History-Taking Skills in Rheumatology

1

Laila Alharbi and Hani Almoallim

1.1 Introduction

History taking in rheumatology is the most important skill needed for proper handling of a patient with a rheumatological complaint. Obtaining a good history will help you to reach almost 90% of your diagnosis. However, history taking is mostly depending on experience and practice rather than theoretical recall. Here in this section, we provide you with the most important points in history taking you should use while dealing with rheumatological patients. There is an approach to history taking in rheumatology started as with the classical approach in history taking like any other disease. There is much focus on rheumatological aspects related to the onset of joints pains, patterns, symmetry of joints involvement, number of joints involved, and ultimately rheumatology review of systems. We summarized the classic symptomatic correlations with certain rheumatological diseases. We present briefly a suggested approach to your presentation of the entire case.

L. Alharbi
Medical College, Umm Al Qura university,
Makkah, Saudi Arabia

Department of Internal Medicine, Skåne University
Hospital, Malmö, Sweden

H. Almoallim (✉)
Medical College, Umm Al-Qura University (UQU),
Makkah, Saudi Arabia
e-mail: hmmoallim@uqu.edu.sa

1.1.1 Objectives

1. To compose a comprehensive and organize history for patients with rheumatological problems.
2. To recall the most important points in eliciting history for certain rheumatological diseases.
3. To construct a differential diagnosis in rheumatology.
4. To develop an approach for monitoring patients with arthritis.

1.2 Approach to History Taking in Rheumatology

This approach is based on the assumption that majority of patients with rheumatological diseases present at the beginning with joint(s) pain. Rheumatological diseases are systemic diseases affecting almost all body systems with no system that is preserved. You may have patients with neurological complaints (like hemiplegia because of ischemic stroke) end up with the diagnosis of a rheumatological disease like systemic lupus erythematosus (SLE) and secondary antiphospholipid syndrome (APS). Here the initial presentation was not joints pain, but yet the final diagnosis was rheumatological. This concept emphasizes the point that good foundations in general internal medicine is essential to the rheumatology practice.

The approach to joints pain for any new patient should establish two basic issues: the personal data and then full analysis of the presenting illness. The latter includes the followings (Fig. 1.1).

1. Onset.
2. Duration.
3. Patterns of joints affected.
4. Symmetry.
5. Number of joints affected.
6. Associated symptoms.
7. Constitutional symptoms.
8. Functional impairment.

9. Relieving and aggravating factors.
10. Rheumatology review of systems.

This should be followed by the classical components in any history taking in internal medicine (past medical and surgical history, family history, drug and allergy, and social history).

Here is a brief description about each one of the above.

1. Onset: The patient should determine whether joint(s) pain have started suddenly or gradually. This is essential as the top differential diagnoses that should be ruled out for sudden

Fig. 1.1 Approach to history taking in rheumatology

onset of joints pains are septic arthritis and crystal-induced arthritis (after excluding trauma as a possible cause for joints pains) (Fig. 1.2). Gradual onset joint pains have long list of differential diagnoses including the classic rheumatological diseases like rheumatoid arthritis (RA) and SLE (see Fig. 1.2).

2. Duration: It is essential to determine whether the joint pains have been present for less or more than 6 weeks. Classically, arthritis caused by acute viral illnesses like parvovirus B19 infection can cause RA-like arthritis in distribution but with less than 6 weeks duration. Duration more than 6 weeks is an essential criteria to diagnose RA based on 2010 classification criteria of RA (see Chap. 25).

3. Patterns of joints affected: Each rheumatological disease has a pattern of presentation that should be recognized from this early stage. Each pattern has a differential diagnosis (Figs. 1.3 and 1.4).

