Survey of practices regarding management of early rheumatoid arthritis by rheumatologists in France

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Abstract

Objective

To describe the practices of rheumatologists in France regarding the initial management of early rheumatoid arthritis (RA) and to estimate the associated costs.

Methods

A questionnaire on the diagnosis and treatment of early RA was sent to the 2485 practicing rheumatologists in France. The results of the 917 completed questionnaires (37% response rate) were analyzed, and initial investigation and treatment costs, including the first month of treatment, were calculated from a socio-economic perspective.

Results

For the RA diagnosis, more than 80% of the respondents recommended the erythrocyte sedimentation rate, C-reactive protein, complete blood count, rheumatoid factor, antinuclear antibody and wrist radiographs. In 40% and 60% of the cases, antikeratin antibody, liver enzymes, serum creatine, serum protein electrophoresis and radiographs (chest, foot and knee) were advocated. Initial drugs administered were non-steroidal antiinflammatory agents (88%), analgesics (76%), disease modifying anti-rheumatic drugs (74%, with methotrexate in 46% of cases, followed by hydroxychloroquine [13%], sulfasalazine [8%], leflunomide [7%], intramuscular gold therapy [6%]), and glucocorticoids (21%). Rehabilitation was recommended by 51% of the respondents. The median cost for this initial management was € 273 (mean € 301, range € 49-1,336).

Conclusion

Marked variations occur among French rheumatologists in the initial management of early RA. These data may be helpful in identifying obstacles to physiciancompliance with recommendations regarding everyday clinical practice and to set up more a specific evaluative study.

Key words

Rheumatoid arthritis, practices, survey, costs.

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Introduction

Rheumatoid arthritis (RA) is a chronic inflammatory disease that causes structural joint damage responsible for pain and disability, and resulting in huge personal, societal, and economic costs. Recently introduced cytokine-inhibiting treatments can modify the progression of RA (1-3), and sound evidence indicates that early diagnosis and treatment can prevent disability (4-7). Variations in practices regarding the management of RA have been reported however (8-10).

RA is a challenging disease for the rheumatologist. The pleomorphic presentation of early RA makes the diagnosis difficult, yet an erroneous diagnosis can lead either to aggressive treatment of a disease destined to resolve spontaneously or to a wait-and-see approach that misses the narrow window of opportunity for effective disease-modifying treatment if the patient does have RA. Considerable variation in the tests used to confirm the diagnosis of RA have been found across rheumatologists (10, 12) and the inappropriate use of diagnostic investigations in early RA has been reported (12). In addition, the initial treatment and the follow-up have been shown to vary widely from one rheumatologist to the next (10), despite the availability of guidelines (13). This variability may reflect sub-optimal diagnosis and treatment of early RA, which can then adversely affect the patient outcome and the cost of RA to society. Better knowledge of the variability in the practices regarding early RA may suggest avenues for improvement. To collect data on the practice of rheumatologists in France regarding early RA, we conducted a questionnaire survey that focused on the management of early RA.

Materials and methods

Rheumatologists

We obtained the list of all rheumatologists practicing in France from the 2001 yearbook published by the French Society for Rheumatology and from the web-based yellow-pages directory. From our initial list of 2,559 rheumatologists, we excluded 74 for the following reasons: wrong address (n= 53), retired (n = 13), deceased (n = 5), or not a rheumatologist (n = 3); this step was done either *a priori* or after non-response. This left 2,485 rheumatologists for the study.

Questionnaire

We designed a questionnaire made up of two parts, one for collecting information on the respondent and the other for evaluating how the respondent would manage a patient presenting for the first time with manifestations of early RA. The items concerning the respondent specified the gender, time in practice (in years from the year of the doctoral dissertation to 2001, with three categories, i.e., 10 years or less; 11 to 21 years; and more than 21 years), type of practice (hospital-based, office-based, both, and other), and geographic area (Paris and the surrounding urban area; northwest, northeast, southeast, and southwest France; and overseas districts).

