Rheumatoid arthritis: a challenge to the geriatrician

Rheumatoid Arthritis (RA) is the most common inflammatory disease affecting older adults, but symptoms frequently overlap with other causes of joint pain. Therefore, physicians need to be aware of the pattern of the disease in this age group. In part one of this two part article, **Dr Yasser El Miedany** discusses the diagnosis of RA in the elderly and highlights how this might form a challenge to the geriatrician.

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The name Rheumatoid Arthritis (RA) was first coined in 1859 by Garred[1]; however, in hindsight, this term described not only inflammatory polyarthritis but also polyarticular osteoarthritis, and hence was a misnomer. In 1929, the name covered only inflammatory arthritides[2] and in 1972 and 1987, the seronegative arthritides (e.g. psoriatic arthritis) were excluded from the condition[3,4].

RA is the most common inflammatory synovitis affecting older persons, yet patients with late onset disease pose the most difficult diagnostic challenge often as a result of the vagueness of their complaints, but also because it frequently overlaps with other causes of joint pain. Therefore, it is of particular importance that physicians dealing with older adults are aware of the pattern that this disease follows in this group of patients.

Prevalence and disease pattern

Data from longitudinal studies suggest that the incidence of RA appears to increase with age in both males and females[5]. Age adjusted incidence of RA in Caucasians is approximately 21.6 and 48.0 per 100,000 populations per year for males and females respectively[6]. In addition, 10 to 20 per cent of RA patients may present for the first time after the age of 60 years[7]. Interestingly, late onset RA includes a greater proportion of men; its onset is more often insidious and it is less likely to be complicated by extra-articular manifestations of the disease, such as rheumatoid nodules on the forearms. It is more frequently large joint-predominant and is often associated with systemic complaints (e.g. fatigue, malaise, weight loss, generalised stiffness and depression) that sometimes precede the onset of the articular disease.

Laboratory testing may reveal a striking inflammatory response such as elevated Erythrocyte Sedimentation Rate (ESR), and C-Reactive Protein (CRP) that might also be seen in other inflammatory diseases. Other studies showed that there is lower incidence of Rheumatoid Factor (RF) positivity among newly diagnosed elderly patients in comparison to those RA patients with long standing disease[8].

Diagnostic challenges

Polyarticular joint pains are a common problem especially amongst the elderly and often form the basis of a medical consultation. In many cases the diagnosis is suspected by a skilled, experienced physician who, using the classical tools of history and physical examination, can formulate a correct diagnosis and treatment plan purely on clinical grounds. The assessment of an elderly patient with

Table 1. Making the distinction between structural and inflammatory arthritis[9]

Structural lesions (degeneration)	Synovial lesions (inflammation)
Subjective features	
* Symptoms only with use	* Symptoms at rest
* Morning stiffness five to 20 minutes	* Morning stiffness >30 minutes
* Progressive worsening course	* Variable course
* Flares not seen	* Flares common
* Minimal response to medical treatment	* Patient often benefits from medical treatment
* Patient systemically well	* Patient often systemically ill
Objective features	
Crepitus and bony hypertrophy on physical examination	Soft tissue swelling on physical examination.
Unilateral joint affection (common)	Bilateral and symmetrical joint affection (common)
Synovial fluid analysis	
Non-inflammatory joint fluid	Inflammatory joint fluid
X-ray	
Usually positive	Negative early in disease course
Asymmetrical cartilage loss	Symmetrical cartilage loss
Osteophyte/new bone growth	No new bone growth
Weight-bearing joints involved	Any joint involved
Treatment	
Surgical	Medical.

a joint complaint, often confronts the clinician with an initial diagnostic challenge, having to make the decision as to whether they are dealing with polyarticular inflammatory synovitis, multiple structural lesions (non-inflammatory or degenerative), or diffuse myalgia. *Table 1* gives some guidance in helping make the distinction between structural such as osteoarthritis and inflammatory arthritis such as RA[9].

In general, most elderly patients suffering from RA have constitutional symptoms and diffuse aching pain, especially in the upper extremities, in association with an overwhelming sense of generalised morning stiffness. Physical examination most notably shows marked synovitis of the small joints of the hands – metacarpophalangeal joints (MCP), proximal interphalangeal joints (PIP) as well as wrist joints – which is usually bilateral and symmetrical. Classic rheumatoid hand deformities are not present in most of those cases. Shoulder synovitis with soft tissue swelling and pain on motion with a reduced range of movement can be also seen. Laboratory parameters usually demonstrate an elevated ESR and mild anaemia

Table 2. The 1987 revised criteria for the classification of RA[10]