Predominant small joints involvement (like in pattern A) particularly the wrists, metacarpophalangeal (MCP), proximal interphalangeal (PIP), and metatarsophalangeal (MTP) joints is a classical presentation for RA. Other disorders like SLE, psoriatic arthritis (PsA), polyarticular gout, and reactive arthritis (ReA) can present in a similar way. The commonest joints involved in RA, for example, are wrists and MCP (2nd and 3rd). It has to be noted that distal interphalangeal (DIP) joints involvement is rarely ever involved in RA. These joints (DIP) are

Make sure the origin of the pain is from the joint itself, NOT from the periarticular structures. One tip is to ask the patient to point the site of the pain by his/her finger!

Fig. 1.2 Identifying the site of the pain

Fig. 1.3 Patterns of joints affected

Joints	Differential Diagnosis
Symmetrical polyarticular MCP PIP and MTP joints	RA, SLE, PsA, Polyarticular gout and ReA.
DIP joint(s)	PsA, OA
Bony swellings of DIPs or PIPs or 1st CMC joint (base of thumb)	OA
Proximal girdle joints	Polymyalgia rheumatica and RA
Asymmetrical large joint oligoarticular disease	ReA, PsA, ankylosing spondylitis (AS)
Acute monoarticular disease	Infection, gout, pseudogout
Chronic monoarticular	PsA, RA, AS, OA and chronic infection (e.g. tuberculosis (TB))
Axial, sacroiliac and girdle joints	AS
Axial joints	Lumbar & cervical spondylosis/OA
Dactylitis (sausage digit)	PsA, ReA, AS, TB, sarcoidosis, sickle cell disease.

Fig. 1.4 Each rheumatological disease has a pattern. (a) Rheumatoid arthritis. (b) Reactive arthritis. (c) Ankylosing spondylitis. (d) Psoriatic arthritis. (e) Inflammatory osteoarthritis of the hand

predominantly involved in patients with PsA and inflammatory osteoarthritis (OA) of the hands. Classical presentation of inflammatory OA of the hands (pattern E) involves DIPs, PIPs, and first carpometacarpal joint just at the base of the anatomical snuff. It has to be noted as a physical examination caveat that the swellings of the joints in inflammatory OA of the hands are bony! It represents the degenerative changes happening in the cartilage with osteophyte formation. Predominant large joints involvement in the lower limbs (pattern B) is a classical presentation for ReA. A group of disorders called spondyloarthritis (SpA) (include ankylosing spondylitis (AS), PsA, ReA, and arthritis associated with inflammatory bowel diseases (IBD-related arthritis) and undifferentiated spondyloarthritis) (see Chap. 23 for detailed classification criteria) has particular predilection of large joints of the lower limb. Sacroiliac joints can be involved in an asymmetrical fashion (pattern B) in ReA or can be symmetrically involved (pattern C) with inflammation of all the insertions of tendons and ligaments to the bones of the back (this is called enthesitis, and such inflammatory process in the back is called spondylitis). Therefore, (pattern C) is a classical presentation for AS. Spondylitis per se can be a manifestation of any disease of the SpA group of disorders. Large joints like proximal girdle joints (shoulders and hips) can be involved predominantly in diseases like polymyalgia rheumatica and RA. There is one feature that is quite classical for PsA and crystal induced arthritis. It is the inflammation of all articular and periarticular structures in one digit (dactylitis). This is not a feature for RA. It has to be noted then, involvement of small joints like in (pattern D) with predominance of DIPs, dactylitis, and asymmetrical sacroiliac joint involvement is classical for PsA.

For acute sudden monoarticular joint involvement, a septic process and/or crystal-induced arthritis should be ruled out. The knee joint is the commonest joint involved in

septic arthritis, while the first metatarsophalangeal joints are the commonest joint involved in gout. For chronic monoarticular joint involvement, a chronic infectious process should be ruled out like tuberculosis or brucellosis. However, systemic rheumatic diseases like RA can rarely present with a monoarticular joint only.