The second part of the questionnaire presented a vignette case history of a 50-year-old woman presenting with arthralgia. The features of the case were as follows: unremarkable medical history; menopause 2 years earlier without hormone replacement therapy; 6-week history of pain in her wrists, metacarpophalangeal joints, and knees; morning stiffness for 1 hour; no fever, sicca syndrome, or Raynaud's phenomenon; good general health; and synovitis of the wrists and metacarpophalangeal joints with tenosynovitis of the flexor and ulnar tendons as the only abnormal physical findings. The only diagnosis considered for the questions in the vignette was RA.

This vignette was followed by 5 items designed to elicit the respondent's recommendations. The first item asked which investigations were needed to confirm the diagnosis, as opposed to investigations done to obtain baseline data for drug safety monitoring; the respondent was asked to check the appropriate investigations from the list shown in Table III. In the second item, the respondent indicated the components of the initial management that he would have prescribed, from the list of drugs shown in Table IVand a list showing non-pharmacological treatment op-

tions, i.e intra-articular injections (glucocorticoids, isotopic synovectomy, chemical synovectomy); rehabilitation therapy (physical therapy, occupational therapy, orthoses); and other measures (diet, sick leave, and requesting full reimbursement of RA-related costs to the patient by the national health insurance system). The third item presented a list of tests recommended by the respondent, not for the diagnosis but to obtain baseline data useful for monitoring drug treatment: blood tests (complete blood cell counts, serum electrolytes, serum creatinine, creatinine clearance, liver enzymes, gamma-glutamyl-transpeptidase, alkaline phosphatase, albumin, serum calcium, serum phosphorus, vitamin D, and glucose-6-phosphate dehydrogenase); urine tests (dipsticks, protein, and others); other tests (evaluation by an ophthalmologist, bone density measurement, chest radiography, and lung function tests). The fourth item concerned the frequency of rheumatology visits during the first year and the fifth item specified the frequency of follow-up evaluations of the variables listed in Table V(at each visit, monthly, every 2, 3, or 6 months, or yearly).

Costs

Only investigational and treatment medical costs were evaluated, from the perspective of society, in Euros (€) for the year 2001. We were able to partially estimate the indirect costs, however, based on whether sick leave and full reimbursement to the patient were recommended. The cost of each investigation was estimated based on the price lists established by the French national health insurance system. The costs of medications were calculated from retail prices, by multiplying the price of each treatment unit (e.g., tablet) by the number prescribed per day. Because some respondents failed to indicate the treatment duration, we calculated the cost only for the first month of treatment. We did not calculate the costs of the rheumatologist visits, since the data on the number of these visits could not be derived from the questionnaire.

Thus, from our analysis we described the cost of initial management recommended by the respondents.

Conduct of the study

In compliance with French law, we used the names of the rheumatologists only to determine the final list of those who would receive a second questionnaire because they had not answered the first. In November 2001, the questionnaire was sent to the 2559 rheumatologists identified as being in active practice. Only 594 questionnaires were sent back completed. As explained in the Methods section, 74 rheumatologists, all non-respondents, were excluded. The remaining 1,981 non-respondents were sent the questionnaire again in mid-December 2001; this produced 323 additional completed questionnaires. Our final response rate was 917 of 2485 included rheumatologists, i.e., 37%.

Statistical analysis

All statistical tests were done using SAS and BMDPsoftware.

Comparison of respondents and non-respondents. For the overall population of rheumatologists, i.e. the respondents and non-respondents, we determined the number and percentage with each of the characteristics studied. Univariate analysis was used to compare respondents and non-respondents. Chi-square tests were used for categorical variables (geographical area, gender, and type of practice) and Kruskal-Wallis tests for continuous variables (time in practice). Multivariate logistic regression was then performed, using the above-described cateogies for each study variable. In our model, we used hospital-based practice (code 1), 11-20 years in practice (code 2) and Paris area (geographical area) as the reference values. Global P values less than 0.05 were considered statistically significant.

Analysis of questionnaire data. Descriptive statistics (numbers and percen-

Table I. Characteristics of the overall population of French rheumatologists and of the respondents and non-respondents.

