EXTENDED REPORT

Characteristics of patients with rheumatoid arthritis in France: a study of 1109 patients managed by hospital based rheumatologists

J Sany, P Bourgeois, A Saraux, S Durieux, A Lafuma, J P Daurès, F Guillemin, J Sibilia

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See end of article for authors' affiliations

Correspondence to: Dr S Durieux, Hôpital Saint Michel, 33 rue Olivier de Serres, 75 015 Paris, France; stephanie.durieux@hopital-saint-michel.org

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Objective: To describe the characteristics of rheumatoid arthritis in patients managed by hospital based rheumatologists in France.

Methods: All public and non-profit private hospitals in France were invited to participate in a cross sectional study. Clinical data on the day of inclusion and health resources used for rheumatoid arthritis over the previous 12 months (treatments, medical devices, physician visits, examinations, hospital admissions, and other health professional care) were recorded.

Results: 1109 patients from 75 centres located throughout the country were included (846 female; mean disease duration, 10.6 years; mean age, 56.7 years). Active disease (swollen joint count ⩾6, tender joint count ⩾6, and two of: morning stiffness ⩾45 min, C reactive protein ⩾20 mg/l, erythrocyte sedimentation rate >28 mm/h) was observed in 146 patients (13.2%). Mean (SD) DAS_{28} was 4.51 (1.55). Severe extra-articular manifestations were reported in 8.4%. ACR functional status was: class I, 19%; class II, 28%; class III, 31%; class IV, 22%. Comorbidity was observed in 44.9% of cases, particularly chronic pulmonary disease and coronary or peripheral vascular disease. Average AIMS2-SF dimension scores were between 4.56 and 6.18, and mean HAQ was 1.32 (0.77). Disease modifying antirheumatic drugs (DMARDs) were prescribed for 82.1% of the patients. During the previous four weeks, one DMARD was used in 62.5%, and two or more in 19.5%. Corticosteroids were prescribed in 72%.

Conclusions: In a rheumatoid arthritis population managed by hospital based rheumatologists, the disease was active in 13% and severe in more than one third of cases.

Rheumatoid arthritis is a complex disease which produces articular symptoms and damage, leading to disability. There are consequences both for the patient and for society. Most epidemiological studies have been designed to estimate the prevalence of the disease. In France, where the prevalence is around 0.3%, few studies have reported on the disease spectrum on a large scale. The distribution of the clinical features is important as new biological treatments could alter the burden of the disease.[1] In an observational survey of 1629 patients with rheumatoid arthritis followed up in private practice in 1996, the characteristics of the disease and the type of health care use were described. The disease was inactive in 9% of cases, minimally active in 32%, moderately active in 46%, and severely active in 13%. Fifty two per cent of the patients were receiving oral steroids and 22% had had at least one joint operation.[2]

Tumour necrosis factor (TNF) targeted treatment is a new challenge in the medical management of this disease. An improved definition of the types of patient currently managed by hospital based rheumatologists in France has thus become necessary. This evaluation could help to define the population of patients with rheumatoid arthritis who could be targeted for biological agents in a hospital setting in France.

Our goals in the study were to assess the demographic and clinical characteristics of patients with rheumatoid arthritis cared for by rheumatologists in the hospital environment, and to study their current medical management.

METHODS

Study design

The design of the study was observational and cross sectional. Participation of all French hospitals specialising in rheumatological diseases was invited from the following sectors: university hospitals, public district hospitals, and non-profit private hospitals (NPPH). All centres with a department of rheumatology or a department of internal medicine with a hospital based rheumatologist were mailed. Patients had to be 18 years or older and to satisfy the American College of Rheumatology (ACR) criteria for rheumatoid arthritis.[3] All patients who were seen as out-patients or admitted to the hospital during the survey period were invited to participate in the study. The survey period was identical for all centres (15 days). The regulatory authorisations necessary in France were obtained and the study was approved by the ethics committees. All patients gave informed consent for their participation.

