study with a retrospective analysis and a sample size of 188 patients diagnosed with psoriasis alone and moderate-to-severe PsA. Given that the information on this study was obtained from an abstract presented at a conference, we contacted the author who provided additional information with data covering the 3 years during which the multidisciplinary consultation was operating. As in the study by Velez et al., following multidisciplinary management, PsA was diagnosed in 30 % of patients with psoriasis. Plaque psoriasis (69.86 %) and peripheral joint involvement (65.5 %) were identified as the most common type of skin and joint conditions, respectively. Treatment changes were made in 53.6 % of patients: in 44 % of cases due to poor skin control, in 26 % due to poor joint control, in 15 % to poor control of both, in 8 % due to adverse events, and in 7 % due to paradoxical psoriasis. Phototherapy use decreased (29.6 vs. 27.8 %). The most common systemic non-biologic agents introduced in the multidisciplinary consultations were methotrexate (54.17 %), leflunomide (6.25 %), cyclosporine A (4.17 %), and Salazopyrin (2.08 %). In 11.2 % of patients, there was a change in the biologic therapy—starting, stopping, or change in dose. In turn, the percentage use of systemic biologic treatments also increased (20.9 vs. 28.5 %). These changes produced an improvement in 56 % of patients, and 62 % were discharged to be followed up by their usual physician.

Satisfaction

Foulkes et al. [25] evaluated satisfaction levels of patients with severe psoriasis and PsA treated in a multidisciplinary dermatology–rheumatology consultation in a descriptive study of 48 adult patients. All new patients attending

Table 1 Characteristics of studies included

Study	Population	Intervention	Outcome measures	Quality of evidence
Velez et al. [23] Follow-up period not specified Case series compiled over 6 years' consultations	N: 510 referred patients Patients with psoriasis only: 163 Patients with psoriatic arthritis, according to CASPAR criteria: 107 Mean age 50 ± 14.7 years 53 % female They showed no significant differences in age, sex, race, body mass index, and family history of psoriasis or psoriatic arthritis	Intervention Cared for in multidisciplinary dermatology–rheumatology consultation Treatment prior to multidisciplinary consultation Topical, systemic biologic, and non-biologic agents	% of new joint disease diagnoses in patients with psoriasis and musculoskeletal pain following management under multidisciplinary consultation Therapeutic changes after management in multidisciplinary consultation Topical treatment only Systemic non-biologic agents Biologic drugs % of discharges following treatment change and improvements	Oxford 4 Losses not reported
Pérez-Barrio et al. [24] 9 months Case series compiled over 3 years	N: 199 referred patients Patients with psoriasis (with or without psoriatic arthritis): 174 Patients with psoriatic arthritis, according to CASPAR criteria: 115 Patients with psoriasis alone and psoriatic arthritis: 188 Mean age 56.3 years 42 % female	Intervention Cared for in multidisciplinary dermatology–rheumatology consultation Treatment prior to multidisciplinary consultation 84.2 % topical 29.6 % phototherapy 62.8 % non-biologic disease modifying antirheumatic drugs or DMARDS (acitretin 14.4 %, cyclosporine 9.2 %, methotrexate 52.8 %, leflunomide 16.4 %, Salazopyrin 5.6 %, others 2.1 %) Mean DMARDS used per patient 1.5) 20.9 % biologic agent (etanercept 45 %, adalimumab 30 %, infliximab in 5 %, ustekinumab in 6.7 %, golimumab in 1.7 % and efalizumab in 11.7 % Mean biologic agent per patient 1.44	% of new psoriatic arthritis diagnoses in referred patients with psoriasis Changes to non-topical treatment after management under multidisciplinary consultation: Changes due to poor skin control, poor joint control, both, and other reasons % non-biologic systemic agents added: % new biologic treatment % response in psoriasis and/or psoriatic arthritis following combined therapeutic management % discharge after treatment change and improvement	Oxford 4 None lost to follow-up
Foulkes et al. [25] Follow-up not specified Descriptive study May 2010 to October 2011	N: 48 adult patients with psoriasis and psoriatic arthritis	Intervention Cared for in multidisciplinary dermatology–rheumatology consultation	Voluntary and anonymous satisfaction survey including 17 closed questions with one answer and an open section for suggestions	Oxford 4 We do not have the entire 17 questionnaire questions

Table 2 Diagnostic confirmation and efficacy following management in multidisciplinary dermatology–rheumatology consultation

Study	PsA diagnosis in patients with Ps	Diagnosis of joint disease other than PsA in patients with Ps	Clinical response in patients with PsA and Ps
Velez et al. [23]	92/173 (53.2 %)	81/173 (46.8 %)	82 % improved
Pérez-Barrio et al. [24]	30 %	–	56 % improved
			28 % remained the same
			2.67 % worsened
			13.3 % others

the consultation between May 2010 and October 2011 were given a satisfaction questionnaire to complete, on a voluntary and anonymous basis. It contained 17 closed questions with one answer and an open section for suggestions. The results of the satisfaction survey were analyzed by an independent physician, not involved in the multidisciplinary consultation. A summary of the results of the key questions on the questionnaire is shown in Table 3. Patients rated their experience of the multidisciplinary consultation as 4.91 compared to 2.85 (on a scale of 0–5) for their usual dermatology and rheumatology consultations. In addition, overall satisfaction with their experience in the multidisciplinary consultation, including satisfaction with physicians, was "very satisfied" in 94 % of patients. With all other measurements, a high degree of satisfaction was also reported by the majority of patients. However, one area that could be improved upon was waiting times: Only 41 % of patients were seen at the time of their appointment; the others had a wait of between 15 and 90 min.