No. (%)	Overall population 2485 (100)	Respondents 917 (37)	Non-respondents 1568 (63)	Pvalue
Geographical area (no., %)				
Paris metropolis	643	222 (35%)	421 (65%)	P< 0.001*
Northwest of France	401	164 (41%)	237 (59%)	
Northeast of France	425	183 (43%)	242 (57%)	P< 0.001*
Southeast of France	687	234 (34%)	453 (66%)	
Southwest and overseas districts of France	329	114 (35%)	215 (65%)	
Gender (no., %)				
Female	679	274 (40%)	405 (60%)	
Male	1694	640 (38%)	1054 (62%)	NS*
Male-to-female ratio	2.5	2.3	2.6	
Unknown	112	3 (3%)	109 (97%)	
Type of practice (no., %)				
Hospital	487	205 (42%)	282 (58%)	
Office	1682	487 (29%)	1195 (71%)	
Hospital and office	261	197 (75%)	64 (25%)	P< 0.001*
Other	37	27 (73%)	10 (27%)	
Unknown	18	1 (6%)	17 (94%)	
Time in practice				
Mean ± SD	18.5 ± 9	17.6 ± 9.1	19.4 ± 8.7	P< 0.001**
Median	18	17	19	
0 – 10 years	974	225 (23%)	749 (77%)	P< 0.001*
11 – 20 years	761	360 (47%)	401 (53%)	
> 20 years	714	316 (44%)	398 (56%)	
Unknown	36	16 (44%)	20 (56%)	

*Chi-square statistics; **Kruskal-Wallis test; NS: non-significant; SD: standard deviation.

tages) were calculated for the investigations and treatments. Fisher's test was used to compare glucocorticoid therapy with or without treatment for osteoporosis. The costs for each category were described by determining the mean, standard deviation, range, and quartiles.

Comparison of responses according to the rheumatologists' characteristics. For this analysis, characteristics were entered as explanatory variables into a logistic regression analysis to evaluate differences in practice.

Results

Respondent's profile

The population of 2485 rheumatologists eligible for this survey had a male-to-female ratio of 2.5 and a mean time in practice of 18.5 ±8.9 years. Other characteristics are reported in Table I. The response rate was 37% overall. Among the population of 917 respondents, the male-to-female ratio was 2.3 and mean time in practice was 17.6 ±9.1 years. In the univariate analysis, differences between respondents and non-respondents were significant for geographic area, type of practice, and time in practice (Table I).

Table II shows the main differences between respondents and non-respondents.

Recommended investigations and treatments

Table III shows the investigations recommended for confirming the diagnosis.

Table IV shows the treatments recommended by the respondents, assuming that the diagnosis of RA was confirmed. The preferred drugs were diclofenac among NSAIDs (22%), acetaminophen among analgesics (55%), methotrexate among DMARDs (46%), and prednisone among glucocorticoids (91%). In addition, 30% of respondents recommended local injections. Prophylaxis for osteoporosis was recommended by 62% of the respondents who felt that corticosteroid therapy was in order, as compared to 38% of those who did not (P<0.001).

Rehabilitation measures were recommended by 471 respondents (51%), among whom 95% advocated medical devices, 18% occupational therapy, and 15% physiotherapy. Only 1% of the 917 respondents felt that patient education should be offered. A change in diet, consisting in decreased intakes of salt and carbohydrates, was recommended by only 3% of respondents. Sick leave and full reimbursement of RA-related health care costs to the patient by the national health insurance system were felt to be in order by 50% of respondents, with a mean sick leave duration of 53 days (range, 15-90 days).

Investigations recommended for monitoring treatment safety

We focused on investigations related to

Table II. Logistic regression for comparison of respondents versus non-respondents.

