Section: Pediatrics

Original Research Article

PREVALENCE AND PATTERN OF RHEUMATOLOGICAL DISORDERS IN CHILDREN LESS THAN 16 YEARS OF AGE IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: To estimate the prevalence of Rheumatological disorders in children less than 16 years of age attending the Pediatric department. **Materials and Methods:** A descriptive cross sectional in department of Pediatrics included about 43 children diagnosed with rheumatological diseases. Children under 16 yrs of age fulfilling ILAR, ACR and EULAR criteria were enrolled in the study. The data included demographic information, Clinical and laboratory findings. **Result:** In our cohort ANA was tested in 35 children out of 43, all 18 SLE patients tested for ANA were positive. Out of 14 children tested in JIA, only 7 were positive and 1 children of 2 JDM cases and 1 children of systemic sclerosis were positive. RF done in all cases of JIA of which 7 (50%) were positive and ds DNA was tested in all 18 cases of SLE, of which 3 (16.6%)were positive. **Conclusion:** Rash and fever were the most common presenting complaints in this study. SLE was the most common disease followed by JIA in this study. This study had brought out important facts about the rheumatological manifestations in children.

INTRODUCTION

Infectious diseases account for major health burden in developing countries but non infectious diseases like rheumatological diseases are not uncommon.[1] Rheumatological diseases in children are chronic intractable inflammatory diseases that impede growth and development, and are often associated with systemic life-threatening complications. The common pediatric rheumatological disorders include Juvenile idiopathic arthritis (JIA), Systemic lupus erythematosis (SLE), Kawasaki disease, Henoch-Schonlein Purpura (HSP), Juvenile dermatomyositis (JDM), Mixed connective tissue disease, Juvenile Scleroderma and Fibromyalgia. They share many common symptoms like fever, constitutional symptoms like weight loss and loss of appetite, joint symptoms, dermatological manifestations and many other systemic manifestations depending on the type of rheumatological condition.[1,2]

Global data suggest that 2%–5% of the population suffers from rheumatological disorders, which when extrapolated to the Indian population, have increased numbers. There are 6-7 million children globally living with rheumatic diseases with a large majority of these residing in low resource income countries.4 Rheumatological diseases in children have varied clinical presentations which may mimic infections, metabolic disorders, and malignancies leading to delay in diagnosis.[3]

The spectrum of pediatric rheumatological disorders in developing countries is different from western countries. Especially data on rheumatological disorders in children from South India is sparse. Further, in the last few decades the therapeutic armamentarium of rheumatological disorders have expanded dramatically. This changed the face of these disorders from being incurable, refractory conditions with significant morbidity to easily manageable disease much reduced morbidity especially if diagnosed properly and treated early. Hence it is necessary for every clinician to be well versed with clinical presentation of rheumatological diseases in children for proper diagnosis and management. Hence i took up the study to estimate

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the prevalence and pattern of rheumatological diseases in children <16 years of age group.

MATERIALS AND METHODS

A descriptive cross sectional study was conducted in NRI Medical College and General Hospital, Chinakakani, Guntur. The study was conducted in department of Pediatrics in close collaboration with Department of Rheumatology and Department of Biochemistry of the institution. The study population included about 43 children diagnosed with rheumatological diseases. Clearance from institution ethics committee was obtained before the study was started. An informed assent form was obtained from the parents of the children. The inclusion and exclusion criteria was as follows,

Inclusion Criteria: Children under 16 yrs of age fulfilling ILAR, ACR and EULAR criteria were enrolled in the study. The data included demographic information, Clinical and laboratory findings.

Exclusion Criteria: Children with acute rheumatic fever, septic arthritis, malignancy, HIV infection or metabolic diseases.

Methodology

The children fulfilling ILAR, ACR and EULAR criteria were enrolled in the study. The children with rheumatological diseases were subjected for detailed, clinical, hematological, immunological and other relevant history and findings. The patients were recategroized as systemic arthritis, oligoarthritis, polyarthritis (RF + ve & RF – ve), SLE and others.