Discussion

We conducted a systematic review of the scientific literature on the efficacy of and satisfaction with a multidisciplinary consultation approach for patients with moderate-to-severe psoriasis and PsA.

The review was limited both by the number of articles and their quality. The two efficacy studies [23, 24] were cases series with a retrospective analysis. They are very similar in terms of the type of patients referred, the aim (not only evaluating already diagnosed patients but also confirming the diagnosis), the frequency of the consultation, and the outcome measures used. In both, the time period during which this consultation was operating was very long (6 and 3 years). Confirmation of the diagnosis of PsA in patients with psoriasis was based on CASPAR criteria, and clinical efficacy was measured as the percentage of patients with an overall skin and joint improvement. Although the results of both studies were positive, there were some weaknesses inherent in their design: Moderate-to-severe activity was not defined, no specific disease activity index for each type of involvement (such as DAS 28 or PASI) was used, and how often the response to the treatment modifications was evaluated was not indicated. It was also decided to refer patients back to their regular consultation when the disease was controlled, but no percentage response rate was defined from which point the process was considered controlled. The percentages of diagnostic confirmation, therapeutic changes, and clinical responses were better in the study by Velez et al. [23]. This may probably be explained by the fact that, in this study, 23 % of patients were referred from primary care, where experience in managing these diseases is less.

Only one study was found that analyzed patients' satisfaction with the multidisciplinary consultation approach [25]. The rating for this type of consultation and the overall satisfaction was excellent, and this was the case with all the questions asked. However, the sample size was very small, and the results should be viewed with caution as there was no comparator group of patients treated under usual consultation conditions. The comparison was made by patients themselves with their previous experience in their usual clinics. In addition, the questionnaire was completed after the combined management, but the time span was not specified. This could lead to decreased satisfaction levels over the course of successive consultations. Although all patients completed the questionnaire, it was not indicated whether all patients answered all the questions. Moreover, although we know the key questions according to the authors, we were unable to obtain the full questionnaire. The only negative issue highlighted was the waiting times on the day of the appointment, which could be explained by the fact that joint decision making is slower.

There are several examples of collaboration between specialties using multidisciplinary models in which the patient is seen jointly by various experts, such as uveitis clinics or reproduction and pregnancy clinics for patients with chronic medical conditions [16, 17, 27, 28]. These experiences have shown important benefits contributing to effective diagnosis and treatments. Some characteristics favouring this model are as follows: avoiding unnecessary tests that may delay the diagnosis and treatment, reductions in the number of consultations, joint delivery of decisions

Table 3 Patient satisfaction with multidisciplinary dermatology–rheumatology management

Results of the key questions on the satisfaction questionnaire
How would you rate your experience with the multidisciplinary consultation compared with your experience of being assessed in separate consultations
4.91 (0–5) for multidisciplinary and 2.85 (0–5) for separate consultations
Level of satisfaction with the amount of information provided about treatment during the multidisciplinary consultation
Adequate (96 %)
Too much (4 %)
Very little (0 %)
Overall satisfaction with experience in the multidisciplinary consultation, including doctors
Very satisfied (94 %)
Satisfied (6 %)
Not satisfied (0 %)
Degree of patient involvement in decisions about their treatment and care
Yes, always (91.8 %)
Yes, sometimes (6.2 %)
No, not usually (2 %)
Did doctors provide ample opportunity for patients to discuss their treatment?
Yes, always (91.8 %)
Yes, sometimes (8.2 %)
Degree of interest doctor had in listening to what patients had to say about their treatment
Yes, always (98 %)
Yes, sometimes (2 %)
Degree of clarity of explanations given by doctors about the treatment:
Yes, always (95.8 %)
Yes, sometimes (4.2 %)
Waiting times to be seen in multidisciplinary consultation
Seen at time of appointment (41 %)
Seen 15–30 min after time of appointment (25 %)
Seen 30–45 min after time of appointment (16 %)
Seen 45–60 min after time of appointment (4 %)
Seen 60–90 min after time of appointment (5 %)
Seen before time of appointment (9 %)
In the open section. 34 of the 48 patients provided comments with positive feedback
Examples
Efficient use of doctors' and patients' time
Great to have advice from experts on issues relating to their illness
Alternative consultation with a combined approach

and information, and strengthening collaboration between specialties with the creation of referral criteria and patient management protocols. In addition, it seems that patients are satisfied with this process and the provision of information although some patients felt that the presence of many doctors is intimidating [27]. Nevertheless, there are some difficulties in implementing this model. In some health care systems, there are obstacles to implementing the administrative changes needed to organize the care and reception of patients from other departments to these clinics, and the direct and indirect economic benefits and the benefits in terms of health outcomes are difficult to quantify. In addition, the patient's emotional response to the consultation needs to be acknowledged and supported.

In conclusion, although insufficient to be conclusive, the data seem to suggest that multidisciplinary dermatology–rheumatology consultations could be more effective compared with routine consultations, and that this could lead to greater satisfaction in patients with moderate-to-severe psoriasis and PsA (level of evidence 4). Therefore, these results, which appear applicable to clinical practice, would support the conduct of more rigorous studies that

could demonstrate the benefit of implementing this type of consultation.

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Compliance with ethical standards

Conflict of interest T. Cobo-Ibáñez has received a speaker honorarium from Abbvie and Pfizer. S. Muñoz-Fernández has received research Grants from Pfizer, a speaker and consultancy honorarium from Abbvie, MSD, and Pfizer. JD. Cañete has received consultancy honorarium from Abbvie, Boehringer, Celgene, MSD, Novartis, Novo-Nordisk, Pfizer, and UCB. D. Seoane-Mato, M. Guerra, and P. Díaz del Campo have received sponsorship contract from Abbvie. V. Villaverde declares that she has no conflict of interest.

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