4. Symmetry: This might have been covered partly in the above section. It has been included here to help the evaluator remember it all the time and consider it while composing the differential diagnosis. There are diseases like PsA that can present in several different ways including symmetrical arthritis like RA and asymmetrical arthritis involving only few joints like the DIPs. Symmetrical arthritis does not include in the differential diagnosis only known rheumatological diseases like RA and SLE. There are less common diseases like sarcoidosis, and paraneoplastic syndromes can present with arthritis (Fig. 1.5).
5. Number of joints involvement (How many joints affected?): Again, this feature has been covered partially above (Figs. 1.6 and 1.7). The emphasis is on a monoarticular single joint involvement when it should be considered a medical emergency. If a septic monoarticular joint was not diagnosed and treated properly, it will lead unfortunately to irreversible damage and lifelong disability if not death from disseminated infection [1]. It is hard clinically to separate between oligoarticular and polyarticular in the initial workup as will be shown in Chap. 3. A list of possible differential diagnosis is provided for you just to give a knowledge background base to proceed further in the history from patients with joints pains.
6. Associated symptoms: Obtaining history of redness, swelling, and morning stiffness is essential in any patient with joints pains. Any severely inflamed joint will cause obvious swelling observed by the patient. Keep in mind that sometimes, swellings of the small joints can be detected by physical examination only as the patient did not notice any

Fig. 1.5 Symmetry of the joints

Fig. 1.6 Number of joints involvement (How many joints affected)

MONOARTICULAR (Single joint)	OLIOONUICULAR (2-4 joints)	POLYARTICULAR (More than 4 joints)
DD	DD	DD
<ul style="list-style-type: none"> - Traumatic - Inflammatory: Pauciarticular JIA, crystal-induced - Infectious: bacterial, fungal, TB, viral (AIDS). - Neoplastic - Infiltrative: one type of chronic sarcoidosis - Miscellaneous: Acute coagulopathy, Hemoglobinopathy 	<ul style="list-style-type: none"> - Oligoarticular JIA - Reactive Arthritis - Psoriatic arthropathy 	<ul style="list-style-type: none"> - Inflammatory: RA, JIA (polyarticular and Still), adult Still, Sjögren's - SLE and other connective tissue diseases - Seronegative spondyloarthropathies - CPPD disease - Vasculitides - Neoplastic: Paraneoplastic syndromes, metastasis, leukemia, lymphoma - Infiltrative: Sarcoidosis

Single red hot joint in RA: It should be remembered that the uncommon occurrence of a red hot joint in the context of RA may be due to superimposed septic arthritis and not to the disease process itself.

Monoarthritis in SLE: The occurrence of monoarthritis in a patient with SLE suggests infection or osteonecrosis.

Fig. 1.7 Alarming presentation of arthritis in RA and SLE

Fig. 1.8 Associated symptoms

because of its small size. Redness is one of the cardinal signs of inflammation. Active RA does not cause redness usually unless there is a superimposed infection in that joint that it is red. Therefore red and swollen joints are caused classically by septic arthritis and/or crystal induced arthritis (Fig. 1.8).

7. Constitutional symptoms: Obtaining these symptoms in any history obtained from patients for whatever symptoms presented is essential. Fever and arthritis are common clinical association. Again, septic arthritis whether in a monoarticular or polyarticular presentation should be ruled out. There is a full outline for this combination: fever and arthritis in Chap. 11. Apart from fever, the following symptoms should be obtained: weight loss, loss of appetite, night sweat, and fatigue. It has to be noted that patients with inflammatory arthritis often feel a general malaise. Fibromyalgia patients often report feeling ill (if I go shopping I am wiped out for the next 3 days). On the other hand, OA patients may be a bit tired but not really unwell.
8. Functional impairment: any inflamed joint will affect the functionality of the patient. The followings should be obtained:
 - How has the arthritis affected your daily ability to self-care?
 - How has the arthritis affected your ability to sleep well and to do things at home, work, and leisure?
9. Relieving and aggravating factors: Here the focus should be mainly on the effect of activity on the symptoms. Activity tends to aggravate joint pains caused by a degenerative process of the interarticular cartilage, i.e., OA, to be a relieving factor for inflammatory back pain as going to be shown in Chap. 6 about low-back pain. Use of nonsteroidal anti-inflammatory drugs (NSAIDs) tends to relieve symptoms in a remarkable way in patients with inflammatory arthritis in comparison with patients with degenerative arthritis (OA) (Fig. 1.9).
10. Rheumatology review of systems: After your full analysis of the joints pain(s), now it is time to think which rheumatological diseases might be the top in your differential