The parameters included age at diagnosis, gender, consanguinity, family h/o rheumatological diseases, joint swelling and limitation of joints, fever, rash, systemic manifestations & investigations like CBP, ESR, CRP, Proteinuria, LFT, RFT, ANA, Anti-ds DNA, RF, C3, C4, accordingly the clinical criteria for probable diagnosis of Pediatric rheumatological disease were used. The data was collected by using structured questionnaires.

Data Analysis

The data thus obtained was entered in Microsoft Excel sheet and transferred and analysed using Statistical Package for social services. The data was then transferred and analysed using statistical package for social services (SPSS ver 20). The categorical variables were presented as frequencies and percentages. The continuous variables were presented as mean and standard deviations.

RESULTS

Table 1: Distribution Rheumatological disorders in children

Age group	Frequency	Percent
Below 8 years	17	39.5 %
8 years and above	26	60.5 %
Total	43	100%
Sex		
Male	14	32.5 %
Female	29	67.5 %
Consanguinity		
No	21	48.9 %
Yes	22	51.1 %
Complaints		
Fever	20	46.5 %
Joint pain	10	23.2 %
Any Rash	23	53.4%
Constitutional symptoms	12	27.9 %

The overall mean age in this study is 8.28 ±3.75years. Out of 43 children with rheumatological disorders, 39.5 % children were below 8 years and 60.5 % children were 8 years of age and above. As the p value for the above data was 0.168, suggests that there was no statistical significance. Out of 43 children of rheumatological disorders, Female children were 67.5%, while male children were 32.5 %. The p value for the observed distribution was 0.022, which is statistically significant. Out of 43 children of rheumatological disorders, 51.1 % of children were having history of consanguinity.

In our study, the most common presenting complaints were rash (53.4%), followed by fever 46.5 %, constitutional symptoms (weakness, fatigue, weight loss, muscle pains) with 27.9 %, joint pains (23.2%) and family h/o AIRD in 18 children(41.8 %).

Table 2: Pattern of rheumatological diseases

Diagnosis	Frequency	Percent
SLE	18	41.9%
JIA	14	32.6 %
HSP	6	14 %
JDM	2	4.6%
Kawasaki disease	1	2.3 %
Systemic sclerosis	1	2.3 %
Fibromyalgia	1	2.3 %

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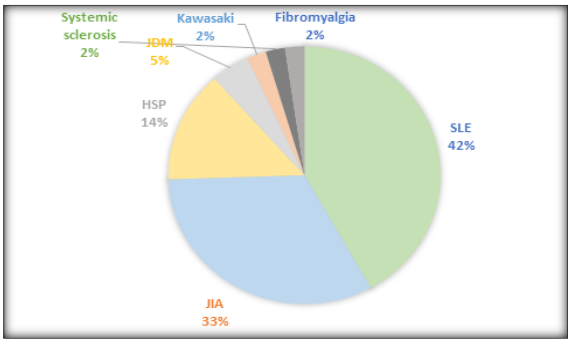

Figure 1: Distribution of children based on diagnosis

In our study out of 43 children, most common rheumatological disorder diagnosed was SLE (41.9%), followed by JIA (32.6 %), HSP (14%). While 2 cases were diagnosed as JDM and 1 case each of Kawasaki, systemic sclerosis, Fibromyalgia.

Table 3: Investigations (Mean ± SD)

Variables (Total Cases)	Mean ± SD
Hb (gm/dL)	9.54 ± 1.98
wbc (Cells/Cumm)	9195.91 ± 4265.93
platelet (Lakhs/Cumm)	2933.09 ± 15233.16
Neutrophils %	57.12 ± 13.13
Lymphocyte %	36.05 ± 15.19
Esinophils %	4.75 ± 2.19
Raised Creatinine (mg/dL)	1.34 ± 0.42
S.albumin (g/dL)	2.90 ± 0.58
ESR (mm/hr)	44.76 ± 23.69
RF IU/ Ml	73.40 ± 20.13

Table 4: Lab Parameters

Lab parameters	Abnormal	%
CRP	22	51.1
ESR	21	48.8
Anemia	26	60.4
Leucocytosis	4	9.3
Low platelet count	2	4.6
LFT (Transaminitis)	13	30.2
RFT(Raised creatinine)	11	25.5
CUE(Proteinuria)	6	13.9

In our study, most of the children had elevated CRP 22(51.1%) & ESR 21 (48.8 %). Most of the children were anemic 26 (60.4 %), 4 cases were having elevated leucocyte count (9.3 %), 2 cases were having low platelet count and more than 30.2 % of children were having deranged LFT, 25.5 % were having deranged RFT and proteinuria in 6 children(13.9%).

