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Profile of Juvenile Idiopathic Arthritis in Guinea

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Abstract

Introduction: Juvenile Idiopathic Arthritis (JIA) is the most common rheumatoid disease in children. In Sub-Saharan Africa, little data is available on the prevalence of JIA. The objective of our study was to determine the frequency and describe the clinical profile of JIA in Guinean children seen at the Department of Neurology, Academic Hospital, University of Conakry (Guinea). **Patients and Method:** This was a retrospective study carried out at the Ignace Deen Academic Hospital, Conakry between January 2016 and December 2018. Patients were recruited through the Rheumatology and Paediatrics Department. **Results:** We collected forty (40) observations of JIA in 22 girls (55%) and 18 boys (45%). The median age at diagnosis was 14 years (range 7 - 18 years), compared to 7 years at onset (range 5 and 13 years). There were 3 cases of systemic arthritis (7.5%), 16 (40%) patients with persistent oligoarthritis, 3 patients (7.5%) that had extensive oligoarthritis, polyarthritis with positive RF in 8 cases (20%) and with negative RF in 4 cases (10%), psoriatic arthritis in 3 cases (7.5%), and enthesitis related arthritis in 2 cases (5%). There was one case of undifferentiated arthritis. A total of 23 (57.5%) received methotrexate, 9 (22.5%) were treated with salazopyrin. **Conclusion:** The profile of JIA in our study is different from that described in African studies with a predominance of oligoarticular JIA.

Keywords

JIA, Clinical Forms, Guinea, SSA

1. Introduction

Juvenile idiopathic arthritis encompasses a heterogeneous group of chronic inflammatory arthritis of unknown etiology, appearing before the 16th birthday and persisting for at least six weeks [1] [2] [3], Although onset occurs in childhood, a significant proportion of patients with JIA have active disease that persists into adulthood [4]. The terminology used for juvenile arthritis has evolved over time; the criteria of the International League of Associations for Rheumatology (ILAR) [5] include seven different subtypes: the systemic form, formerly known as Still's disease in children, the persistent or extensive oligoarticular form, polyarticular form with negative rheumatoid factors, polyarticular form with positive rheumatoid factors, psoriatic form, enthesitis related arthritis, and undifferentiated arthritis. JIA is an important short and long-term cause of disability in children with impaired quality of life [6] [7]. The epidemiological studies carried out in the framework of the JIA have been limited due to the modification of the criteria, the methodology used, and the populations studied. Despite little consensus, incidence estimates ranged from 1.6 to 23 per 100,000 and the prevalence from 3.8 to 400 per 100,000 children in the general population of North America and Europe [8] [9] [10] [11]. In Sub-Saharan Africa, little data is available on the prevalence of JIA [12] [13]. The studies carried out have focused on short series and one-off observations [13] [14].

The objective of our study was to determine the frequency and describe the clinical profile of JIA in Guinean children seen at Ignace Deen Academic Hospital, Conakry, the Republic of Guinea in West Africa.

2. Patients and Method

This was a retrospective study carried out at Ignace Deen Academic Hospital between January 2016 and December 2018.

Patients were recruited through the Rheumatology and Pediatrics department. The diagnosis of JIA was made in accordance with the classification criteria of the International Rheumatism League [5] include seven different subtypes: the systemic form or Still's disease in children, the persistent or extended oligo-articular form, the polyarticular form with negative rheumatoid factors, the polyarticular form with positive rheumatoid factors, the psoriatic form, the enthesitic form, and the undifferentiated form.

After identifying eligible patients, the files were analysed to collect the following data: demographic (age, sex), JIA subtypes, the presence or not of uveitis, a laboratory finding including the C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), antinuclear antibodies (ANA), rheumatoid factors (RF), HLA-B27 phenotyping (human leukocyte antigen B-27). ANA was performed routinely in all patients presenting with oligoarthritis, RF in children with polyarthritis, and HLA-B27 in those with enthesitis related arthritis. The blood samples for ANA and HLA-B27 testing were conducted overseas.

A Childhood Health Assessment Questionnaire (CHAQ) was completed by

parents or by children when they were able. They were sometimes helped by a doctor and/or a nurse. A visual analogue scale (VAS) from 0 to 100 was used to assess the intensity of pain and general well-being on nonsteroidal anti-inflammatory drugs (NSAIDs), oral corticosteroid therapy, or corticosteroid infiltration, methotrexate and salazopyrin.

All study procedures were explained in detail to parents and patients. All parents and, if possible, capable children (over the age of 16) signed consent forms before being included in the study. It was clearly explained that if patients did not wish to participate in the study, it would not affect the quality of their care.