Data collection

Two questionnaires were administered. The first was completed by the investigator, who reported inclusion criteria (1987 ACR criteria for rheumatoid arthritis[3]), sociodemographic variables (age, sex, life status, occupation), disease characteristics (disease history, surgery related to rheumatoid arthritis, smoking habits), current disease activity (number of swollen and painful joints, morning stiffness, physician's global assessment of disease activity, radiological erosions: yes/no), ACR 1991 revised functional status,[4] severe extra-articular manifestations,[5] chronic coexisting diseases and comorbidities using the Charlson index,[6] current and past drug treatments, and number and reasons of hospital admissions during the past 12 months. The results of the most recent radiographs carried out during the usual follow

Abbreviations: ACR, American College of Rheumatology; AIMS2-SF, arthritis impact measurement scale, short form, version 2; DAS_{28}, 28 joint disease activity score; DMARD, disease modifying antirheumatic drug; HAQ, health assessment questionnaire; NPPH, non-profit private hospital

up were collected by the investigator (for the presence or absence of radiological erosions).

The second questionnaire was completed by the patient and included a self evaluation of global pain using a visual analogue scale (VAS, 100 mm), the patient's global assessment of disease activity (VAS, 100 mm), a functional status scale, the validated French version of the health assessment questionnaire[7] (HAQ, range 1 to 3), and a quality of life scale, the AIMS2-SF questionnaire (range 0 to 10).[8] The two questionnaires were completed during the visit.

Definitions

Definitions of the activity and the severity of rheumatoid arthritis in an individual patient were as follows.

Active disease was defined by the presence of six or more swollen joints *and* six or more tender joints, *and* at least two of the following: morning stiffness for 45 minutes or more, C reactive protein ⩾20 mg/l, erythrocyte sedimentation rate >28 mm/h.[9]

The definition of severity is not clearly validated in the literature, probably because of the clinical heterogeneity of the disease.[10] Usually, a patient is considered to have severe rheumatoid arthritis if the handicap is important, if osteoarticular lesions are observed on the radiographs, or if extra-articular manifestations are present.[11 12] Thus in this study severe disease was defined by the presence of one or more of the following criteria:

- Severe functional status measured by the HAQ (HAQ score ⩾1.5).[13]
- The presence of typical radiological lesions.[3]
- The presence of extra-articular manifestations.[5 12]

Statistical analysis

Statistical analysis was carried out using SAS software. Descriptive analysis was undertaken for all variables. Continuous variables were reported using mean, standard deviation, median, and interquartile range (IQR). Categorical variables are presented as numbers and percentages and compared when necessary by the χ^2 test, Student's *t* test, analysis of variance, or Fisher's exact test.

RESULTS

Patients attending outpatient clinics or hospital wards were invited to participate in the study during a 15 day inclusion period between 27 November and 8 December 2000. Among all French hospital departments specialising in rheumatology, 148 were asked to participate (86 rheumatology departments, 62 departments of internal medicine with a rheumatologist). In the end, 82 centres (60 rheumatology, 22 internal medicine), representing 224 physicians, agreed to participate. During this period, 147 physicians (104 men, 43 women; mean time since qualification, 14.6 years) from 75 centres recruited at least one patient. The mean number of investigators per centre was 2.85. Seven participating centres (nine physicians) did not recruit any patients; among these, the mean number of investigators per centre was 1.3.

The participating centres were located all over France. Thirty seven (49%) of the centres were based in university hospitals, 31 (41%) in public district hospital, and 7 (9%) in NPPH. In all, 1119 questionnaires were returned by the investigators to the monitoring centre. Finally, 1109 complete and evaluable questionnaires were retained for statistical analysis. Seventy per cent of the patients were enrolled during an outpatient visit, 9% during a day care centre visit, and 16% during a hospital stay. The reason for enrolment was unknown in 7%. Sixty five per cent of the patients were being treated in a university hospital, 29% in a public district hospital, and 6% in an NPPH.

In the 66 centres (24 rheumatology, 42 internal medicine) which did not agree to participate in the study, the physicians (56 men, nine women) had been qualified for longer than those in the participating centres (mean 21.3 *v* 14.6 years, $p<0.001$). Non-participating centres were more often located in public district hospitals (59 centres) than in university hospital (six centres) or NPDH (one centre) ($p<0.001$, Fisher's exact test).

Sociodemographic characteristics

The population included 77.3% women and 22.7% men. Mean (SD) age was 56.7 (13.9) years. Thirteen per cent of the population were aged under 40 years and 20% over 70 years.