Table 5: Distribution of SLE cases

SLE (Age distribution)	Percent
Less than 8years	7(38.8%)
8 years and above	11(61.2%)
SLE (Sex distribution)	
Males	5(27.7%)
Females	13 (72.3%)
SLE (Presenting Complaints)	
Fever	7 (38.8%)
Rash	14 (77.7%)
SLE (LAB PARAMETERS)	
ds DNA positive	3 (16.6 %)
C3 Low	5 (27.7 %)
C4 Low	2 (11.1%)

The mean age of patients with SLE was 7.86 ± 3.84 years. Of 18 children diagnosed with SLE,7 children (38.8%) were less than 8 years and 11 children (61.2%)were of 8 years and above. Of 18 SLE patients,5 children (27.7 %) were males,13 children (72.3 %) were females. In SLE children, children 14 (77.7%)were having rash of which malar rash present in 12 children and discoid rash in 2 children and fever in 38.8% of SLE children. ANA positive in all cases of SLE, While ds DNA positive in 3 children (16.6%) and Low C3,C4 reported in 5(27.7%) and 2(11.1%) children respectively.

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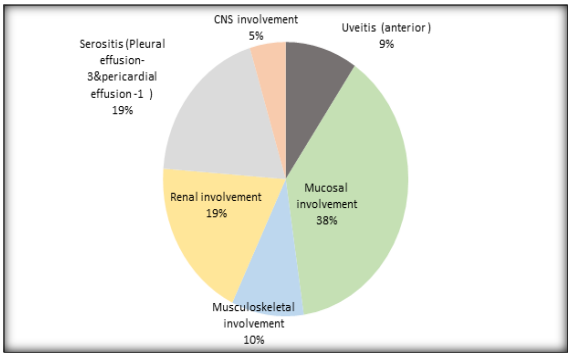

Figure 2: Organ involvement in SLE

In our cohort of 18 jSLE patients, 44.4 % of children had mucosal involvement, followed by constitutional (22.2%), renal(22.2%), serosal(22.2%) and musculoskeletal involvement (11.1%).Out of 4 children with serositis ,3 children (75 %) had pleural effusion & 1 child (25%) had pericardial effusion. In 18 SLE cases, one Patient had CNS Involvement (convulsions), for which MRI brain done suggestive of hyperintensities in sulcal hemispheres, treated with antiepileptics (levipil).

Among the 4 patients with lupus nephritis, biopsy was done in 3 patients, out of which 1 patient biopsy showed Membranoproliferative and membranous pattern of glomerular injury IgG,C1,C3 are positive, Ig M ,IgA are negative (CLASS V nephritis),while other 2 patients under (CLASS II nephritis).

Number of children treated with immunosuppresants (MMF/Cyclophosphamide and Methotrexate/azathioprine) were 15(83.3%), Non responders were 3 children to 1st line treatment. Number of SLE cases on follow up were 12(66.6%) and number of deaths reported of all SLE cases were 1(5.5%).

Table 6: Distribution of JIA cases

JIA (Age distribution)	**Percent**
Less than 8 years	7(50%)
8 years and above	7 (50%)
JIA (Sex distribution)	
Males	6 (42.8%)
Females	8(57.2%)
JIA(joint involvement)	
Poly articular	9 (64.2%)
Oligo articular	5(35.8%)

The mean age of children presented with JIA was of 8.78 ±3.78 years. In 14cases of JIA ,50% were less than 8 years and 50% were of 8 years and above. In JIA children ,6 (42.8%) were of males and 8 children (57.2%) were of females.

In JIA patients, joint involvement include polyarticular in 9 children (64.2%) and oligoarticular in 5 children (35.8%). RF positive JIA were 7(50%) and RF negative JIA were 7(50%).