3. Results

Socio-Demographic Aspect

During the study period, we collected forty (40) observations of JIA in 22 girls (55%) and 18 boys (45%). The mean age at diagnosis was 14 years (range 7 - 18 years), while it was 7 years at onset (range 5 and 13 years) (Table 1). There were 3 cases of systemic JIA (7.5%), 16 (40%) patients with persistent oligoarthritis, 3 patients (7.5%) had extensive oligoarthritis, polyarthritis with RF positive in 8 cases (20%) and with negative RF in 4 cases (10%), psoriatic arthritis in 3 cases (7.5%), and enthesitis related arthritis in 2 cases (5%). There was one case of undifferentiated arthritis. Uveitis was present in 11 cases (5 cases in the persistent oligoarticular forms and 2 cases in the extensive forms). The mean value of ESR, CRP, VAS, and CHAQ for each clinical form is shown in Table 1.

Twenty-two patients tested for ANA. Ten were ANA positive (persistent oligoarthritis 7 cases, and extensive 2 cases). Two patients were HLA-B27 positive and all had an enthesitis related arthritis. A total of 23 (57.5%) received methotrexate, 9 (22.5%) were treated with salazopyrin. NSAIDs were used in 13 cases (32.5%), oral corticosteroids 12 (30%) and corticosteroid infiltrations in 6 cases (15%).

Table 1. Socio-demographic, clinical, paraclinical and evolutionary characteristics of JIA.

Types of JIA	n	%	Girls	Average age at the beginning	Average age Current	VS	CRP	Uveitis	CHAQ	General VAS	General VAS pain
Systemic	3	7.50%	2	8	15	44	32	-	1.01	50	60
Poly RF+	8	20%	4	7	14	28	16.25	2	1.1	70	80
Poly RF−	4	10%	1	6	13	22	12	-	0.5	22	70
Persistent oligo	16	40%	8	8	14	20	16	7	0.8	40	70
Extensive oligo	3	7.50%	2	7	16	39	20	2	0.9	60	70
Psoriasis	3	7.50%	2	6	15	20	15	-	0.6	30	40
Enthesic	2	5%	2	11	16	32	10	-	0.4	30	50
Undifferentiated	1	2.50%	1	12	15	55	19	-	0.7	60	50

JIA: Juvenile Idiopathic Arthritis; Poly: polyarthritis; Oligo: oligoarthritis; RF+: positive rheumatoid factors; RF−: negative rheumatoid factors: PCR: protein c reactive; SR: sedimentation rate; CHAQ: Childhood Health Assessment Questionnaire; VAS: visual analog scale, n: number.

4. Discussion

In our study, the profile of JIA is different from other studies carried out in Sub-Saharan Africa, Morocco and elsewhere in the world [12]-[17] (**Table 2**). However, the different methodologies used by these studies constitute a limit to this comparison. The mean age at diagnosis in our study (8 years) was identical to that of Senegal [12], South Africa [13] and higher than that of Turkey [16], Morocco [15] and Western Europe [17]. This average age is due to the delay in diagnosis and the lack of a centre specializing in the management of pathologies in children in SSA. In our study, we noted a female predominance as described in Western populations [16] [18] [19].

Oligoarthritis

In our study, oligoarticular JIA were the most common among JIA subtypes (persistent oligoarthritis 40%, extensive oligoarthritis 7.5%). This result is in agreement with the series described in Western populations where oligoarticular forms are the most frequent [18] [20]. This high frequency of oligoarticular forms is an interesting finding in our study, as they are considered to be less frequent in non-Europeans [20].

Polyarthritis

In the studies compared in **Table 2**, our results show the second highest rate

Table 2. Comparison of our study with data from African and western literature.

Study	Senegal [12]	South Africa [13]	Zambia [14]	Morocco [15]	Turkey [16]	Printo W, Europe [17]	Guinea
n	30	78	78	80	196	2102	40
Women (%)	60	50	55	47	47	83	55
Average age at diagnosis (years)	8	8	8.7	7.53	7.0	5.4	8
Current average age (years)	11	13	11	10.85	8.8	9.4	15
Systemic (%)	6.6	7.69	26	26	15.3	16.4	7.5
Polyarthrite (%)		40.9		31.5	37.2	32	
Polyarthritis RF+ (%)	20	14.1	11.5		6.6		20
Polyarthritis RF− (%)	40	26.9	34.6		30.6		10
Persistent oligoarthritis (%)	6.66	21.79	32.1	37.5	24.4	29.5	40
Extensive oligoarthritis (%)		5.12		5	9.6	21.5	7.5
Psoriasis (%)		1.2	1.3		1		7.5
Enthesic (%)	26.6	23	6.4		10.3		5
Undifferentiated (%)					2.5		2.5
VS average		25.1	40	28		30.7	26
CHAQ		0.73		0.84		0.7	0.6
VAS pain		28		20		23	40
General VAS		25				28	50

SR: sedimentation rate; CHAQ: Childhood Health Assessment Questionnaire; VAS: visual analog scale; n: number.

of rheumatoid factor positive arthritis (20%) and the lowest rate for rheumatoid factor negative arthritis (10%). Its forms were the most disabling with a significant deterioration in the quality of life (**Figure 1**). These results are in contrast to previous studies carried out in African populations which showed a higher risk of the polyarthritis subtype among JIA [20] [21].