Most patients (77.8%) were living with their family and 21.2% were living alone. The employment status of the patients was varied. Only 304 patients (28.3%) were working at the time of the survey (fewer than half the patients less than 65 years old). Among the working patients, 82% had a full time job. Among the other patients there were 92 housewives (8.6%), 394 retired people (36.7%), and 284 (26.4%) with no employment. Only 33 patients (5.8%) had changed jobs because of their disease. In all, 213 (30.2%) had completely ceased working, at a mean age of 45.7 years.

Disease history

The time from the first symptoms to the date of the survey ranged from three months to 64.5 years, with a mean of 145 months (median 120 months). The mean time from the diagnosis of rheumatoid arthritis to the survey was 127 months (10.6 years). The mean (SD) age of the patients at diagnosis was 46 (15) years. Among these patients, 21% had subcutaneous nodules, 74% had a positive test for rheumatoid factor, and 78% had typical radiological lesions.

Twenty nine per cent of the patients were current or past smokers. Surgery related to rheumatoid arthritis had been carried out in 524 patients (47.2%) at any time during the history of their disease. Surgery mainly involved joint reconstruction (total joint arthroplasty and joint reconstructive procedures). These patients had at least one surgical procedure related to their disease, and 153 (13.8%) had had more than three procedures. Among the 1109 patients, a mean of 1.4 (2.0) surgical procedures per patient was reported for the total duration of the disease. A maximum of 10 procedures per patient was recorded in two cases. A surgical procedure was planned during the next 12 months in 137 patients.

Clinical assessment at day of visit

The clinical features on the day of the visit are described in table 1. An increase in C reactive protein was reported in 62.8% of the patients. Using the previously defined criteria for rheumatoid arthritis activity,[9] 146 patients (13%) had active disease with six or more tender joints and six or more swollen joints, despite current treatment. The characteristics of the patients in relation to their scores on the 28 joint disease activity scale (DAS_{28}) are shown in table 2.

Disease severity

Using the predefined criteria of severity, 429 patients (39%) were considered to have severe disease. Extra-articular manifestations were present in 91 patients (8.4%) at any time during disease history—mainly pericarditis (46 patients), severe cutaneous vasculitis (34), glomerulopathy (14), and neuropathy (24). Felty's syndrome (8) and sclerotic/retinal vasculitis (10) were rare. Chronic coexisting diseases were reported in 493 patients (44.9%), while rheumatoid arthritis was the only pathology in 606 (55.1%). The most common associated diseases were cardiovascular disease (peripheral vascular disease, 5.5%; coronary disease, 5.2%; congestive heart failure, 1.1%); chronic pulmonary disease, 8.6%; diabetes, 7.0%; renal disease, 2.9%; and gastroduodenal ulcer,

Table 1 Clinical assessment in 1109 patients with rheumatoid arthritis on the day of the visit

	Mean (SD)	Median	Range	IQR
Painful joints (n)	7.2 (6.8)	5	0 to 28	9.0
Tender Joints (n)	4.9 (5.2)	3	0 to 28	6.0
Physician's global assessment (VAS, 100 mm)	33 (25)	28	0 to 100	38.0
Patient's global assessment (VAS, 100 mm)	48 (28)	50	0 to 100	45.00
Pain (VAS, 100 mm)	41 (27)	40	0 to 100	40.00
Morning stiffness (min)	59 (74)	30	0 to 540	50.0
ESR (mm/h)	28.8 (23.6)	22	1 to 126	28.0
C reactive protein (mg/l)	23.3 (31.2)	12	0 to 207	23.0
DAS_{28}	4.51 (1.55)	4.59	0 to 8.36	2.20
ACR functional class: number of patients (%)				
Class I	207 (19)			
Class II	305 (28)			
Class III	338 (31)			
Class IV	251 (22)			

ESR, erythrocyte sedimentation rate; IQR, interquartile range; VAS, visual analogue scale.

2.7%. No case of concomitant HIV infection was observed. Other chronic diseases, which were not specified by the Charlson comorbidity index, were observed in 21.5% of the patients, including endocrine diseases other than diabetes. The median Charlson index was 1 (range 0 to 9) in patients with associated diseases, with a mean of 1.17 (1.25).

Functional status and quality of life

The mean (SD) HAQ score was 1.32 (0.77), range 0 to 3, median 1.25. Poor functional status was observed in 469 patients (43.3%) with an HAQ score of >1.5 (fig 1). The results for scores on the arthritis impact measurement scale, short form version 2 (AIMS2-SF) are presented in table 3.