In JIA cases, eye involvement (Anterior uveitis)seen in 2 children (14.2%).ANA positive in 7 children (50%) of JIA .In all JIA diagnosed children ,requirement for dual immunosuppresants present in 6 children (42.8%).

Table 7: Distribution of HSP

HSP (Age distribution)	**Percent**
Less than 8 years	1(16.6%)
8 years and more	5(83.4%)
HSP (Sex distribution)	
Males	3(50%)
Females	3(50%)

In our study, mean age of children with HSP were 9.67 ±3.44 years. In HSP patients, less than 8 years of age seen in 1 child (16.6%) and 5 children (83.4%) were at 8 years and above. In HSP children, males and females are of equal distribution.

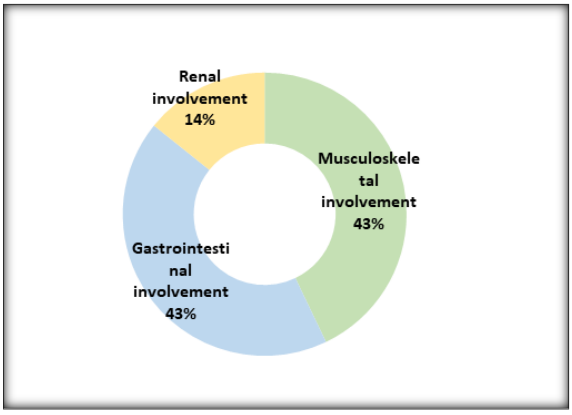

Figure 3: Organ involvement in HSP

In HSP diagnosed children, all 6 children present with rash (100%). 50% involvement in both

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musculoskeletal and gastrointestinal, while renal involvement is in 1 children 16.6%). Of 6 patients ,recurrent HSP present in 1children (16.6%) .Out of 6 ,4 children were given steroids 2 children were improved with symptomatic treatment .Out of 4 children who received steroids ,required immunosuppresants (33.3%).

Juvenile dermatomyositis:

Out of 43 cases, juvenile dermatomyositis (JDM) were diagnosed in 2 patients, presented with fever and pain, in addition to these complaints, other child had skin lesions (multiple, hard nodular lesions over lower limbs), insidious in onset and gradually progressive some lesions ulcerating for the last 2 years, with progressive pain and weakness,

predominantly affecting proximal muscle of upper and lower limbs for the past 4 years. On examination of skin revealed the presence of nodular lesions over both lower limbs, distributed asymmetrically and are of various sizes, some healed lesions with hyper pigmentation are present, hyperpigmented macular lesions present over bilateral elbow region . Gottrons papules, heliotrope rash present. Test for ANA was positive for jo-1,scl-70,RIB .Creatine kinase mildly elevated. Skin biopsy done showed extensive areas of calcification ,i.e. calcinosis cutis. Both children were treated with steroids (prednisolone).

Kawasaki:

Out of 43 cases, one case which is 6 month old female child with presenting complaints of high grade fever with irritability ,rash all over the body with decreased acceptance to Feeds, on examination, periorbital puffiness present with strawberry tongue with hepatomegaly .On Investigation, had leucocytosis ,thrombocytosis with elevated inflammatory markers, with sterile pyuria with transaminitis, suspected UTI with sepsis, 2Decho was done, showed dilated coronary arteries ,diagnosed as incomplete kawasaki and IVIG Transfusion, methypredinsolone along with aspirin ,clopidogrel.

Systemic sclerosis

Out of 43 rheumatological cases , 1 case of systemic sclerosis was diagnosed (2.3%) , presented as skin lesion (hyperpigmented lesion over body with sclerodactyly),with other complaints of headache and vomitings i/v/o h/o chronic migraine with sinusitis present , MRI brain showed hyperintensities in white matter of bilateral frontal lobes and perioptic CSF spaces appear mildly prominent with mild vertical tortuosity of optic nerve ,low lying cerebellar tonsils and child had raised CRP, ESR, ANA positive for SS-ASS-B antibodies,

skin biopsy taken from lateral aspect of thigh showed focally thinned out epidermis with extravasated RBC in the corneal layer. The papillary dermis shows thick collagen bundles, some of which are vertically oriented with prominent erector pilli muscle and atrophic sweat glands and loss of pilar apparatus. There are few perivascular inflammatory infiltrates are consistent with Morphea. Treated with steroids(prednisolone) and immunosuppressant (azathioprine).