Explanatory variable	OR, CI (95%)	Pvalue
Geographical area		
Northwest versus Paris area	1.750 [1.319; 2.321]	0.0026
Northeast versus Paris area	1.845 [1.399; 2.433]	0.0037
Southeast versus Paris area	1.177 [0.918; 1.509]	0.0365
Southwest + overseas versus Paris area	1.411 [1.041; 1.912]	0.0098
Gender		
Males versus females	0.739 [0.604; 0.904]	0.0033
Type of practice		
Office versus hospital	0.529 [0.425; 0.658]	< 0.0001
Office and hospital versus hospital	3.797 [2.683; 5.373]	< 0.001
Miscellaneous versus hospital	2.410 [1.201; 4.839]	0.0063
Time in practice		
≤ 10 years versus 11-20 years	0.369 [0.297; 0.460]	< 0.0001
> 21 years versus 11-20 years	0.906 [0.728; 0.927]	< 0.0001

OR: Odds ratio; CI: 95% Confidence interval.

Table III. Laboratory and other investigations recommended in early rheumatoid arthritis (917 responses).

Laboratory tests	%	Radiographs	%
Erythrocyte sedimentation rate	97	Hand: anteroposterior	93
Rheumatoid factor	96	Wrist: anteroposterior	80
Complete blood count	93	Foot: anteroposterior	58
C-reactive protein	87	Chest: anteroposterior	51
Antinuclear antibody	83	Knee: anteroposterior	43
Antikeratin antibody and associated	62	Knee: lateral	20
Liver enzymes (AST, ALT)	61	Wrist: lateral	16
Creatinine	55	Foot: oblique	12
Protein electrophoresis	45	Chest: lateral	12
Uric acid	36	Foot: lateral	11
Hepatitis C serology	25	Hand: oblique	10
Urine dipsticks	24	Others	< 3
Hepatitis B serology	22		
Urine protein	21	Other investigations	%
Serum electrolytes	11		
Complement	9	Radionuclideone scan	2
HLAclass II	6	MRI: wrist / hand	2
HLAclass I	5	Others	< 0.4
Urine culture	5		
Cryoglobulin	4		
Others	< 2		

AST: aspartate aminotransferase; ALT: alanine aminotransferase; HLA: human leucokyte antigens; MRI: magnetic resonance imaging.

Table IV. Drugs recommended in early rheumatoid arthritis (917 responses).

Drugs	% (no.)	Class	%
Anti-inflammatory drugs	88 (807)	Classical NSAIDs	70.8
		COX-2 inhibitors	17.7
		Not specified	11.2
		Aspirin	0.3
Analgesics°	76 (694)	Level I	54.7
		Level II	44.1
		Level III	0.6
		Combinations of analgesics	0.3
		Not specified	0.3
Disease-modifying antirheumatic drugs	74 (681)	Methotrexate	46
		Not specified	16
		Hydroxychloroquine	13
		Sulfasalazine	8.2
		Leflunomide	7
		Intramuscular gold	6
		Bi-therapy	3
		Tiopronin	0.4
		Etanercept or infliximab	0.4
Glucocorticoids	21 (191)	Prednisone	91
		Others	6
		Not specified	3
Other treatments *	18 (164)	Gastroprotective drugs	38
		Folic acid	29
		Treatment for osteoporosis	27
		Others	6

NSAIDs: non-steroidal anti-inflammatory drugs; °World Health Organization classification; *treatments recommended by the respondents (items not on the response option list).

Table V. Recommended schedules for evaluations of clinical and non-clinical variables during the first year after the RAdiagnosis (n = 917 responses).

Suggested variables	No. of checked items (%)		Monthly (%)	Every 2 mos. (%)	Every 3 mos. (%)	Others (%)
Morning stiffness	891	(97)	12	78.3	9.5	0.2
Painful joint count	880	(96)	12	78	9.8	0.2
Swollen joint count	877	(96)	13	78	8.7	0.3
Erythrocyte sedimentation rate	737	(80)	39	36	22	3
C-reactive protein	709	(77)	32	44	22	2
Pain (visual analog scale)	707	(77)	12	78	9.7	0.3
Radiographs	488	(53)	0.2	1.3	2	96.5
Ritchie's index	353	(38)	11	64	15	10
HAQ	162	(18)	7	33	11	49
AIMS-2	76	(8)	6.5	33	6.5	54
Others	74	(8)	65	9	7	19

HAQ: Health Assessment Questionnaire; AIMS-2: Arthritis Impact Measurement Scale-2.

treatments recommended by at least 10% of the respondents, i.e., methotrexate (n = 307) and corticosteroids (n = 191).