Hospital admissions during the past 12 months

During the past 12 months, 585 patients (53%) were admitted to hospital, either for day care or for inpatient care. Among the patients admitted, 266 (45.5%) experienced only one hospital stay during the past 12 months. The mean number of hospital stays per patient admitted was 2.5 (2.1), range 1 to 11. The median length of hospital stay was 7 days (1 to 125) per patient admitted to hospital; the mean length was 14 days. Main reasons for hospital admission are given in table 4.

Treatments

One or more disease modifying antirheumatic drugs (DMARD) were currently being prescribed to 911 patients (82.1%). Only 17.9% of the patients were not being treated with a DMARD. A single DMARD was prescribed for 693 patients (62.5%), a combination of two DMARDs for 195 (17.6%), and a combination of three or four DMARDs for 23 (2.0%).The drugs prescribed during three retrospective periods are listed in table 5. At the time of the visit, a change of DMARD treatment was planned by the clinician for 269 patients (26.5%), either because of ineffectiveness (76.4%) or because of side effects (11.8%).

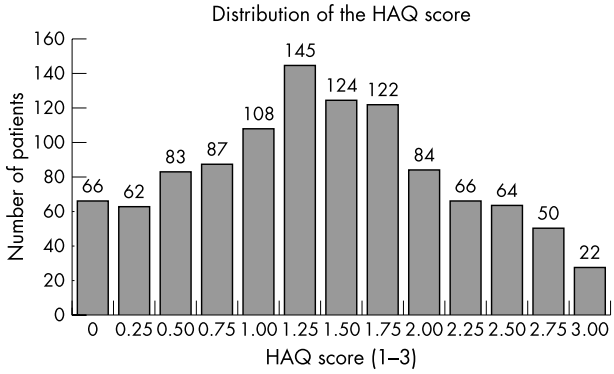

Figure 1 Distribution of the results of the health assessment questionnaire (HAQ) score in 1109 patients with rheumatoid arthritis

Table 2 Characteristics of 1109 patients with rheumatoid arthritis according to their DAS_{28} scores

	DAS_{28}			
Clinical feature	<3.2	3.2 to 5.1	>5.1	p Value
Number of patients (%)	199 (100)	414 (100)	352 (100)	
Age (years) (mean (SD))	56.7 (13.8)	56.6 (14.2)	56.6 (13.4)	NS**
Female (%)	129 (65.8)	328 (79.6)	279 (80.9)	<0.001*
Disease duration (months) (mean (SD))	108.8 (92.8)	128.0 (114.9)	131.1 (110.4)	0.057**
Rheumatoid factor positive (%)	65.3	73.9	79.8	<0.001*
Presence of radiological lesions (%)	64.3	79.5	81.0	<0.001*
HAQ (mean (SD))	0.7 (0.7)	1.3 (0.7)	1.7 (0.7)	<0.001**
Number of hospital stays during the past 12 months (mean (SD))	2.1 (2.1)	2.4 (2.1)	2.6 (2.1)	NS**
Length of stay (days) (mean (SD))	8.7 (10.8)	12.7 (16.5)	27.1 (23.0)	0.002**
Per cent of patients with methotrexate during the past four weeks	41.2	50.5	39.8	0.006*
Per cent of patients with methotrexate at any time during the disease	63.3	78.3	80.1	<0.001*

*χ^2 test.
**Analysis of variance.
DAS_{28}, 28 joint disease activity score; HAQ, health assessment questionnaire.

Table 3 Quality of life

Category	n	Median score (range*)	Mean score (SD)	IQR
Physical	1013	4.60 (0 to 9.82)	4.56 (1.69)	2.30
Symptoms	1061	5.00 (0 to 10)	4.95 (2.86)	5.00
Affect	1030	4.50 (0 to 10)	4.39 (2.16)	3.00
Social	1046	5.00 (0 to 10)	5.30 (1.74)	1.88
Work	557	3.75 (0 to 10)	3.82 (3.16)	3.75

*0 = best health status; 10 = worse health status.
IQR, interquartile range.

DISCUSSION

We describe the characteristics of patients with rheumatoid arthritis managed by hospital based rheumatologists. We found that 13% of the patients had active disease, with six or more swollen or tender joints despite current DMARD treatment. Patients with severe disease comprised more than one third of the population. It should be noted that this study was conducted at a time when new biological treatments were starting to be used in France, though during the year 2000 anti-TNF prescription was limited to clinical study or for hospital use only if authorised by the French Health Agency. Our results suggest that despite control of disease activity by classical DMARDs, control of disease severity has not yet been achieved.