Fibromyalgia

One patient diagnosed to have fibromyalgia out of 43 patients (2.3 %), presenting complaints include joint pain affecting shoulders and legs since 6 months with h/o difficulty keeping up with school work and stopped participating in sports due to pain and fatigue and family history of similar complaints for mother. On physical examination, generalized tenderness present with no signs of swelling or joint abnormalities. Investigations revealed anemia with CRP ESR, thyroid test normal. Satisfying ACR criteria for fibromyalgia, treated with NSAIDS.

Among the spectrum of rheumatological diseases, SLE was found to be the most common disease followed by JIA, HSP, JDM, Kawasaki, systemic sclerosis and fibromyalgia. The Mean age in this study group was 8.28 ± 3.75 years. Most of the studies on children with rheumatological disease had mean age > 8years with exception of study done by Seifu et al.[4]

DISCUSSION

In this prospective observational study, on analyzing over a period of 18 months, all the patients attending OPD and IPD in pediatric department of NRIGH,43 children were found to have rheumatological diseases

Table 8: Mean age distribution in different studies

Study	Year	Total cases	Mean age (years)
Present study	**2024**	43	8.279 ± 3.75
Tushar et al[5]	**2024**	35	8.42 ± 3.95
Seifu et al[4]	**2021**	52	5.94
Furia et al [6]	**2020**	52	9.5 ± 4.3
Patra et al[7]	**2018**	60	9.1 ± 3.6

Of 43 children, 29 (67.5 %) were females ,14 (32.5%) were males, with M:F ratio of 1:2. While in Tushar et al study,[5] out of 35 children ,number of males and females were 15(42.85%), 20(57.1%) respectively with M:F ratio was1:1.2. Seifu et al,[4] study shown that out of 52 children, males were 19(36.5%) and females were 33(63.4%) with M:F ratio of 1:2 .Furia et al,[6] in their study, had a population of 52 children. The number of female subjects were 32(61.5 %) and males were 20(38.4%) with M:F ratio of 1:1.6

In contrast to our study, in a recent study done by Patra and Kumar et al 3, out of 60 children enrolled, 37(61.6%) were males and 23 (38.3%)were females with a M:F ratio was 1.6:1. Hegde et al[8] in their study enrolled 56 children with male patient predominance .The male to female ratio was 2.1:1. In

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our study where we had more female patients, which is similar to the most of the studies.

Table 9: Depicting gender distribution in different studies

Study	Year	Total cases	Males (M)	Female (F)	M : F
Present study	**2024**	43	14 (32.5%)	29(67.4%)	1:02
Tushar et al[5]	**2024**	35	15(42.85%)	20(57.1%)	01:01.2
Seifu et al[4]	**2021**	52	19 (36.5 %)	33(63.4%)	1:02
Furia et al [6]	**2020**	52	20 (38.4 %)	32(61.5%)	01:01.6
Patra et al[7]	**2018**	60	37 (61.6 %)	23(38.3%)	1.6:1
Hegde et al[8]	**2016**	56	38(67.85%)	18(32.15%)	2.1:1

The most common rheumatological disorder we encountered was SLE of 18 patients accounting for 41.9% of all cases. We had almost a similar number of cases of JIA were 14 amounting to 32.6%. this is followed by HSP [6 (14%)] and [2 (4.6%)] cases were of Juvenile dermatomyositis and one case each of kawasaki disease, systemic sclerosis and fibromyalgia. In Tushar et al,[5] study highest is of JIA 10(28.57%) followed by SLE 9(25.71%)and Kawasaki disease 8(22.85%).

While in other studies such as Seifu et al44 ,45 %were of JIA, and 6% were SLE and HSP each. In Furia et al,[6] JIA is of predominant diagnosis reported in 28(53.8%) followed by juvenile SLE 8(15.4%), Mixed connective tissue disorders 4(7.7%) and juvenile dermatomyositis 4(7.7%). Patra et al,[7] study , 48(60%) cases of JIA out of 60 children, followed by vascuilitis 4(6.6%) ,scleroderma 6(5%),while other are overlap syndromes .

