Evaluation of the ILAR Criteria for Juvenile Idiopathic Arthritis

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ABSTRACT. ***Objective.*** A pediatric rheumatology committee of ILAR has proposed new classification criteria for chronic childhood arthritis. The umbrella term "juvenile idiopathic arthritis (JIA)" was chosen and the disease was subdivided into 7 categories. Evaluation for these criteria is under way.

Methods. We analyzed data of 200 consecutive children with rheumatic diseases.

Results. In total 172 patients fulfilled criteria for JIA. Twenty-seven of these (15.7%) had to be grouped into the category "other arthritis": 16 met criteria for 2 categories; the other 11 did not fit into any category.

Conclusion. We suggest minor changes in the classification in order to classify 24 of these 27 patients into one of the specific categories without losing the claim for homogeneity in the different patient groups. Among the 44 patients with rheumatoid factor negative polyarthritis, 26 resembled oligoarthritis, with an extended oligoarticular joint pattern of 5 to 8 involved joints within the first 6 months, 18 had positive antinuclear antibodies, and 7 chronic uveitis. For these patients the introduction of a separate category "extended oligoarthritis at onset" should be considered to establish comparable patient groups. (J Rheumatol 2001;28:2544–7)

Key Indexing Terms:
JUVENILE IDIOPATHIC ARTHRITIS
CLASSIFICATION CRITERIA
EVALUATION
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The increasing international cooperation in pediatric rheumatology requires a common nomenclature and classification for juvenile arthritis. Up to now 2 major classification systems have been accepted worldwide. In Europe, the EULAR classification from 1977 with the term juvenile chronic arthritis (JCA) is mainly used[1], while the American scientists refer to the definition of the American College of Rheumatology (ACR) from 1976 with their main diagnosis juvenile rheumatoid arthritis (JRA)[2]. Differences between the 2 classification systems have complicated international exchange. For multicenter studies special agreements were necessary.

Therefore a committee of ILAR was founded in 1994 with the aim to develop uniform criteria for chronic childhood arthritis. The first proposal from the meeting in Santiago was revised in Durban in 1997 and this classification is now open for evaluation by different centers around the world. The Committee sees its main task in creating homogeneous categories, giving the basis for multicenter studies[3].

In the ILAR classification the term juvenile idiopathic arthritis (JIA) replaces both JCA and JRA. The onset of juvenile arthritis, unchanged but still arbitrary, is defined to occur before the 16th birthday. A minimum course of over 6 weeks is required. The diagnosis JIA is divided into 7 subgroups, so-called categories (Table 1).

MATERIALS AND METHODS

We reviewed the charts of 200 consecutive patients who attended the Pediatric Rheumatology Hospital in Garmisch-Partenkirchen in October 1999. Our hospital is a tertiary center, and children who are referred to us usually have longer disease duration and more severe disease courses. At study entry the followup of our 200 patients ranged from 6 months to 27 years with a mean of 6 years [standard deviation (SD) 4.5 yrs]. The majority, 172 patients, were diagnosed with our traditional classification as juvenile chronic arthritis with onset of arthritis before the 16th birthday and a disease duration of at least 3 months, but they also fulfilled criteria of the ILAR classification with a disease duration of more than 6 weeks. Twenty-two children had either a connective tissue disease, fibromyalgia, or reactive arthritis. The latter was defined as an arthritis persisting for less than 6 weeks with either a preceding infectious disease or an antibody titer suggesting previous infection. When we saw these children their disease was already in remission. Among the remaining 6 were one boy with periodic fever, a girl with familial hypertrophic synovitis, and 4 children with recurrent joint pain without arthritis.

From the 172 patients who fulfilled criteria for JIA we recorded onset and course of the disease. Special notice was given to the onset symptoms, number and pattern of affected joints including dactylitis, systemic signs, uveitis, skin lesions, enthesopathies, and sacroiliitis. In our clinic the family history of rheumatic diseases or psoriasis is routinely ascertained in all patients at their first admission and updated at each further admission. All children receive testing of antinuclear antibodies (ANA), rheumatoid factor (RF), and HLA-B27.