In this cross sectional study, our main objective was to analyse the disease characteristics of patients managed by hospital based rheumatologists in a hospital setting. Our objective was also to document, as far as possible, a representative population sample. In France, patients with rheumatoid arthritis can be managed either by an office based or a hospital based rheumatologist, or by both. They can also have a general practitioner. We chose to study the patients managed by hospital based rheumatologists in public hospitals either with or without a GP. We therefore invited participation by every department of rheumatology in France, and every department of internal medicine where at least one hospital based rheumatologist was working. Among the 148 centres in France, 82 agreed to participate, which seems a modest response. It should be noted that among the total of 86 rheumatology centres asked to participate, 61 (70%) accepted, and the majority of centres based in university hospitals participated (37 of 43; 86%), which represents quite a good response. The fact that fewer internal medicine centres agreed to participate (22 of 62; 35%) may be because only one rheumatologist was working in most of these centres, and in some centres the numbers of patients visiting or admitted during the 15 day inclusion period would have been too small for participation to be considered worthwhile. Thus there may be some bias owing to selection of the participating centres. However, this concern relates to only few centres, representing small numbers of hospital based rheumatologists and their patients. We therefore believe that our population sample was representative of the patients with rheumatoid arthritis managed by hospital based rheumatologists in French public hospitals.

We found that rheumatoid arthritis remains a severe disease. We studied two clinical aspects of the disorder—disease activity and disease severity. Disease activity is well defined and reflects the current clinical symptoms.[9] The evaluation of disease severity is more difficult and there are currently no validated guidelines.[14] We therefore used pre-established criteria to define severity and to compare it by subgroup analysis. These criteria were: an important handicap, the presence of radiological lesions, and the presence of extra-articular manifestations that are correlated with mortality.[5] Our results showed that patients with severe disease were also those who had more active disease, a greater number of hospital admissions, and more co-morbidity. Indicators of disability and handicap were increased in the overall population, with 53% of patients in ACR functional classes III and IV.

Our results show that disability was influenced by age, sex, and disease duration. Not surprisingly, disability was significantly greater in patients with severe disease. Other epidemiological studies in Europe[15–18] have shown various disease characteristics in rheumatoid populations (table 6). In a German database study of 52 444 patients with rheumatoid arthritis between 1993 and 1997, 42% of women aged 61 to 70 years had severe disability defined by a Steinbrocker functional class worse than II.[17] In Finland, the HAQ scores were above the reference values (of an age and sex matched population) in 17–45% of women with rheumatoid arthritis and 7–32% of men.[18] Although a direct comparison of diverse populations of patients with rheumatoid arthritis is difficult, French patients showed some differences in expression, disease activity, and severity. In our study, less than half the patients under 65 years of age were in employment, which is less than in other studies.[10 19] Our study also confirms that the ability to remain employed ended early in patients with rheumatoid arthritis—almost 20 years before the expected age.

Extra-articular manifestations and co-morbidities are also markers of severity. In our study, a small group of patients had extra-articular manifestations as previously defined[5]; pericarditis and vasculitis were the most common in this

Table 4 Reasons for hospital admission and length of stay (per hospital stay) during the past 12 months

Reason for admission	Number of stays	Mean length of stay (days)	Median length of stay (days)	IQR
Programmed check up for rheumatoid arthritis	268	3.36	1.00	3.00
Acute treatment of rheumatoid arthritis and check up	480	5.70	4.00	5.00
Intravenous steroids	88	1.93	1.00	1.00
Innovative treatments (TNF) and clinical trials	244	1.45	1.00	0.00
Surgical procedures	136	10.51	8.00	8.00
Physical training/rehabilitation	48	25.09	21.00	20.00
Other reasons related to rheumatoid arthritis (drug side effect, extra-articular complications)	155	9.72	6.00	10.00
Unknown	15	9.87	4.00	17.00
Total	**1434**	**5.83**	**3.00**	

IQR, interquartile range; TNF, tumour necrosis factor.