It is evident from the above depicted data that while in most of the studies conducted on pediatric rheumatology patients JIA was the most common disease, in our study it was SLE. The reason for this variation could be a small sample size. Another important contributing factor could be the fact that this center being a tertiary referral center, it is likely that more of sick lupus patients were referred here, there could be a bias in the number of JIA patients with mild arthritis reaching our centre compared to the more sicker lupus patients."

Table 10: Most common Rheumatological disease among different studies

Study	Year	Total cases	Most common diagnosis
Present study	2024	43	SLE (41.8 %)
Tushar et al[5]	2024	35	JIA (28.57 %)
Seifu et al[4]	2021	52	JIA(63.4 %)
Furia et al[6]	2020	52	JIA (53.8%)
Patra et al[7]	2018	60	JIA (80 %)

The most common presenting symptom in our study was rash which was seen in 23 patients (53.4%), followed by fever in 20 (46.5 %), constitutional symptoms (such as loss of appetite, loss of weight)were seen in 12(27.9%) and joint pains in 10 (23.2%). In our cohort, 12 cases (27.9%) had clinically significant weight loss.

In Tushar et al,[5] study ,most common complaint was fever 29(82.85%) followed by rash 21(60%), joint pains 12(34.28%), joint swellings 8(22.85%) and constitutional symptoms (which include fatigue in 6 cases(17.14%), myalgia in 1(2.8%). While in Seifu et al,[4] study, the commonest complaint was joint pains 45(86.53%) and other complaints include fever 25(48.07%), rash 15(28.84%).

In a study by Furia et al,[6] the commonest presenting complaint was joint pain 44 (84.6%), other common complaints were joint swelling in 34 (65.4%), fever in 24 (46.2%) and skin rash in 21(40.4%). These findings are quite different from our study. The reason could be in our cohort there were significantly higher number of SLE and HSP ,so the rash was probably the most common complaint.

Table 11: Most common Presenting Complaint in different studies

Study	Year	Total cases	Most common complaint
Present study	**2024**	43	Rash(53.4 %)
Tushar et al[5]	**2024**	35	Fever (82.8 %)
Seifu et al[4]	**2021**	52	Joint pain (45 %)
Furia et al[6]	**2020**	52	Joint pain(84.6%)

On clinical examination pallor was the most common finding in 26 out of 43, that is 60.4%, followed by rash in 19 (44.1%), hepatomegaly 15(34.8%),lymphadenopathy in 12(27.9%), joint swelling 12(27.9 %) and splenomegaly 12(27.9%). As per Seth et al,[9] on JIA., when they evaluated patients ,only rash was seen in 5% of cases and the percentage of hepatomegaly was very high 51%. Lymphadenopathy was also quite common 25%. In Tushar et al,[5] study, percentage highest for pallor 27(77.14%) followed by rash 21(60%), hepatomegaly 11(31.4%), splenomegaly 8(22.85%) and finally lymphadenopathy 5(14.28%).

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While in Furia et al,[6] study, out of 52 cases 21(40.4%) have rash and lymphadenopathy was seen in 7(13.5%). This study is similar to study by Tushar et al,[5] pallor being the most common presenting complaint explained by the fact that there was more of lupus patients in this study ,As it is known that lupus patients are more likely to be anemic due to hemolytic anemia and anemia of chronic inflammation.

In total of 18 SLE cases,13 (77.2%) cases were females and 5 (27.7%)cases were males with M:F ratio of 1:3.3 and mean age of 7.86±3.84 years. Most common presenting complaint among SLE patients include rash (77.7%) followed by fever (38.8%). While in SLE, involvement of mucosa were of 8(44.4%) , 22.2% were of renal, 22.2%were of serositis (pleural effusion-3, pericardial effusion-1) and 11.1% musculoskeletal involvement. ANA positive in all SLE cases, ds DNA positive in 3 children (16.6%), low C3 in 5 children (27.7%), low C4 in 2(11.1%) and both C3,C4 low in 2 cases .1 children reported death in 18 SLE patients.

