

## *The adult patient with polyarticular juvenile idiopathic arthritis*

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### ABSTRACT

When children with polyarticular juvenile idiopathic arthritis (JIA) reach adulthood, they have a condition similar to that of patients with adult onset rheumatoid arthritis (RA). In the present study, the clinical and immunological characteristics of these two groups of patients are compared. The presence of autoantibodies, subcutaneous nodules, secondary Sjögren syndrome, and hypothyroidism, was determined in 20 adult patients with polyarticular JIA and in 50 patients with RA (paired for gender and duration of the disease), as well as the determination of functional and anthropometric indexes. Both groups had similar characteristics, except for the presence of rheumatoid factor (lower in the polyarticular JIA group;  $P = 0.026$ ) and lower BMI in patients with polyarticular JIA ( $P < 0.001$ ).

**Keywords:** juvenile idiopathic arthritis, rheumatoid arthritis, rheumatoid factor, evolution.

### INTRODUCTION

Childhood idiopathic arthritis or juvenile idiopathic arthritis (JIA) encompasses chronic childhood joint diseases characterized by remissions and exacerbations.<sup>1</sup> Many of these patients will have persistent clinical disease after adolescence, requiring transfer to an adult rheumatologic clinic.<sup>2</sup>

There are several subtypes of JIA, and this variability is reflected in their clinical, laboratory, and immunogenetic manifestations.<sup>1</sup> Polyarticular JIA (seropositive or seronegative) is the form that most closely resembles adult rheumatoid arthritis (RA).<sup>1</sup> In this form, girls are affected more often, showing involvement of the small joints of the hands and feet, which can lead to swan-neck and *boutonnière* deformities.<sup>1</sup> When seen in an adult rheumatology clinic, these patients are easily mistaken by patients with RA.

In the present study, anthropometric, clinical, serologic, and functional aspects of adults with polyarticular JIA and RA are compared to determine the similarities and differences between these entities.

After approval by the Ethics on Research Committee, and after all subjects gave their written informed consent, 20 patients with polyarticular JIA and 50 with RA, paired by gender and duration of the disease, were evaluated. This

population corresponds to all patients with polyarticular JIA and RA seen in the rheumatology outpatient clinic in 2007; disease duration and length of follow-up were similar in both groups. Eighteen of the 20 patients with polyarticular JIA came from the Pediatric Rheumatology Outpatient Clinic of the same hospital.

Through a questionnaire applied by the same investigator, demographic data, the Steinbrocker functional index,<sup>3</sup> and data of the Health Assessment Questionnaire<sup>4</sup> were collected. The medical records of the patients were reviewed to collect information on autoantibodies profile [antinuclear factor (ANA), rheumatoid factor (RF), anti-Ro/SS-A and anti-La/SS-B], to detect the presence of nodes, association with thyroid dysfunction, secondary Sjögren syndrome (diagnosed by the American-European Consensus Group on Classification Criteria for Sjögren Syndrome),<sup>5</sup> and the use of disease-modifying antirheumatic drugs. The autoantibodies mentioned and the thyroid function tests are routinely done in our service, and they were done in all patients who participated in the study.

Comparison among the demographic, clinical, and functional data is summarized below (Table 1).

The therapeutic profile used during the course of the disease by the patients investigated is summarized in Table 2. All

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**Table 1**  
Comparison among adult patients with Rheumatoid Arthritis (RA) and polyarticular Juvenile Idiopathic Arthritis (JIA-P)

	RA n = 50	JIA-P n = 20	P
Mean age (years)	54.94 ± 10.88	23.35 ± 5.62	< 0.0001 (#)
Minimal: maximal age (years)	32:78	17:33	
Female [N (%)]	41 (82%)	16 (80%)	0.84 (*)
Mean length of disease (years)	15.7 ± 6.4	18.6 ± 16.0	0.9 (#)
Mean height (meters)	1.56 ± 0.1	1.51 ± 0.09	0.04 (#)
Mean body mass index (kg/m <sup>2</sup> )	28.0 ± 7.9	20.3 ± 3.3	< 0.001 (#)
RF +	56% (28/50)	22% (4/18)	0.026 (*)
ANA +	8% (4/49)	11% (1/17)	0.6 (*)
Subcutaneous nodes	18% (9/50)	10% (2/20)	0.71 (*)
Secondary Sjögren syndrome	15% (6/39)	5% (1/19)	0.41 (*)
Hypothyroidism	22% (10/49)	6% (1/17)	0.15 (*)
HAQ	JIA-P: 0-1 = 52%; 1.1-2 = 23%; 2.1-3 = 23.5% RA: 0-1 = 67%; 1.1-2 = 14%; 2.1-3 = 19%		0.54 (**)
Steinbrocker	JIA-P: I = 45%; II = 20%; III = 15%; IV = 20% RA: I = 55%; II = 25%; III = 16%; IV = 4%		0.19 (**)

(\*) Fisher; (\*\*) Chi-square; (#) Mann Whitney.

patients with JIA and RA used corticosteroids. However, data on the cumulative dose of this medication could not be obtained due to the wide variability of the doses and intermittent use with time.

On Table 2 it is possible to observe that adult patients with polyarticular JIA are shorter, have lower body mass index, and lower incidence of positive RF. Differences were not observed in the other data investigated, namely the presence of nodes, ANA, and associated autoimmune disorders (hypothyroidism and secondary Sjögren syndrome). Interestingly, functional indexes (HAQ and Steinbrocker) were similar in both groups, despite the fact that patients with polyarticular JIA used biological therapy more often, which presupposes a more aggressive treatment. As for presence of the rheumatoid factor and the difference observed in BMI, the more advanced age of the control group could have been a contributing factor.

**Table 2**  
Drug use by patients with Rheumatoid Arthritis (RA) and adult patients with polyarticular Juvenile Idiopathic Arthritis (JIA-P)

	AR (n = 50)	JIA-P (n = 20)	P
Chloroquine	85%	30%	< 0.001 (*)
Sulfasalazine	10%	15%	0.68 (**)
Leflunomide	22%	20%	1 (**)
Methotrexate	85%	90%	1 (**)
Anti-TNF	2%	45%	0.001 (**)

(\*) Fisher; (\*\*) Chi-square.

The literature shows that patients with JIA tend to present a better prognosis than patients with RA, although those studies include the different subtypes of JIA, including oligoarticular types.<sup>6</sup> In a retrospective study, Wallace *et al.*<sup>7</sup> noticed that patients with the oligoarticular types have longer remission periods than those with polyarticular types. In the present study, only the polyarticular types were included. Furthermore, it is possible that pediatric patients with less severe articular disease abandon the follow-up during the transition from the pediatric to the adult rheumatology outpatient clinic, confounding the analysis of this aspect. This period is associated with a high evasion rate from clinical follow-up.<sup>2</sup> Packham *et al.*,<sup>8</sup> studying 256 adult patients with all types of JIA, emphasized the importance of a careful transition from the pediatric to the adult outpatient clinic. Those authors also observed a high level of incapacity and unemployment resulting from persistent disease activity. In this study, 37% of the patients presented Steinbrocker 3 and 4, while 42% had a HAQ > 1.5.

To conclude, it can be said that adult patients with polyarticular JIA differ from patients with RA concerning the weight-height development and the presence of RF. However, the most important finding seems to be that, although patients with polyarticular JIA are much younger than individuals with RA, they show the same degree of incapacity, justifying an even greater vigilance and control of the disease activity.

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