Table 5 Numbers of patients treated with disease modifying antirheumatic drugs during three periods: the previous four weeks, between the past four weeks and the past 12 months, and before the past 12 months

	During the previous 4 weeks		Between the past 4 weeks and the past 12 months		Before the past 12 months	
DMARD	**n**	**%**	**n**	**%**	**n**	**%**
Methotrexate	500	45.1	638	57.5	833	75.1
Gold salts (intramuscular)	54	4.9	90	8.1	587	52.9
Hydroxychloroquine	150	13.5	217	19.6	596	53.7
Sulphasalazine	118	10.6	191	17.2	479	43.2
Anti-TNF	156	17.1	179	17.9	185	17.2
Leflunomide	73	8.0	78	7.8	79	7.4
Tiopronine	30	2.7	50	4.5	262	23.6
D-penicillamine	14	1.3	25	2.3	251	22.6
Cyclosporin	35	3.2	59	5.3	120	10.8
Azathioprine	11	1.0	21	1.9	62	5.6
Cyclophosphamide	5	0.5	14	1.3	31	2.8
Gold salts (oral)	8	0.7	15	1.4	67	6.0
Total number of patients treated	**911**	**82.1**	**999**	**90.1**	**1074**	**96.8**
Corticosteroids	799	72				
NSAID	502	45.3				
Non-opiate analgesics	607	54.7				
Opiate analgesics	89	8				
Gastroduodenal protective agents	471	42.5				
Antidepressive agents	406	8				
Anti-osteoporosis drugs	89	36.6				
Clinical trials						
Yes	191	17.8				
No	880	82.2				

DMARD, disease modifying antirheumatic drug; TNF, tumour necrosis factor.

subgroup. According to Turesson *et al*, the presence of vasculitis, pericarditis, pleuritis, or Felty's syndrome is correlated with a poor prognosis.[5 12]

An increase in co-morbidity can also enhance disease severity. The presence of chronic unrelated coexisting diseases in patients with rheumatoid arthritis may occur early in the disease course. According to a study of 186 patients in the Netherlands with a mean duration of rheumatoid arthritis of 4.3 years, 27% of the patients had at least one chronic coexisting disease.[20] No significant differences were found in disease activity or severity in terms of physical disability and radiological damage over periods of three and six years between the groups with and without chronic coexisting diseases. In our study, 45% of the patients had at least one coexisting disease, probably reflecting a greater mean duration of rheumatoid arthritis. Other studies have found an increased rate of coexisting diseases in patients with rheumatoid arthritis compared with the general population. In a cross sectional study of 288 patients with rheumatoid arthritis, 54% of the respondents had other chronic conditions and 20% of them considered these conditions to be severe.[21] For Gabriel *et al*, the presence of rheumatoid arthritis was a significant predictor of an increase in comorbidity from one year to another, even after adjustment for age, sex, and baseline comorbidity.[22]

The surgical or medical management of rheumatoid arthritis can also differ according to the severity of the disease. The need for orthopaedic surgery may reflect greater disease severity. For Massardo *et al*, the survival of patients who had surgery for rheumatoid arthritis was similar to those who did not. Factors making surgery more likely were female sex, a younger age, and rheumatoid factor positivity.[23] In our study, almost half the patients had had surgery for rheumatoid arthritis since disease onset. When patients for whom joint surgery was planned within the next 12 months are considered as well, it can be seen that surgery for this disorder is very common in France. In another study of health care use by patients with rheumatoid arthritis in France,[24] the rate of hospital admission in the previous 12 months was also high—reported by 39.2% of the patients,

Table 6 Comparison of disease characteristics across rheumatoid arthritis populations in European cross sectional studies

Disease characteristic	Germany[17]	Italy[16]	Spain[15]	Finland[18]	France (current survey)
Time of the study	1993 to 1997	1998	1999 to 2000	2000	Nov–Dec 2000
Number of patients	52 444	200	788	1095	1109
Mean age (years)	57.1	55.3	61	62.4	56.7
Sex (% women)	76.6	81.0	71.3	71	77.3
Mean disease duration (years)	8.7	12.5	10	11.3	10.6
Age at diagnosis (mean (SD))	47.3(14.8)		48 (15)		46 (15)
Mean No of painful joints			3		7.2
Mean No of swollen joints			4		4.9
DAS_{28} score (mean (SD))			3.4 (1.2)		4.51 (1.55)
HAQ score (mean (SD))		1.71	1.6 (0.4)	0.7 (median)	1.32 (0.77)
ACR III+IV		49%			53%
Patients with erosions (%)				60	78
Patients receiving DMARD (%)		89	72	82	82.1
Patients with oral steroids (%)		75		35	72