To obtain baseline data for monitoring methotrexate therapy, blood cell counts were recommended by 63% of methotrexate prescribers, serum creatinine by 77%, liver enzymes and serum albumin by 49%, a chest radiograph by 56%, and lung function tests by 27%. When we added the investigations recommended for confirming the diagnosis to those recommended for preparing safety monitoring, the percentages of prescribers were as follows: complete blood cell counts (100%), serum creatinine (83%), liver enzymes and albumin (72%), chest radiograph (82%), and lung function tests (27%).

We compared respondents who did and did not recommend glucocorticoid therapy regarding their use of investigations for detecting or monitoring osteoporosis (albumin, parathyroid hormone, serum calcium, serum phosphorus, serum protein electrophoresis, serum vitamin D, bone density measurement, and gynecologist visit). Respondents who felt that corticosteroid therapy was needed were significantly ($P < 0.001$, data not shown) more likely to recommend serum calcium, phosphate, and vitamin D assays, as well as bone density measurement.

Follow-up rheumatologist visits and investigations during the first year

The median number of follow-up visits recommended for the first year was 6 (0-32). The optimal follow up interval in early RAis every two weeks. Among the respondents, 96% would use clinical evaluation criteria such as morning stiffness and painful and swollen joint counts (Table V), and 77% would use pain severity, the frequency of evaluations being every 2 months (i.e., at each visit). Among the respondents, 77% and 80% would monitor the ESR and CRP, respectively, and 44% and 36%, respectively, would monitor these two tests at 2-month intervals. Follow-up radiographs would be used by 53% of respondents, among whom 96.3% would obtain radiographs every year (33% for the hands and wrists and 28% for the feet). Evaluation of quality of life by the HAQ and AIMS-2 was recommended by only 18% and 8% of the respondents, among whom 49% and 54%, respectively, would repeat these evaluations every year.

Among the 307 respondents who recommended methotrexate, 98%, 96%,

82%, and 41% would monitor: liver enzymes, complete blood cell counts, serum creatinine and albumin, respectively, usually at 1- or 2-month intervals (Table VI). Only two respondents (0.6%) would perform lung function testing, at the end of the first year. Of the 92 respondents who recommended hydroxychloroquine (data not shown), 87% would obtain complete blood cell counts at 1-, 2-, or 3-month intervals and less than 3% and 10% would obtain yearly ophthalmologist evaluations and electroretinograms, respectively.

Costs of management of the early RA patient (Table VII)

The median costs for investigations used to confirm the diagnosis and to monitor the treatment were € 154 (range € 23-1212) and € 58 (€ 0-297), respectively, with a total of € 213 (€ 13-1240). Costs were evenly divided between laboratory tests and other tests. The median cost of the first month of treatment was € 46 (€ 0-1097). Because symptomatic drugs were recommended far more often than DMARDs, the median cost for symptomatic drugs was 4.6 times higher. The total cost of initial management was € 273 (€ 49-1336), not counting the rheumatologist visit. For some items, the lowest end of the cost range was zero, because no response options were checked; however, when we restricted our analysis to items with checked response options, the results were not significantly different.

Comparison of responses according to the characteristics of respondents

Recommendations about investigations did not vary significantly with the respondents' characteristics. Median costs were significantly higher among rheumatologists with a hospital-based practice and in those who had been in practice for 11 to 20 years compared to other categories (data not showed).

Table VI. Suggested schedule for non-clinical evaluations during the first year after the RA diagnosis when methotrexate was recommended (n = 307 responses).

	No. of checked items (%)		Monthly (%)	Every 2 mos. (%)	Others (%)
Liver enzymes*	302	(98)	57	35	8
Complete blood cell counts	294	(96)	60	37	3
Creatine	252	(82)	46	41	13
Albumin	125	(41)	40	26	34
Chest radiograph **	23	(7)	0	0	100
Lung function testing ** °	2	(0.6)	0	0	100

*Alanine aminotransferase and aspartate aminotransferase, **recommended yearly, °item suggested by the respondents (not on the response option list).