RESULTS

Among the 172 patients with JIA there were 118 girls and 54

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Table 1. Categories of juvenile idiopathic arthritis.

	Definition	Exclusions
Systemic arthritis	Arthritis and fever plus one or more: 1. rash, 2. lymph node enlargement, 3. hepato or splenomegaly, 4. serositis	
Oligoarthritis Persistent Extended	Arthritis of 1–4 joints in the first 6 mo, < 5 joints during course, > 4 joints after 6 mo	Family history of psoriasis or HLA-B27 assoc. disease, RF+ HLA-B27+ males > 8 years systemic arthritis
RF– polyarthritis	Arthritis of > 4 joints in the first 6 mo, RF–	RF+, systemic arthritis
RF+ polyarthritis	Arthritis of > 4 joints in the first 6 mo, RF +	RF–, systemic arthritis
Psoriatic arthritis	Arthritis and psoriasis or arthritis and at least 2 of: (a) dactylitis, (b) nail abnormalities, (c) family history of psoriasis	RF+, systemic arthritis
Enthesitis related arthritis	Arthritis and enthesitis OR arthritis or enthesitis with at least 2 of: (a) sacroiliac tenderness and/or spinal pain, (b) HLA-B27, (c) family history of HLA-B27associated disease	Family history of psoriasis, systemic arthritis
Other arthritis	Children with JIA who do not fulfill criteria for any category or fulfill criteria for >1 catergory	

boys. Their mean age at onset was 5.7 years (SD 4.2 yrs). Figure 1 illustrates the number of patients in the 7 categories of JIA. We have listed the important data of the 145 patients who fulfilled criteria for one of the 6 specific categories (Table 2).

Of our 172 patients with JIA, 27 (15.7 %) could not be classified into one of the specific categories. They had to be categorized as "other arthritis." Sixteen patients fulfilled criteria for 2 categories: 11 had enthesitis and arthritis — 2 criteria required for the category "enthesitis related arthritis," but 4 of them (3 girls and one boy, all HLA-B27 negative) also fit the category "oligoarthritis"; and 7 (6 boys, one girl) also fit in the "RF negative polyarthritis" category. None of these children had characteristics listed under "exclusions" for enthesitis related arthritis, oligoarthritis, or RF negative polyarthritis.

Five children had both psoriasis and arthritis, thus belonging to the category "psoriatic arthritis"; however, they had polyarthritis without RF or systemic signs and therefore also fulfilled criteria for the category "RF negative polyarthritis." The criteria "enthesitis" in 11 patients and "psoriasis" in 5 patients determined their classification as either enthesitis related arthritis or psoriatic arthritis. However, both criteria do not exclude these patients from the oligo- or polyarthritis category.

On the other hand a family history of psoriasis or HLA-

Table 2. Characteristics of 145 patients belonging to one of the 6 specific categories of JIA.

	Years of Age at Onset mean (SD)	No. of Patients M	F	ANA	HLA-B27	Uveitis
Systemic arthritis, n = 30	4 (2.8)	9	21	3	2	0
Oligoarthritis, n = 47	4.6 (3.7)	12	35	38	1	13 chronic
Polyarthritis RF–, n = 44	5.3 (4.3)	9	35	24	4	7 chronic
Polyarthritis RF+, n = 5	11.5 (2.7)	1	4	1	0	0
Psoriatic arthritis, n = 8	4.8 (2.4)	1	7	5	1	0
Enthesitis related arthritis n = 11	11.2 (3.9)	10	1	0	10	5 acute

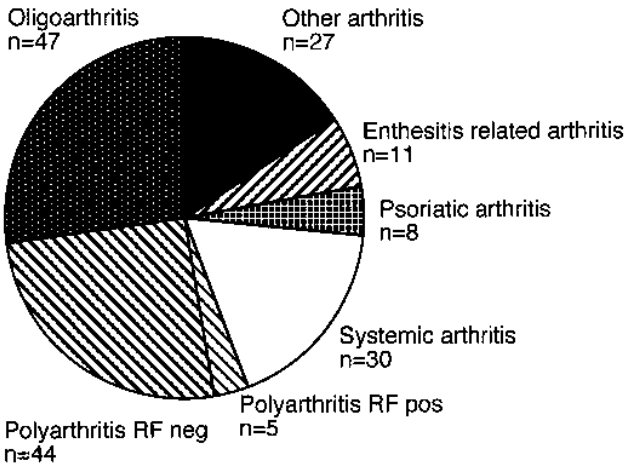

Figure 1. Division of 172 patients into the 7 categories of juvenile idiopathic arthritis.