Fig. 1.9 Relieving and aggravating factors

diagnosis. All rheumatological diseases are systemic diseases with significant involvements of other body parts (Fig. 1.10). Some patients may not correlate the relationship between numbness, tingling sensations, and joints pain(s) (some patients may present with arthritis and mononeuritis multiplex like in vasculitis or RA). Others may not remember to mention history of skin disease like psoriasis. Obtaining obstetric history is extremely important for any childbearing female patient as there are many complications in pregnancy related to SLE and/or APS (see Chap. 17). For all of these reasons, it is your rule to review all possible symptoms that might be present and help you in composing your differential diagnosis. All possible symptoms are compiled in an approach from head to toe just to help you mastering this part of the history.

- **Past medical history:**
 - History of any rheumatic disease (RA, SLE, gout, psoriasis, etc.).
 - History of recent infections (think of ReA!).
 - History of chronic diseases. There are some rheumatological associations with diabetes mellitus (see Chap. 21).
- **Family history:**
 - Ask if similar condition happened in the family.
 - Any family history of RA, SLE, psoriasis, etc.

- **Medications and allergy:**
 - Detailed medication history.
 - Any allergy from food and/or drugs?
- **Past surgical history:**
 - History of any previous operations.
 - History of blood transfusion.
- **Social history:**
 - Marital status and occupation (tendinitis in typist!). How many children? Where do they live?
 - History of contact with TB or jaundiced patients: essential prior to start of disease modifying anti-rheumatic drugs (DMARDs) and biological therapy.

1.3 Historical Correlation

Some patients may present initially with symptoms suspected for a certain disease. Then you need to check other symptoms related to this disease that might help you to make your diagnosis from historical grounds only! This is different than rheumatology review of systems mentioned above. Actually, as your skills in obtaining history from patients with joints pain grow, you will notice yourself combining this step with rheumatology review. For example, you are evaluating a young female patient with joint pains. You have a suspicion for SLE as you are proceeding in your history; then during your history taking, you should cover all common presentation of SLE!

SYSTEMS	SYMPTOMS SHOULD BE ASKED
1- Hair	Hair loss, alopecia, psoriatic rashes (in the hair line)
2- CNS:	History of stroke, weakness, seizure, psychosis: SLE. Mononeuritis multiplex, peripheral neuropathy: vasculitis, SLE Lymph node enlargement in the neck: SLE, lymphoma with sjögren syndrome
3- Eyes:	Dryness: sjögren syndrome. Redness (uveitis): AS Pallor: anemia from many causes in RA or SLE.
4- Face:	Cheek: Photosensitivity: SLE Red cheeks (butterfly rash): SLE Scarring hyperpigmentation: SLE Parotid gland enlargement: sjögren Telangectasia: scleroderma Mouth: Dryness: sjögren syndrome Ulcer: SLE (painless), inflammatory bowel disease (IBD), Behcet's, RA (from methotrexate use)
4- Chest (Respiratory & Cardiovascular systems):	SOB, chest pain, palpitation: SLE, RA History of PE/DVT: SLE, antiphospholipid antibody syndrome (APS) History of bronchial asthma: Eosinophilic granulomatosis with polyangitis (EGPA) (Churg- Straus)
5- Gastrointestinal tract (GIT):	Ask about all symptoms of GIT! History of jaundice: viral hepatitis. History of recent gastroenteritis or bloody diarrhea: ReA History of IBD: enteropathic arthritis. History of dysphagia: scleroderma History of HBV: vasculitis. History of HCV: chronic HCV can present as RA! Ask about risk factors of HBV, HCV and HIV prior to start any disease modifying antirheumatic drug (DMARDs).
6- Urinary system:	Frothy urine: lupus nephritis. Hematuria: lupus nephritis, anti-glomerular basement membrane disease (Goodpasture).
7- Sexual and obstetric history:	History of recent STD's: ReA. History of oral/genital ulcers: Behcet's disease. History of still birth at any age and/or history of three recurrent abortion: APS
8- Lower Limb:	History of non-palpable purpura, lower limb edema, nodules: vasculitis
9- Ask about Smoking and alcohol intake.	Smoking predisposes to RA, decrease response to DMARDs and biological therapy Adjust alcohol intake in patients receiving methotrexate Alcohol is a risk factor for gout