Criterion	
1. Morning stiffness	Morning stiffness in and around the joints, lasting at least one hour before maximal improvement
2. Arthritis of three or more joint areas	At least three joint areas simultaneously have had soft tissue swelling or fluid (not bony overgrowth alone) observed by a physician
3. Arthritis of hand joints	At least one area swollen (as defined above) in a wrist, MCP or PIP joints
4. Symmetric arthritis	Simultaneous involvement of the same joint areas (as defined in two) on both sides of the body (bilateral involvement of PIP, MCP or metatarsophalangeal (MTP) joints are acceptable without absolute symmetry)
5. Rheumatoid nodules	Subcutaneous nodules over bony prominences or extensor surfaces or juxta-articular regions, observed by a physician
6. Serum RF	Demonstration of abnormal amounts of serum RF by any method for which the result has been positive in <five per cent of normal control subjects
7. Radiographic changes	Radiographic changes typical of RA on poster anterior wrist and hand radiographs, which must include erosions or unequivocal bone decalcification localised in or most marked adjacent to the involved joints (osteoarthritis alone do not qualify)

A patient shall be said to have RA if he/she satisfied at least four of these seven criteria. Criteria one through four must have been present for at least six weeks. Patients with two clinical diagnoses are not excluded.

associated with chronic disease. RF is usually absent. X-rays generally show very few erosive changes and reveal only soft tissue swelling and periarticular osteoporosis.

There have been several attempts to define RA. The *American College of Rheumatology* (ACR) set its criteria for the diagnosis of RA (*Table 2*), which forms the cornerstone of all studies on patients with RA[10].

Assessment of disease activity

Outcome measures for patients with RA have been a major focus of clinical research for decades. There was no single measure available to serve as a gold standard in the assessment of clinical status in

Table 3. Disease activity assessment in patients with RA[11]

Disease activity parameter	Clinical hints
Tender joint count	An assessment of 28 joints (MCP, PIP joints both hands, both wrists, elbows, shoulder and knee joints). The joint count should be done by scoring different aspects of tenderness, as assessed by pressure and joint manipulation on physical examination. The information on various types of tenderness should then be collapsed into a single tender versus non-tender dichotomy
Swollen joint count	An assessment of 28 joints. Joints are classified as either swollen or not swollen
Patient's assessment of pain	A horizontal visual analogue scale (usually 10cm) or Likert scale assessment of the patient's current level of pain
Patient's global assessment of disease activity	The patient's overall assessment of how the arthritis is doing. One acceptable method for determining this is the question from the Arthritis Impact Measurement Scale (AIMS) instrument: 'considering all the ways your arthritis affects you, mark X on the scale for how well you are doing'. An anchored horizontal visual analogue scale (10cm) should be provided. A Likert scale response is also acceptable
Physician's global assessment	A horizontal visual analogue scale (usually 10cm) or Likert scale measure of the physician's assessment of the patient's current diseases activity
Patient's assessment of physical function	Any patient self-assessment instrument that has been validated, has reliability, has been proven in RA trials to be sensitive to change and that measures physical function in RA patients is acceptable. Instruments that have been demonstrated to be sensitive in RA trials include the AIMS, the Health Assessment Questionnaire, the Quality (or index) of Well-Being, the McMaster Health Index Questionnaire, and the McMaster Toronto Arthritis Patient Preference Disability Questionnaire
Acute phase reactant value	A Westergren ESR or a CRP level.

patients with RA. The original measures of disease activity and severity for RA have been modified to generate scales that satisfy the demands of clinical epidemiology. The ACR and the *European League against Rheumatism* (EULAR) developed newer activity indices[11-14] that incorporate different parameters of disease activity, all of which have been scrutinised for both validity and reliability.

The most widely used indices in studies of patients with RA are the American response preliminary criteria and the Disease Activity Score (DAS), both of which take the tender and swollen joint count into consideration; patient's assessment of pain and global function; physician's assessment of global function, in addition to some inflammatory markers namely ESR and CRP.

Table 3 gives details of how to carry out an assessment of RA disease activity[11].

The way to assess whether a patient has had a clinically significant response to therapy has been identified in both scores. In the ACR, improvement of 20 per cent, 50 per cent and 70 per cent gives ACR 20, 50, 70 responses respectively[15].

The ACR preliminary definition of what constitutes an improvement in RA requires:

- > 20 per cent improvement in tender joint count
- > 20 per cent improvement in swollen joint count
- > Plus > 20 per cent improvement in three of the following five:
  - Patient pain assessment
  - Patient global assessment
  - Physician global assessment
  - Patient self assessed disability.
  - Acute phase reactant (ESR or CRP).

On the other hand, the DAS calculation is based on a specific equation. A DAS score of 5.1 has been identified as representing the cut off point of activity. A clinically significant response is recorded if there has been an improvement of >1.2 in the DAS score[12-14].

Differential diagnosis

Sjogren's syndrome

Primary Sjogren's syndrome (SS) tops the list of conditions that can be easily mixed up with RA,

firstly because it is one of the most commonly missed autoimmune diseases; and secondly because of its high prevalence in elderly people. From population surveys, the prevalence of SS is estimated to be one per cent of the adult population and may be undiagnosed in one-half of the patients[16]. Its prevalence in the geriatric population has been reported to be between 1.9 per cent and 4.8 per cent[17].

