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Clinical Profile of Juvenile Idiopathic Arthritis (JIA) in a Semi-Rural Ivorian Environment

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Abstract

Objectives: To describe the clinical profile of juvenile idiopathic arthritis (JIA) in a semi-rural Ivorian setting: the rheumatology department of the Bouaké University Hospital (CHU.B). Patients and methods: This was a descriptive cross-sectional study from January 2018 to December 2023 in the rheumatology department of the CHU.B. The study focused on the epidemiological, diagnostic and therapeutic data of children followed for JIA on the basis of the classification criteria of the International League of Associations for Rheumatology (ILAR). Excel 2019 software was used to analyse the data. Results: Over a 6-year period, JIA represented 0.29% (11/3780) of all rheumatological conditions and 1.40% (11/782) of childhood rheumatic diseases. The mean age of the children at diagnosis was 13.09 ± 3.01 years, and the mean age at onset of the disease was 8.54 years. There were 6 girls and 5 boys. Joint involvement was the main reason for consultation and hospitalisation, accounting for 81.81% (9) of cases. There was a family history in 3 children (27.3%). The clinical forms were as follows: systemic 27.27% (3), oligoarticular 27.27% (3), polyarticular with rheumatoid factor negative 27.27% (3), polyarticular with rheumatoid factor positive 9.09 (1), arthritis with enthesitis 9.09 (1). JIA was discovered at steinbrocker functional stages II and III. Treatment included NSAIDs 72.72% (8), corticosteroid therapy combined with methotrexate and hydroxychloroquine 54.54% (6) and rehabilitation 63.63% (7). Conclusion: JIA is a little-known disease in the semi-rural environment of Côte d'Ivoire. It is characterised by a long delay in diagnosis in relation to poverty and the lack of recourse to alternative medicine in our populations; hence, it is important to raise awareness of the condition among the population and practitioners. Multidisciplinary intervention would improve the diagnosis and management of children with JIA.

Keywords

JIA, Profile, Semi-Rural Environment, Côte d'Ivoire

1. Introduction

Juvenile idiopathic arthritis (JIA) is the most common chronic rheumatic disease in children. It refers to all chronic inflammatory rheumatism in children with no recognised cause, starting before the age of 16 and lasting for more than 6 weeks [1]. Seven subgroups have been identified: juvenile oligoarthritis; juvenile polyarthritis without rheumatoid factor; juvenile polyarthritis with rheumatoid factor; arthritis with enthesitis (spondyloarthropathies); juvenile psoriatic arthritis; systemic juvenile idiopathic arthritis (Still's disease) and non-classified arthritis [2]. It is one of the leading causes of disability in children [3]. The prevalence of JIA in Europe and North America varies from 16 to 150/100,000 [4]. In Africa, JIA remains little known, with 302 cases in 23 years according to the Peadiatric Society of the African League Against Rheumatism (PAFLAR) [5]. In Côte d'Ivoire, the hospital incidence rate is 0.03% in Abidjan [6]. The aim of this study was to describe the clinical profile of juvenile idiopathic arthritis (JIA) in a tertiary centre in a semi-rural setting.

2. Patients and Methods

This was a descriptive cross-sectional study of children admitted for consultation and hospitalisation in the rheumatology department of the University Hospital of Bouaké (CHU.B), a semi-rural town in the centre of the country. The study was conducted from January 2018 to December 2023. We collected all cases of children under 16 years of age suffering from JIA in accordance with the ILAR 2001 classification criteria [7]. We excluded all observations related to arthritis of traumatic, infectious, neoplastic and haematological origin. The following data were collected:

- Demographic: age at diagnosis and at onset of the disease, sex, level of education, living in a family environment or not, parental consanguinity, pathological history;
- Clinical: course, duration of the course, distribution of arthritis, associated signs including fever, general condition, skin lesions, visceral damage;
- Diagnosis: The ILAR 2001 classification defines six different categories: systemic form, oligoarticular form (persistent or extensive oligoarticular), polyarticular form with rheumatoid factor, polyarticular form without rheumatoid factor, arthritis and enthesitis, and psoriatic arthritis;
- Biological: sedimentation rate (ESR), C-reactive protein, ferritinaemia, haemogram; antinuclear

  Factors (ANF), rheumatoid factors (RF).
- Radiological: classified according to the Steinbrocker functional stage [8];
- Disease activity (JADAS-10): we classified patients into four groups of disease activity levels (inactive, low, moderate and high disease) according to the Beukelman criteria [9].

Therapeutics: non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, MTX methotrexate, hydroxychloroquine, functional rehabilitation.