Table VII. Investigational and treatment cost of early rheumatoid arthritis (€ 2001).

	Mean	Mode	Min.	1st quartile	Median	3rd quartile	Max.
Investigations for diagnosis							
Laboratory tests	94	44	10	55	70	108	485
Other tests	90	94	0	69	71	94	792
Total 1	184	80	23	125	154	202	1212
Investigations for treatment							
Laboratory tests	31	0	0	18	29	40	225
Other tests	44	0	0	0	25	70	238
Total 2	76	0	0	30	58	111	297
Investigations *							
Laboratory tests	115	92	13	72	92	130	524
Other tests	130	69	0	69	115	156	767
Total (1 + 2)*	245	211	13	159	213	290	1240
Treatment for the first month (% of prescription)							
Antiinflammatory drugs (88%)	23	0	0	14	18	24	232
Analgesics (76%)	16	0	0	0	19	24	43
DMARDs (74%)	12	0	0	0	4	11	1072
Glucocorticoids (21%)	2	0	0	0	0	0	145
Other treatments (18%)	3.4	0	0	0	0	0	95
Gastroprotective drugs (7%)	2.6	0	0	0	0	0	55
Others (6%)	0.2	0	0	0	0	0	42
Treatment of osteoporosis (5%)	0.6	0	0	0	0	0	51
Total 3	57	34	0	34	46	63	1097
Total costs (1 + 2)* + 3	301	254	49	204	273	359	1336

DMARDs: disease modifying anti-rheumatic drugs; *costs of investigations indicated as necessary for both the diagnosis and the treatment were counted only once.

Discussion

The results of our survey among rheumatologists in France showed that 80% of respondents would use inflammation tests, RF, and wrist radiographs to confirm early RA, whereas only 62% would test for antikeratin antibodies. Initial costs were evenly divided between laboratory and other investigations (median, € 70 for each). Although over 70% of respondents recommended symptomatic drugs and DMARDs, the median cost of symptomatic drugs was five times higher than that of DMARDs for the first treatment month. Only 51% and 0.5% of respondents recommended rehabilitation and patient education, respectively. Among baseline investigations for monitoring methotrexate safety, liver enzymes and lung function tests were felt to be useful by only 49% and 27% of respondents, respectively. Bone mass evaluation was more likely to be advocated by respondents who recommended corticosteroid treatment but was not used often enough among the other respondents for this post-

menopausal patient. Most respondents felt that bi-monthly visits would be appropriate during the first year, with evaluations of morning stiffness, pain, and painful and swollen joint counts at each visit. No consistent pattern of use was found for imaging studies or quality-of-life evaluations.

Methodology

To our knowledge, this is the first study in which all rheumatologists in France were contacted for a survey of practices regarding RA. Differences between non-respondents and respondents were found for geographical area, type of practice, time in practice, and gender. This may affect the degree to which our results apply to the entire population of rheumatologists in France. We elected to present a case of RAbecause our objective was to evaluate the initial management of early RA, as opposed to the differential diagnosis of recent-onset inflammatory joint disease.

Diagnosis: comparison with the literature

Our methods and results differ in several ways from those of earlier studies. Saraux *et al*. (11) recently asked a random sample of 210 French rheumatologists to complete a questionnaire on laboratory and imaging studies for two vignette case-histories, one of possible and the other of probable RA; no list of response options was given. In the probable case, which was similar to ours, the investigations recommended by the respondents were similar to those in our study for confirming the diagnosis of RA. The only notable difference was that our respondents were far more likely to obtain antikeratin antibody titers (62% versus 29%). Aletaha *et al*. (14) asked rheumatologists attending the EULAR symposium in November 1997 to complete a questionnaire on the definition, referral time, diagnostic approach, follow-up, and treatment of patients with early RA. Of the 111 participants, 85 gave their name and address and were sent the same questionnaire 3 years later, to which 44 responded. To the item on serological tests for the early diagnosis, RF were advocated by all respondents, antinuclear antibodies by 70%, and other serologic tests (antikeratin antibodies, antiperinuclear factor and anti RA33) by 25%. The 100% rate of antikeratin antibody use may have been ascribable to the predominance of university- and hospital-based rheumatologists (53% and 39%, respectively), with only 8% in office-practice.