Fig. 1.10 Rheumatological review of systems

The common symptoms for some diseases have been compiled for you (Figure 1.11a, b, c historic correlation). Some of the questions may not be related to symptomatology! It might just address risk factors. If you are assessing a patient with

pain in the first MTP and/or with a red swollen knee joint and you are suspecting gout as a possible diagnosis, then you need to check for risk factors for gout: prior history of uric acid renal stones, alcohol intake and use of diuretics, etc.

Diseases	Certain historical points
1- Patient with suspected SLE	<p>Ask about the following symptoms:</p> <ul style="list-style-type: none"> - Alopecia (hair loss) - Malar rash - Mouth ulcer - Photosensitivity - Discoid lupus - Raynauds phenomenon - Pleuritic chest pain - Headache - Hematuria - Psychosis, seizures - Vasculitic rash - Urinary symptoms - Detailed obstetric history
2- Patient with suspected vasculitis	<p>Ask about the following symptoms:</p> <ul style="list-style-type: none"> - Claudication: Takayasu's arteritis - Fatigue, fever, myalgias, headache, diplopia, jaw claudication: giant cell arteritis - Wight loss, myalgias, peripheral neuropathy (numbness), abdominal pain, livedo reticularis: Polyarteritis nodosa (PAN) - Sinusitis, saddle nose deformity, hemoptysis, chest pain, hematuria, uveitis, history of DVT or PE, granulomatosis with polyangiitis (GPA) (Wegener's) or microscopic polyangiitis (MPA). - History of Asthma, granulomatous vasculitis, eosinophilia: EGPA. - Abdominal pain, palpable purpura, polyarthralgias, microscopic hematuria: IgA vasculitis (IgA V) (Henoch-Schonlein). - Oral/genital ulcer, uveitis, erythema nodosum: Behcet's syndrome. - Weakness: gradual, progressive, painless, symmetrical and proximal. It may involve shoulder, pelvic girdle and neck flexors, but no involvement of facial or ocular muscles! - Dermatologic: erythematous rash on sun exposed skin, heliotrope rash over upper eyelid, Gottron's papules over the dorsum of PIP and MCP joints.
3- Patient with suspected myositis	<p>Ask about:</p> <ul style="list-style-type: none"> - Myalgia and arthralgia. - Dysphagia and dysphonia. - Raynoud's phenomena. - Symptoms suspected of malignant conditions: weight loss, fatigue, bleeding per rectum, smoking and chronic cough .. etc. - Drugs.
4- Patient with suspected gout	<ul style="list-style-type: none"> - Pain in 1st MTP (sudden onset), may involve ankles, feet and knees, bursitis (olecranon, patellar). - History of previous attack of gout, chronic tophaceous gout (deforming arthritis). - Risk factors: uric acid renal stones, history of hyperuricemia, chronic renal disease, myelo & lymphoproliferative diseases, increase meat, seafood and alcohol intake, use of diuretics and pyrazinamide. - Alcohol. - Family history of gout.
5- Patient with suspected Sjögren's syndrome	<p>Ocular: dry eyes Mouth: dry mouth, decrease salivation, drinking fluid while swallowing, difficulties with speech, change in taste and parotid enlargement</p> <p>Ask about the following risk factors:</p> <ul style="list-style-type: none"> - Head and neck radiation. - AIDS. - HCV. - Lymphoma. - Sarcoidosis. - Anticholinergic drugs. - GVHD (graft versus host disease)
6- Patient with suspected Spondyloarthritis	<p>Ask about the following symptoms:</p> <ul style="list-style-type: none"> - Red eye (uveitis) - Psoriasis - Recurrent/previous infections: gastroenteritis, STDs, tonsillitis - Dysphagia - IBD - Inflammatory back pain - Lower limb joints pain - Plantar fasciitis/Achilles tendinitis
7- Patient with suspected Septic Arthritis.	<p>Ask about the following symptoms:</p> <ul style="list-style-type: none"> - Joint pain, - Joint swelling or history of joint edema, - Fever, - Sweating and Rigors (I) - Role out any source of local or disseminated infections by asking about: - Headache - Sore throat - Productive cough - Urinary symptoms, GI symptoms. - History of wound infection or abscess.