ACR, American College of Rheumatology functional status; DAS_{28}, 28 joint disease activity score; DMARD, disease modifying antirheumatic drug; HAQ, health assessment questionnaire score.

versus 12.6% of non-arthritic subjects; surgery was carried out in 19.8% of the patients, and the average length of stay was significantly longer than for non-arthritic patients (12.8 *v* 6.8 days). Correlation with disease severity was not undertaken, but the study showed that patients with rheumatoid arthritis use health care services more widely than non-arthritic subjects.[24]

Methotrexate is the most frequent choice of disease modifying antirheumatic drug for rheumatoid arthritis. In our study, 75% of the patients had had methotrexate at least once during their disease course and 45% were currently on treatment with this agent. Other European studies have also shown that methotrexate is the most commonly employed DMARD for rheumatoid arthritis and is used increasingly as first line treatment in newly diagnosed cases.[25] Prescription of treatments apart from DMARDs is not often reported. In our study, despite substantial use of methotrexate, 72% of the patients were also receiving concomitant oral corticosteroids. This proportion is much higher than in a previous French epidemiological study conducted in patients managed by private rheumatologists,[26 27] and may reflect greater disease severity—possibly because of a referral bias towards hospital based rheumatologists, mostly in the public sector.

Finally, this first large epidemiological study of patients with rheumatoid arthritis managed in a hospital setting in France showed that this was a severe disease in 39% of the patients, and that it remained very active despite the current treatment in 13%. Various markers of disease severity can be used to define the individual status of rheumatoid patients. This overview of the disease characteristics will provide us with improved knowledge of disease severity and activity in the rheumatoid population managed in French hospitals, and could help in the evaluation of patients who are candidates for the new biological treatments.

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Authors' affiliations

J Sany, Rheumatology Department, Lapeyronie Hospital, Montpellier, France
P Bourgeois, Rheumatology Department, Pitié-Salpêtrière Hospital, Paris, France
A Saraux, Rheumatology Department, University Hospital, Brest, France
S Durieux, Rheumatology Department, Saint Michel Hospital, Paris
A Lafuma, Cemka-Eval, Bourg la Reine, France
J P Daures, Biostatistics and Epidemiology, Lapeyronie Hospital, Montpellier
F Guillemin, Ecole de Santé Publique, Vandoeuvre-les-Nancy, France
J Sibilia, Hautepierre University Hospital, Strasbourg, France