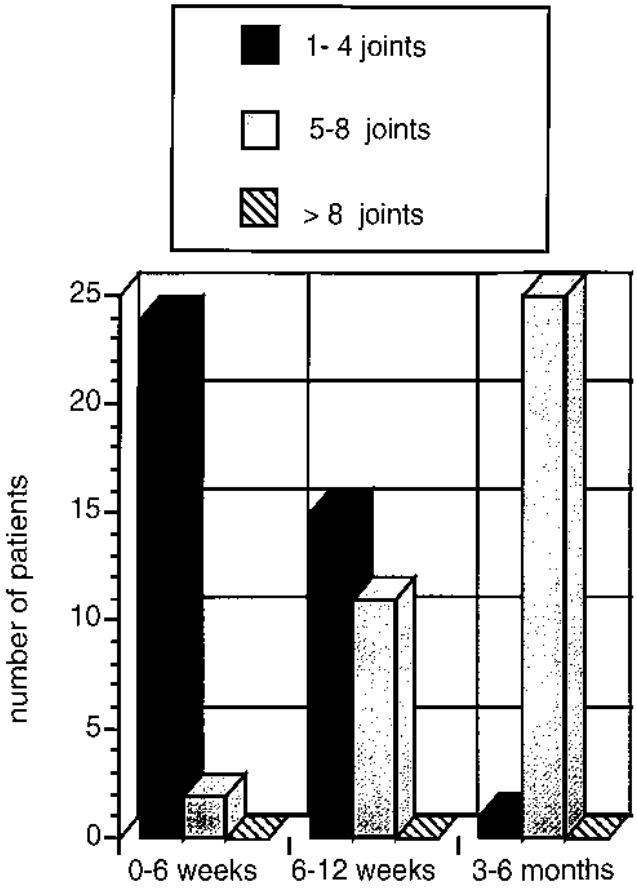

Figure 2. Development of the number of affected joints in the first 6 months of 26 children with arthritis of 5 to 8 joints.

B27 associated disease excludes children from the oligoarthritis category. Eight of our children with oligoarthritis had to be categorized as "other arthritis" due to their family history, with either psoriasis or HLA-B27 associated diseases in close relatives.

Three remaining children did not fit any category.

We took special interest in a group of patients who presented with 5 to 8 affected joints in the first 6 months. According to the ILAR classification they were categorized as RF negative polyarthritis. However, their clinical picture and immunologic data resembled oligoarthritis.

Twenty-six patients in this study belonged to the oligoarthritis group: 24 of them presented monarticular in the first weeks and then their arthritis spread to 5 to 8 joints (Figure 2); in 17 of the 26 patients an asymmetric joint pattern predominated.

We compared the frequency of ANA and uveitis in the group of patients with 5 to 8 affected joints during the first 6 months to the 18 patients with polyarthritis of more than 8 joints. Among the 26 children with arthritis of 5 to 8 joints 18 (69%) were ANA positive, 7 of them (27%) also had chronic uveitis. Only 6 (30%) of the 18 children with polyarthritis of more than 8 joints had ANA; no uveitis was observed in this group.

DISCUSSION

The new ILAR classification is an important contribution to international communication among pediatric rheumatologists. As the Classification Taskforce has stated in their publication from 1998, "the primary purpose of the classification is to facilitate communication among physicians and scientists, and the limitations ... to fulfill a myriad of roles, including communications with patients and community agencies, were acknowledged[3]." This, however, remains the critical point in practical use of the new classification. Should pediatric rheumatologists now use 2 classification systems — one for scientific studies and one for communicating with their patients? Perhaps one of the most important tasks of the ongoing evaluation of the ILAR classification is to find a solution for this problem.