Fig. 1.11 Historical correlation

1.4 Physical Examination

This is just to remind you about the particular approach of physical exam techniques that should be performed and then presented (Fig. 1.12). A comprehensive approach to joints examination is presented in Chap. 2.

1.5 How to Present your Case

You are ready now to present your case! You have built an organized approach to history taking from patients with joints pain(s). You have performed a comprehensive physical examination focusing on evaluation of these joints and whether there is true articular process like arthritis or periarticular process like tendinitis (see Chap. 22). Simply you need to present your history and physical examination in the same manner mentioned above with focusing on positive findings and important negatives. After your history and physical examination presentation, it is required from you to sum up all your information together. It is better to start with your impression (summary of the case) and then your problem list and differential diagnosis.

1.5.1 Impression

This (age) who is (known to have (chronic diseases)) presents with:

- History (usually presenting complain).
- Physical exam(mention obvious findings).
- Lab results (mention the important results related to the case) (if it is known to you).

1.5.2 Problem List

In this section you have to make a list with all your patient's problems or complains starting with the most serious and important one. This should guide you to reach the diagnosis easily.

This is a suggested approach on how to write a problem list:

Regarding the first problem:

1. Write your differential diagnosis for this issue and mention which diagnosis is more relevant with your case and why.
2. Write your management plan, if further investigations and/or referral are needed.

Fig. 1.12 Physical examination

Physical Examination	Details
1- General Appearance and Vitals sign	As usual.
2- General Exam	Eyes Scalp Mouth Parotid Neck lymph nodes Skin (redness, thickness) Nails (pitting, periangular erythema)
3- Specific exam for any joint	I- General appearance: Deformity , swelling II- Inspection: Skin: redness, sacs and rash Ligaments and tendons Muscles Bones III- Screening Exam: Check for range of motion (ROM) IV- Palpation: Effusion, tenderness, warm and crepitus. V- Range of motion: Active and passive. VI- Special tests.
4- Examination of the other systems	CNS, CVS, Chest and Abdominal exam.

See the diagram below for more details (Fig. 1.13).

1.6 Follow-Up Patient

Established patients with rheumatological diseases have frequent visits to outpatient clinics. They come for routine visits for assessing the progress of their disease and review the management plan

Fig. 1.13 Problem lists

Fig. 1.14 Outcome measures of the disease activity

of their chronic disease. Here are suggested tips for you to help you deal with these patients.

You should ask about:

1. Pain (how he/she is doing since last visit).
 2. Which joints are particularly affecting you today?
 3. Associated symptoms (morning stiffens (mins), swelling).
 4. How well controlled do you feel the arthritis is?
 5. What drugs are you taking? Your adherence? Do you get any benefit?
 6. Any functional impairment?
- You should not forget to:
7. Do not forget to examine his/her all joints.
 8. Do not forget to review all his/her medications.
 9. Do not forget to review his/her previous investigations (Fig. 1.14).