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REFERENCES

1 **Guillemin F**, Saraux A, Guggenbuhl P, Fardellone P, Fautrel B, Masson C, *et al*. Prévalence de la polyarthrite rhumatoïde et des spondylarthropathies en France en 2001. *Rev Rhum (Fr)* 2002;**69**:1014–38. [In French.]
2 **Sany J**, Dropsy R, Daures JP. Cross-sectional epidemiological survey of rheumatoid arthritis patients seen in private practice in France. Descriptive results (1629 cases). *Rev Rhum (Eng)* 1998;**65**:462–70.
3 **Arnett F**, Edworthy S, Bloch D, *et al*. The American Rheumatism Association 1987 revised criteria for the classification of rheumatoid arthritis. *Arthritis Rheum* 1988;**31**:315–24.
4 **Hochberg MC**, Chang RW, Dwosh I, Lindsey S, Pincus T, Wolfe F. The American College of Rheumatology 1991 revised criteria for the classification of global functional status in rheumatoid arthritis. *Arthritis Rheum* 1992;**35**:498–502.
5 **Turesson C**, O'Fallon WM, Crowson CS, Gabriel SE, Matteson EL. Occurrence of extraarticular disease manifestations is associated with excess mortality in a community based cohort of patients with rheumatoid arthritis. *J Rheumatol* 2002;**29**:62–7.
6 **Charlson ME**, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis* 1987;**40**:373–83.
7 **Guillemin F**, Briançon S, Pourel J. Measurement of the functional capacity in rheumatoid polyarthritis: a French adaptation of the Health Assessment Questionnaire (HAQ). *Rev Rhum Mal Ostéoartic* 1991;**58**:459–65.
8 **Guillemin F**, Coste J, Pouchot J, Ghezail M, Bregeon C, Sany J. The AIMS2-SF: a short form of the Arthritis Impact Measurement Scales 2. French Quality of Life in Rheumatology Group. *Arthritis Rheum* 1997;**40**:1267–74.
9 **Felson D**, Anderson J, Boers M, Bombardier C, Chernoff M, Fried B, *et al*. The American College of Rheumatology preliminary core set of disease activity measures for rheumatoid arthritis clinical trials. *Arthritis Rheum* 1993;**36**:729–4.
10 **Wolfe F**. The natural history of rheumatoid arthritis. *J Rheumatol* 1996;**23**(suppl 44):13–22.
11 **Belghomari H**, Saraux A, Allain J, Guedes C, Youinou P, Le Goff P. Risk factors for radiographic articular destruction of hands and wrists in rheumatoid arthritis. *J Rheumatol* 1999;**26**:2534–8.
12 **Turesson C**, Jacobsson L, Bergström U. Extra-articular rheumatoid arthritis: prevalence and mortality. *Rheumatology* 1999;**38**:668–74.
13 **Kvien TK**. Epidemiology of rheumatoid arthritis. *Rheumatology* 2002;**41**:121–3.
14 **Wolfe F**, O'Dell JR, Kavanaugh A, Wilske K, Pincus T. Evaluating severity and status in rheumatoid arthritis. *J Rheumatol* 2001;**28**:1453–62.
15 **Carmona L**, Gonzalez-Alvaro I, Balsa A, Angel Belmonte M, Tena X, Sanmarti R. Rheumatoid arthritis in Spain: occurrence of extra-articular manifestations and estimates of disease severity. *Ann Rheum Dis* 2003;**62**:897–900.
16 **Leardini G**, Salaffi F, Montanelli R, Gerzeli S, Canesi B. A multicenter cost-of-illness study on rheumatoid arthritis in Italy. *Clin Exp Rheumatol* 2002;**20**:505–15.
17 **Zink A**, Braun J, Listing J, Wollenhaupt J. Disability and handicap in rheumatoid arthritis and ankylosing spondylitis – results from the German rheumatological database. *J Rheumatol* 2000;**27**:613–22.
18 **Sokka T**, Krishnan E, Hakkinen A, Hannonen P. Functional disability in rheumatoid arthritis patients compared with a community population in Finland. *Arthritis Rheum* 2003;**48**:59–63.
19 **Sokka T**, Kautiainen H, Mottonen T, Hannonen P. Work disability in rheumatoid arthritis 10 years after the diagnosis. *J Rheumatol* 1999;**26**:1681–5.
20 **Kroot EJ**, van Gestel AM, Swinkels HL, Albers MM, van de Putte LB, van Riel PL. Chronic comorbidity in patients with early rheumatoid arthritis: a descriptive study. *J Rheumatol* 2001;**28**:1511–17.
21 **Berkanovic E**, Hurwicz ML. Rheumatoid arthritis and comorbidity. *J Rheumatol* 1990;**17**:888–92.
22 **Gabriel SE**, Crowson CS, O'Fallon WM. Comorbidity in arthritis. *J Rheumatol* 1999;**26**:2475–9.
23 **Massardo L**, Gabriel SE, Crowson CS, O'Fallon WM, Matteson EL. A population based assessment of the use of orthopedic surgery in patients with rheumatoid arthritis. *J Rheumatol* 2002;**29**:52–6.
24 **Girard F**, Guillemin F, Novella JL, Valckenaere I, Krzanowska K, Vitry F, *et al*. Health-care use by rheumatoid arthritis patients compared with non-arthritic subjects. *Rheumatology (Oxford)* 2002;**41**:167–75.
25 **Aletaha D**, Smolen JS. The rheumatoid arthritis patient in the clinic: comparing more than 1300 consecutive DMARD courses. *Rheumatology* 2002;**41**:1367–74.
26 **Bijlsma JW**, Van Everdingen AA, Huisman M, De Nijs RN, Jacobs JW. Glucocorticoids in rheumatoid arthritis: effects on erosions and bone. *Ann NY Acad Sci* 2002;**966**:82–90.
27 **Saag KG**. Glucocorticoid use in rheumatoid arthritis. *Curr Rheumatol Rep* 2002;**4**:218–25.