Data were collected and analysed using Microsoft Office Excel 2019. Quantitative values were expressed as averages and qualitative values as proportions.

3. Results

In total, we recorded 11 cases of JIA over 6 years. JIA represented 0.29% (11/3780) of all rheumatological diseases and 1.40% (11/782) of childhood rheumatic diseases in the rheumatology department of CHU.B. Females were predominant in 54.54% (6). The mean age of the children at the time of diagnosis was 13.09 ± 3.01 years and the mean age at onset of the disease was 8.54 years, with a mean diagnostic delay of 4.45 years. The majority of children attended school 90.90% (10). Among the children, 45% (5/11) were in elementary school and 45% (5/11) were in secondary school. One child (9.1%) was not in school. All of the children's mothers had normal prenatal consultations. There was a family history in 3 children (27.3%), distributed as follows: one case of Reiter's syndrome, one case of familial epilepsy, and one case of sickle cell anemia. The parents of all our patients had used alternative medicine at least once and had received treatment in a first-contact centre at the onset of the disease. Demographic characteristics are summarised in Table 1.

Joint involvement 81.81% (9) was the main reason for consultation and hospitalisation, and predominated in the pelvic limbs 63.63% (7). 81.81% (9) of patients had extra-articular manifestations, including fever in 8 cases and ocular involvement in 7 cases. The distribution of joint involvement and associated signs are shown in Table 2. The aetiological forms were distributed as follows (Table 3): systemic 27.27% (3), oligoarticular 27.27% (3), polyarticular with rheumatoid factor negative 27.27% (3), polyarticular with rheumatoid factor positive 9.09 (1), arthritis with enthesitis 9.09 (1). There were no cases of psoriatic or undifferentiated forms. A biological inflammatory syndrome was noted in the majority of patients, 72.72% (8), with a mean sedimentation rate (ESR) of 49.63 in the first hour. JIA was found in 45.45% (5) of patients with functional steinbrocker stage II and 36.36% (4) with functional steinbrocker stage III deformities (Figure 1). Polyarticular damage caused the most deformity. Mean disease activity (JADAS-10) at diagnosis was moderate at 13.09. Treatment included NSAIDs in 72.72% of cases (8), with diclofenac (in 5 children) and ibuprofen (in 3 children) having been used, corticosteroids combined with methotrexate in 54.54% of cases (6), corticosteroids combined with methotrexate and hydroxychloroquine 18.18% (2) and rehabilitation 63.63% (7). Methotrexate was administered at a dose of 7.5 to 10 mg, and knee infiltration was performed (1 case). The treatment is summarized in Table 4.

Table 1. Demographic characteristics.

		Number/% (N = 11)	Age (years)
Average age of diagnosis	-	-	13.09 (11 - 16)
Average age at start	-	-	8.54 (3 - 15)

Continued

Average diagnosis time	-	-	4.45 (1 - 10)
Gender			
	Female	6 (54.54)	
	Male	5 (45.45)	
Family history			
	No	8 (72.7)	
	Reiter's syndrome	1 (9.1)	
	Epilepsy	1 (9.1)	
The story	Sickle cell disease	1 (9.1)	
	Hb AC	1 (9.09)	
	Consanguinity of parents	2 (18.18)	
	Epilepsy	1 (9.09)	
	Abdominal pain	2 (18.18)	
	Angina/pharyngitis	3 (27.27)	
	Eye damage	2 (18.18)	
School children		10 (90.90)	
	Primary	5 (45.45)	
	Secondary	5 (45.45)	

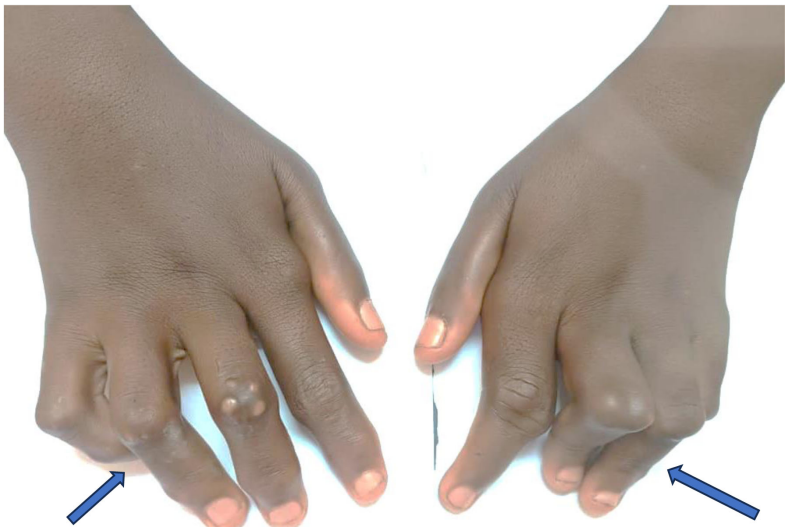

Figure 1. Flexion retraction of the fingers.