Newer diagnostic tools, which are of interest for recent RA (15), such as detection of anti-CCP antibodies are not be proposed in the questionnaire and no respondents proposed it in a section free of the questionnaire.

Diagnosis-comparison with guidelines

According to the recent American College of Rheumatology guidelines for the management of RA (13), RF is the only investigation required at baseline for establishing the diagnosis. In our survey, 96% of respondents recommended the RF determination. The ACR guidelines indicate that organ dysfunction related to co-morbidities should be evaluated before starting medications, using complete blood cell counts, electrolyte levels, creatinine level, hepatic enzyme levels, urinalysis, and stool guaiac, and that synovial fluid analysis should be done to rule out other conditions. Of these 7 investigations, three (blood cell counts, creatinine, and hepatic enzymes) were advocated by most of our respondents.

The ACR guidelines recommend radiographs of involved joints but not evaluations of functional status or quality of life. Most of our respondents (93%) felt that radiographs of the hands (involved in the fictional case) were in order. Only 58% of our respondents felt that foot radiographs were important for confirming the diagnosis of RA, despite reported evidence that erosions in the fifth metatarsophalangeal joint is an important diagnostic indicator of RA (16,17).

Treatment-comparison with the literature

Among our respondents, there was general agreement that symptomatic drugs and DMARDS were required. Diclofenac was the NSAID most likely to be recommended (22% of NSAIDs), as compared to only 17.7% for Cox-2 inhibitors, perhaps because these were not reimbursed by the national health insurance system at the time of the study. Methotrexate was the DMARD most likely to be selected, in keeping with data on the effectiveness of this medication (18-20). Leflunomide was selected by only 8.2% of respondents who advocated DMARD therapy, but this drug had been introduced on the French market only recently.

We found no difference in recommended treatments according to the characteristics of the respondents. We designed our questionnaire with the goal of evaluating the management of a patient presenting for the first time with early RA, and consequently did not provide the results of laboratory tests or imaging studies. Thus, our respondents had to choose a treatment without knowing whether the fictional patient had factors predictive of disease progression. Other factors are known to influence the choice of medications, including co-morbidities, cost, route of administration, monitoring, adverse reactions, patient health insurance coverage, and personal preference. In our survey, a few rheumatologists felt that the short time from symptom onset (6 weeks) and the absence of laboratory test results made immediate DMARD therapy inappropriate. Thus, our results on the rate of DMARD use probably underestimate the true rate in early RA.

In the study conducted by Aletaha *et al.* (14) at the 1997 EULAR symposium, a larger proportion of respondents advocated methotrexate (83%), while 41% and 30% advocated sulfasalazine and antimalarial therapy, respectively. Again, these differences are probably ascribable to recruitment. In another study (21) conducted in Brittany (France) a cohort of 270 patients with recent onset inflammatory joint disease was followed-up prospectively; after 2 to 4 years, 98 were given a definite diagnosis of RA by a panel of five rheumatologists. The most commonly prescribed drugs at presentation were hydroxychloroquine (34%), injectable gold (32%), and methotrexate (10%), whereas after a mean follow-up of 29 ± 11 months, 23% and 21% of patients were given methotrex-

ate and hydroxychloroquine, respectively. Machold *et al.* (22) reported that 66 of 180 patients with very recent onset of arthritis seen in multiple centers in Austria had a diagnosis of RA one year later and that among these 66 patients, 57 (86.4%) received DMARD therapy which consisted of: methotrexate in 21, sulfasalazine in 14, chloroquine in 7, and two DMARDS in 4. In another study (23), Erkan *et al*. sent a questionnaire describing 3 cases of RA (mild, moderately severe, and severe, respectively) to ACR members in 4 geographic regions of the United States, asking them to select the first-line therapy for each case, first taking cost into consideration, then without considering cost, and finally indicating the treatment they would choose for themselves or a family member. The response rate was 37.7% (375/994). The most commonly chosen medications were hydroxychloroquine for mild disease and methotrexate for moderate-to-severe disease. Leflunomide or anti-TNF therapy was chosen by 14% of respondents when cost was a factor and by 65% otherwise.