1.7 The 2011 ACR/EULAR Definitions of Remission in Rheumatoid Arthritis Clinical Trials

1.7.1 Boolean-Based Definition [2]

At any time point, patient must satisfy all of the following:

- Tender joint count $\leq 1^+$
- Swollen joint count $\leq 1^+$
- C-reactive protein ≤ 1 mg/dl
- Patient global assessment ≤ 1 (on a 0-10 scale) $^+$.

1.7.2 Index-Based Definition

Simplified Disease Activity Index score of ≤ 3 [3]. Definitions for some of the outcome measures in rheumatology are compiled in Fig. 1.15. Further

Outcome measures of the disease activity	Parameters	Interpretation
1-DAS28	a. How many Tender joints? b. How many Swollen joints? c. ESR or CRP level.	1- DAS28 $\leq$ 2.6: Remission 2- DAS28 $>$ 2.6 and $\leq$ 3.2: Low disease Activity 3- DAS28 $>$ 3.2 and $\leq$ 5.1: Moderate Disease Activity 4- DAS28 $>$ 5.1: High Disease Activity
2-CDAI	a. How many Tender joints? b. How many Swollen joints? c. The PGA represents the patient's self-assessment of disease activity (0 to 10 scale) d. The EGA represents the evaluator's assessment of disease activity (0 to 10 scale)	1- CDAI $\leq$ 2.8: Remission 2- CDAI $>$ 2.8 and $\leq$ 10: Low disease Activity 3- CDAI $>$ 10 and $\leq$ 22: Moderate Disease Activity 4- CDAI $>$ 22: High Disease Activity
3-SDAI	a. Tender joint count (using 28 joints) b. Swollen joint count (using 28 joints) c. PGA (0 to 10 scale) d. The EGA (0 to 10 scale) e. CRP level	1- SDAI $\leq$ 3.3: 2- SDAI $>$ 3.3 and $\leq$ 11: Low Disease Activity 3- SDAI $>$ 11 and $\leq$ 26: Moderate Disease Activity 4- SDAI $>$ 26: High Disease Activity

Fig. 1.15 Outcome measures of disease activity in RA and their interpretation

reading is required from you to know more about the implications of its use in the management of patients with RA (Fig. 1.15 outcome measures of disease activity in RA and their interpretations).

Abbreviations

AIDS	Acquired immunodeficiency syndrome
AS	Ankylosing spondylitis
CDAI	Clinical Disease Activity Index
CMC	Carpometacarpal joints
CNS	Central nervous system
CPPD disease	Calcium pyrophosphate dihydrate <i>disease</i>
CVS	Cardiovascular system
DAS-28	Disease activity score
DIP	Distal interphalangeal
DVT	Deep venous thrombosis
EGA	Evaluator Global disease Activity

GVHD
HBV
HCV
IBD
JIA
MCP
MCTD

MTP
NSAIDs

OA
PAN
PE
PGA
PIP
RA
SDAI

SLE
STDs

Graft vs. host disease
Hepatitis B virus
Hepatitis C virus
Inflammatory bowel disease
Juvenile idiopathic arthritis
Metacarpophalangeal joints
Mixed connective tissue disease
Metatarsophalangeal
Nonsteroidal anti-inflammatory drugs
Osteoarthritis
Polyarteritis nodosa
Pulmonary embolism
Patient Global disease Activity
Proximal interphalangeal
Rheumatoid arthritis
Simplified Disease Activity Index
Systemic lupus erythematosus
Sexually transmitted diseases

References

1. Margaretten ME, Kohlwes J, Moore D, et al. Does this adult patient have septic arthritis? *JAMA*. 2007;297:1478–88.
2. Balsa A, Carmona L, González-Alvaro I, et al. Value of disease activity score 28 (DAS28) and DAS28-3 compared to American College of Rheumatology-defined remission in rheumatoid arthritis. *J Rheumatol*. 2004;31(1):40–6.
3. Aletaha D, Smolen J. The simplified disease activity index and clinical disease activity index to monitor patients in standard clinical care. *Rheum Dis Clin N Am*. 2009;35:759–72.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.