Systemic JIA (sJIA)

Current data show that sJIA are less frequent in SSA [21], however short series have been reported in Senegal [12] [22] and Ivory Coast [23] [24]. These forms are undoubtedly underestimated due to the weakness of the technical laboratory and specialised centres to make the differential diagnosis.

Enthesitis related arthritis

The frequency of arthritis linked to enthesitis in our study is the lowest (5%) compared to the studies cited in **Table 2**. This result is in agreement with the data in the literature, in fact, enthesitis is rarely associated with juvenile arthritis in African populations [18] [20]. It has been described as being the most common form in Asians and Indians [18] [20] [24].

Psoriatic forms and undifferentiated forms were less frequent in 1 and 2 cases, respectively. This trend has been found in Senegal, and in South Africa [13].

In agreement with the data in the literature [25] [26] [27], the extra-articular manifestations were dominated by uveitis in 27.5% of cases and were mainly

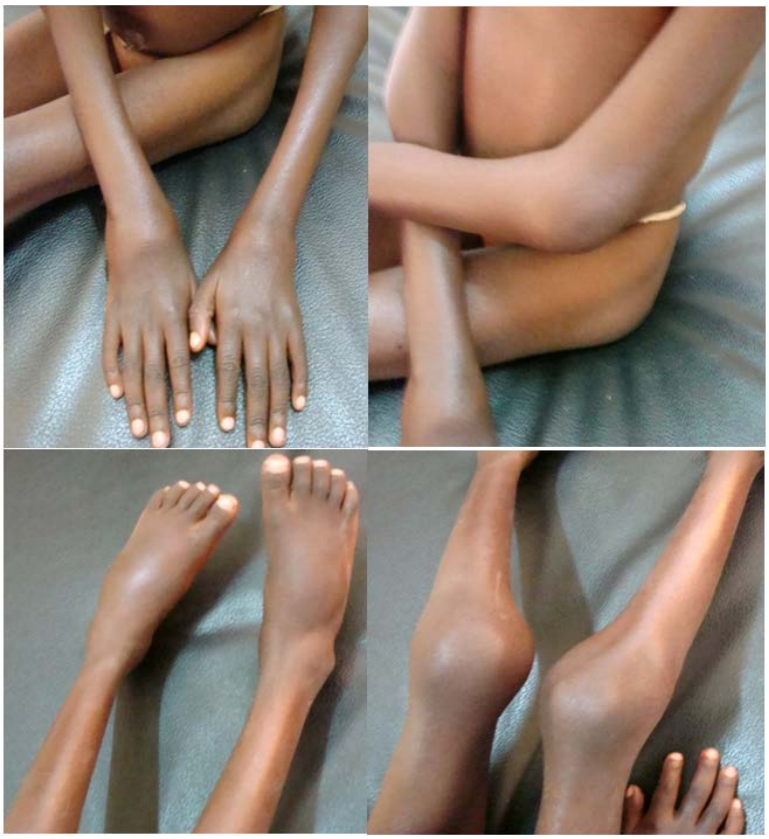

Figure 1. Polyarticular JIA with positive rheumatoid factors in an 8-year-old boy showing swelling, deformation and ankylosis in the wrists, elbows, knees and left foot.

found in the oligoarticular JIA. A number of risk factors for JIA-uveitis have been identified [28]. Younger age, female sex, oligoarticular form, and the presence of ANA are risk factors for chronic anterior uveitis. On the other hand, the male sex with positive HAL-B27 is a risk factor for acute anterior uveitis [29] [30] [31] [32].

The limitations of our study were the size of the sample, the difficulty in performing the immunoassay (ANA, HLA-B27). The lack of resources in pediatric rheumatology and hospitals dedicated to the care of children. However, this is one of the biggest AJI series in sub-Saharan Africa

5. Conclusion

Oligo articular forms were the most frequent in our study (47.5%). A female predominance was noted and JIA was associated with uveitis in 27.5% of cases. The establishment of a sub-regional register is necessary to better characterize the AJIs in black Africa.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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