Table 2. Clinical and paraclinical signs.

		Nombre	%
Type of damage	Polyarticular	8	72.72
	Oligo articular	3	27.27
	Bilateral-symmetrical	6	54.54
	Asymmetric	5	45.45
	Deformations	5	45.45
Eye damage	Iridocyclitis	1	9.09
	Uveity	6	54.54
Skin lesions		4	36.36

Continued

Tumor syndrom			2	18.18
Growth retardation			5	45.45
Fever			8	72.72
Asthenia			9	81.81
Biologiy	Vs average	49.63	-	-
	Average CRP	36.86	-	-
	FR positive		1	9.09
	FAN positive		1	9.09

Table 3. Etiological forms.

	Number	Average age (years) at diagnosis			Type	
		2 - 5	6 - 12	13 - 16	Female	Male
Systemic JIA	3	-	1	2	1	2
AJI oligo articular	3	-	2	1	3	-
Polyarticular JIA without FR	3	-	1	2	1	2
Polyarticular JIA with FR	1	-	1	-	1	-
JIA enthesique	1	-	-	1	-	1
Total	11				6	5

Table 4. Treatment.

Treatment	Number	Percentage
NSAIDS	8	72.72
Corticosteroids + MTX	6	54.54
Corticosteroids + MTX and hydroxychloroquine	2	18.18
Infiltration	1	9.09
Rehabilitation	7	63.63

Follow-up was carried out over a 3-year period.

Progression was favorable in 5 children (45.4%). There was one case of osteoporosis (1.2%) and 5 cases of growth retardation (45.4%).

4. Discussion

The hospital frequency of JIA in our study was 0.29%. This low frequency was also observed in the Kamissoko (0.88%) study in Conakry [10] and the Diomandé (0.03%) study in Abidjan [6]. This could be explained by the existence of other referral services (paediatrics, paediatric surgery) for the management of childhood illnesses. Our relatively high frequency compared with Abidjan may be related to the large capacity of the rheumatology department in Abidjan, the country's leading referral department. Females predominated in our study, as described in African and Western populations [11]-[13].

However, the sex and age distribution depended on the clinical form of JIA [14] [15]. The mean age of children at diagnosis was 13.09 ± 3.01 years, compared with 8.54 years (range 3 - 15 years) at onset. Our results are similar to those of Migowa

[5] and Condé in Guinea [16], who had a median age at diagnosis of 14 years (range 7 - 18 years) and at onset of 7 years. In our study, we observed a relatively long average diagnostic delay of 4.45 years. All our patients had consulted at least once in a first contact health centre run by nurses and had used traditional medicine. This delay in consultation and/or diagnosis can be explained by diagnostic erraticism in relation to the complexity and polymorphism of the disease, and also by the use of alternative medicine and self-medication by our semi-rural populations [17]-[19].

Arthritis was the most frequent mode of onset in all forms of JIA, and predominated in the pelvic limbs.

Most of our patients had a chronic course of the disease. This observation was made by Kamissoko in

Guinea [10]: Some patients had immediate complications such as growth retardation and joint deformities 45.45% (5). The following deformities were observed: flexion retraction of the fingers, swan-neck fingers and hallux valgus of the 5th toe. These deformities are thought to be related to the long delay in diagnosis in our patients. These deformities have also been observed in Morocco [20].

The most frequent subtypes in our work were systemic, oligoarticular and polyarticular forms with negative RF. Our results are in agreement with most series [21] [22]. The polyarticular forms were the most disabling, with a significant deterioration in quality of life. The patients had a functional steinbrocker stage III of 36.36% (4). These results are in line with previous studies conducted in African populations, which have shown a higher risk of deformity in polyarticular forms of JIA [23] [24]. The frequency of systemic forms was reported, as in our work, by Diomandé in Abidjan (13 cases), with extra-articular manifestations such as fever, altered general condition, tumour syndrome and biological inflammatory syndrome [22].

5. Conclusion

JIA is a diagnosis of exclusion, not exceptional in the semi-rural environment of Côte d'Ivoire, but little known. It predominates in young girls under the age of 13. It is characterised by a long delay in diagnosis, which is linked to the poverty and recourse to alternative medicine of our populations, hence the importance of raising awareness. The most common clinical forms are systemic, oligoarticular and polyarticular without RF. Treatment involves anti-inflammatory and immunosuppressive drugs.

Conflicts of Interest

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

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