Suggestions for alteration of the classification criteria — improving patient definition and homogeneity. The first attempts to apply criteria in larger groups of patients have shown that about 85–90% of children with JIA could be categorized into one of the 6 specific categories[4-7]. Our study with 172 patients confirms these results. Criteria for a specific category were fulfilled by 84.4%. This means, however, that more than 15% of children remain without definite diagnosis, because they either fulfill criteria for none or for more than one of the categories. The fact that these patients will be missed for scientific studies can be accepted, but how shall we deal with this problem in our everyday work? Shall we tell doctors, patients, and their parents that the child suffers from JIA and belongs to the

group "other arthritis"? How can we cope with the confusion that will ensue?

The results of our evaluation imply that with some minor changes in the new classification more children could be precisely categorized without losing the claim for homogeneity within the subgroups — the primary goal of the ILAR classification and basis for scientific studies.

Suggestions to reduce the number of patients in the category "Other arthritis" — an indefinite category. The majority of our patients in the category "other arthritis" fulfilled criteria for 2 categories (16 of 27 patients). This concerned 11 children with an enthesitis related arthritis who had arthritis and enthesitis. However, they also fulfilled criteria for RF negative polyarthritis or oligoarthritis. If enthesitis becomes an exclusion criterion for RF negative polyarthritis as well as for oligoarthritis, these patients could be correctly categorized as enthesitis related arthritis.

The same principle could be applied to children with criteria for psoriatic arthritis as well as poly- or oligoarthritis — 5 in our study. Psoriasis as an exclusion for patients with poly- or oligoarthritis improves classification of these children. They would be categorized as psoriatic arthritis. Since it has been accepted in the ILAR classification that psoriatic arthritis will contain a rather inhomogeneous group of patients, this step would not interfere with the primary goal of the new system. In fact it would leave more patients with psoriatic arthritis to be studied, thus helping to improve insight into this category, which most likely comprises further subgroups of patients[8]. Eight of our 27 patients with "other arthritis" had typical oligoarthritis, but a family history of psoriasis or HLA-B27 associated disease excluded them from their original category. That family history alone suffices to exclude a patient from a category he or she otherwise would correctly fulfill remains a critical point for further discussion, particularly when one considers that the criterion "psoriasis" or "enthesitis" in the individual patient is not evaluated as strong enough for an exclusion.

Suggestions for more homogeneity in the category RF negative polyarthritis. Another aspect that requires further discussion concerns the category RF negative polyarthritis and its relation to the oligoarticular subgroup. In the ILAR classification only the number of affected joints during the first 6 months — with an arbitrary cutoff between 4 and 5 joints — determines the category for an individual patient. This definition is adopted from the former classifications of both the EULAR and the ACR. However, we and others have realized that what characterizes the oligoarticular subgroup is not the exact number of involved joints but rather the asymmetric joint pattern, often with a spotty involvement of more than 4 joints[9-11]. The ILAR classification considers the possibility of extended oligoarthritis with involvement of more than 4 joints, but only during the further course in patients who presented with less than 5 joints in the first 6 months. Children who develop an extended oligoarticular joint pattern within the first 6 months have to be categorized as polyarthritis. This means that with the present classification we have to deal with an inhomogeneous polyarthritis category — with all the unfavorable consequences for future studies. Our group of patients confirms that 2 major patient populations exist in the category RF negative polyarthritis. Among the 44 children defined as polyarthritis according to the Durban criteria only 18 had symmetric polyarthritis of more than 8 big and small joints. The other 26 children had more in common with the oligoarticular subgroup since they presented with an asymmetric pattern of predominantly big joints and showed a high frequency of ANA, and almost every third patient had chronic uveitis.

We therefore strongly suggest introduction of a category "extended oligoarthritis at onset." This subgroup could comprise children who present with 5 to 8 joints within the first 6 months and who fulfill none of the exclusions listed for the category oligoarthritis. The cutoff at 8 joints is again arbitrary, but it improves homogeneity of the patient groups, as we have shown with our data.

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