In contrast to Erkan *et al*. (23), we did not introduce prognostic information in our vignette case-history because we felt that the large number of vignettes needed to reflect the many prognostic situations met in everyday practice would be unwieldy. We can only note that costs were higher for rheumatologists in hospital practice. In our survey, only 21% of respondents advocated corticosteroid therapy, as compared to 39% and 69.7% in the studies by Saraux *et al.* (21) and Machold *et al.* (22), respectively. Although low-dose corticosteroid therapy has been shown to slow joint damage (24), the risk of side effects must be considered. Local corticosteroid injections may be a useful alternative; they were advocated by 9% of our respondents. Rehabilitation and patient education were recommended by small proportions of our respondents (51% and 0.5%, respectively). This is probably ascribable to the lack of availability of a multi-disciplinary team for managing early RApatients in many areas in France.

Monitoring

Investigations recommended by our respondents to obtain baseline safety data and monitor methotrexate therapy were in close agreement with ACR guidelines (13). The role of lung function tests in this setting needs to be determined. The proportion of rheumatologists who would evaluate bone mass when prescribing corticosteroids was surprisingly low, but this was perhaps ascribable to the design of the questionnaire.

The median interval between follow-up visits suggested by our respondents was 2 months. Although there is general agreement that close monitoring is in order in RA, with a major role for the rheumatologist, the place of the primary care physician remains unknown. In practice, follow-up modalities probably vary across geographic areas according to the local availability of human and technical resources. Our respondents advocated evaluations of pain and symptoms of joint inflammation at each visit, in agreement with ACR guidelines (13). Our data on radiographic monitoring are difficult to compare to the guidelines, which recommend the selection of imaging studies based on clinical status. Among our respondents, 53% recommended yearly radiographs, particularly of the hands/wrists and feet. Quality-of-life assessment is time-consuming and probably difficult to interpret, two characteristics that may explain the limited reliance on this approach among our respondents.

Costs

Our survey collected information on initial investigational and treatment costs associated with the recommended investigations and treatments for a fictional patient. Thus, we did not measure real-life costs. We described costs that had to be interpreted according to the base case scenario and methodology used. Therefore, comparison with other economic studies had to be made with careful attention to their interpretation. A prospective 6-month study in France evaluated the costs of the first 6 months of management in 20 incident cases of RA managed by a multi-disciplinary team, with initial inpatient care (25). The mean total cost for the 6 months was € 3429 ± 880, distributed as follows: 39% for laboratory tests; 16% for rheumatologist care; and 7.6 – 9.2% for radiographs, other investigations, physician care, and DMARDs (drugs and monitoring). In a review of published data on costs of RA(24), Lubeck found that mean direct costs in 1996 US$ were US$ 486–1544 for medications (NSAIDs and DMARDS) and US$ 86–917 for diagnostic tests. In our survey, a similar distribution between laboratory tests and imaging studies was noted (€ 70 each). Recent techniques such as MRI and ultrasonography were rarely advocated, probably because of their limited availability and the lack of information on their diagnostic value for the individual patient in everyday practice. Our finding that costs for symptomatic drugs were 5 times those for DMARDs was unexpected. We did not count the costs of travel, physician visits, rehabilitation, or in-patient care, and nor did we consider indirect costs. These costs would be difficult to evaluate for a fictional patient, and furthermore our main goal was to emphasize that every component of management is costly and deserves attention as such.

Conclusion

The results of this survey provide a sound basis for evaluating actual clinical practice regarding the management of early RA by rheumatologists in France. This pragmatic declaratory study may allow researchers to set up more specific studies for evaluative issues. Although the limitations of the study must be borne in mind, the data may prove helpful in identifying obstacles to physician compliance with the recommendations for everyday clinical practice, so that more RA patients receive early effective treatment before permanent disability ensues.

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