Patients with SS may present with joint pain mimicking RA. However, in most cases the patient presents with arthralgia (joint pain) rather than arthritis and this usually responds to anti-inflammatory treatment. Moreover, the hallmark of SS is keratoconjunctivitis sicca, which manifests itself as dry mouth and dry eye persisting for more than three months.

Osteoarthritis

Although osteoarthritis (OA) may affect the small joints of the hands, characteristically it affects the distal interphalangeal joint (usually not affected in RA patients) and PIP joints. The hypertrophic bone seen in this group of patients known as Heberden's nodes and Bouchard's nodes give the characteristic clinical picture of the disease. MCP and wrist synovitis are not seen in OA, but are commonly seen in patients with RA.

Gout and pseudogout

Both gout and pseudogout, may present with attacks of synovitis of the small joints of the hands and wrist joints. Knee joints are also commonly affected. However, these episodic attacks, though very painful, usually resolve within a few days, even without treatment. Synovial fluid analysis can be analysed for the presence of intracellular crystals, which are not seen in RA patients.

Polymyalgia rheumatica

Polymyalgia rheumatica may present with pain and swelling in the small joints of the hands with elevated inflammatory markers, however, the presence of the characteristic stiffness in both neck and lower back normally helps differentiate it easily from RA.

Conclusion

RA is the most common inflammatory synovitis in older adults and can cause debilitating symptoms.

References

1. Garrod AB. The nature and treatment of gout and rheumatoid gout. London: Walton and Maberley;1859
2. Parish LC. A historical approach to the nomenclature of rheumatoid arthritis. *Arthritis Rheum.* 1963; **6**: 138–58
3. Ropes MW, Bennett GA, Cobb S, *et al*. 1958 revision of the diagnostic criteria for rheumatoid arthritis. *Bull Rheum Dis.* 1958; **9**: 175–6
4. Arnett FC, Edworthy SM, Bloch DA, *et al*. The American Rheumatism Association. 1987 revised criteria for the classification of rheumatoid arthritis. *Arthritis Rheum.* 1988; **31**: 315–24
5. Snorrason E. Landré-Beauvais and his goutte asthenique primitive. *Acta Med Scand.* 1952; **142**(266): 115–18
6. Dieppe PA. Did Galen describe rheumatoid arthritis? *Ann Rheum Dis.* 1988; **47**: 84–5
7. Ehrlich GE, Katz WA, Cohen SH. Rheumatoid arthritis in the aged. *Geriatrics* 1970; **25**(2): 103–13
8. Yazici Y, Paget SA. Rheumatoid arthritis. Early onset rheumatoid arthritis. *Rheum Dis Clin North Am* 2000; **26**(3): 517–26
9. Y. El Miedany. Basic Rheumatology for postgraduates. Advanced Digital Electronics (second ed.) 2001: Chapter 7 page 129
10. Arnett FC, Edworthy SM, Bloch DA, *et al*. The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. *Arthritis Rheum* 1988; **31**: 315–24
11. Felson DT, Anderson JJ, Boers M. The American College of Rheumatology preliminary core set of disease activity measures for rheumatoid arthritis clinical trials. The Committee on Outcome Measures in Rheumatoid Arthritis Clinical Trials. *Arthritis Rheum* 1993; **36**: 729–40
12. Van Der Heijde DMFM, Vant Hof M, Van Riel PLCM, Van De Putte LBA: validity of single variables and indices to measure disease activity in rheumatoid arthritis. *J Rheumatol* 1993; **20**: 538–41
13. Van Der Heijde DMFM, Vant Hof M, Van Riel PLCM, Van De Putte LBA. Development of a disease activity score based on judgement in clinical practice by rheumatologist. *J Rheumatol* 1993; **20**: 579–81
14. Van Der Heijde DMFM, Vant Hof M, Van Riel PLCM, *et al*. Validity of single variables and composite indices for measuring disease activity in rheumatoid arthritis. *Ann Rheum Dis* 1992; **51**: 177-81
15. Felson DT, Anderson JJ, Boers M, *et al*. ACR Preliminary Definition Of Improvement In Rheumatoid Arthritis. *Arthritis Rheum* 1995; **38**(6): 318–25
16. Kassan SS, Moutsopoulos HM. Clinical manifestation and early diagnosis of Sjogren's Syndrome. *Arch Intern Med* 2004; **164**(12): 1275–84
17. Drosos AA, Andonopoulos AP, Costopoulos JS, *et al*. Prevalence of primary Sjogren's syndrome in an elderly population. *Br J Rheumatol* 1988; **27**(2): 123–7

If properly diagnosed and treated, RA can be dramatically controlled, with restoration of quality of life and prevention of functional decline ■ GM

Part two of this article will appear in the February edition of Geriatric Medicine and will review treatment options for RA in the elderly age group.

Conflict of interest: none declared

Key points

- Data from longitudinal studies suggest that the incidence of RA appears to increase with age in both males and females.
- Patients with late onset disease pose the most difficult diagnostic challenge.
- There is a wide spectrum of RA in older adults, where it frequently overlaps with other causes of joint pains.
- Outcome measures for patients with RA have been a major focus of clinical research for decades.