In Smith et al,[10] study, total of 349 UK SLE patients ,males were 59(17%) and females were 290 (83%) with M:F ratio 1:5.ANA positive in 334 children (96%) and ds DNA positive in 178 (51%). Our cohort is similar to Smith et al,[10] with female predominance in SLE children and ANA positive in almost all cases.

In Chen YC et al,[11] study, Among 226 children of SLE, the mean age was 13.9±3.1 years with M:F ratio of 1:7.4. JIA in our study were of 14 children out of 43 ,in which 9 were polyarticular (64.2%), 5 (35.6%)were Oligoarticular . In JIA childrens, 7 children were RF positive and 7 were RF negative. ANA positive in 7 cases (50%) of all JIA children

In Seifu et al,[4] study on rheumatological disease, polyarticular in 32.7% children, oligoarticular in 19.2%,systemic JIA in 11.5%and JDM in 7.69%. Singh et al,[12] study had a higher percentage of oligoarticular 35(47.3%) followed by polyartiular 28(37.8%) and only 11 (14.9%) were systemic JIA.

In Seth et al,[9] study done on JIA cases, out of 361 children diagnosed with JIA, frequency of occurrence of polyarticular, pauciarticular, systemic disease was 166(46%), 108(30%), 87(24%) respectively and RF positive in 15 %of polyarticular JIA ,7% of pauciarticular and 9% of patients with systemic subtype. ANA was positive in only 3 out of 66 patients whom test was done.

In Kunjir et al,[13] study, largest group consisted of enthesitis related arthritis 36% followed by polyarticular JIA 29% and only 8% were of systemic onset disease. While Hegde et al,[8] study on JIA, of which 56 children 20 (35.7%), 16 (28.5%), 15(26.8%), 5(8.9%) children have enthesitis related JIA, polyarticular, systemic ,oligoarticular JIA. In Hsin-Hui Yu et al,[14] study, out of 2636 cases of JIA, include 57.7% were of (systemic, polyarticular, oligoarticular) and enthesitis related arthritis (39.2%) and psoriatic arthritis (3.1%).

"Our cohort had polyarticular involvement as highest which is similar to Seth et al,[9] and Seifu et al,[4] study, while in Hedge et al,[8] and Kunjir et al,[13] study, enthesitis related arthritis being the most common and oligoaricular is the commonest type of JIA in Singh et al,[12] study. Statistically enthesitis related arthritis more common in india, but in this study polyarticular involvement is common can be explained by comparatively small sample size. Out of 6 HSP cases,3 were males and 3 were females. All HSP children had rash (100%) as presenting complaint. (50%) of cases had arthritis (knee joints predominantly than ankle) ,50 % cases had GIT involvement and 1(16.6%) case had renal involvement. recurrent HSP was seen in 1 (16.6%)case, four (33.3%) patients recovered with steroid therapy. Two patients needed maintenance immunosuppressants.

While in O Chen et al,[14] study,120 children were of HSP ,of which 78 (65%) males and 42 (35%) females with M:F ratio 1.9:1 and mean age was 6.6±1.6 years in which 103(85.3%) were less than 8 years ,88.3%were less than 10 years and 81.7 %children were at 5-8 years of age. Among the children, 83 (69.1%) were having rash, GI involvement in 68 cases(56.7 %), musculoskeletal involvement was of knee joint affected in 35 (29.1%), ankle joint in 33(27.5%), wrist joint in 9 children (7.5%), elbow joint in 5(4.2%),other joints metacarpophalangeal , lumbosacral, hip joint involved (0.8%) each

While considering the laboratory profile, a high percentage of patients had anemia as per the WHO references, that is, 26 (60.4%)out of 43 total children with rheumatological diseases. Abnormality in the TLC was also common, with mean 9195.91 ± 4265.93 followed by CRP22 (51.1%), and ESR 21 (48.8%), Derangement of renal function was less as compared to the liver functions which was deranged in 11 (25.5%) patients. LFT was deranged in 13 (30.2%) patient of these 8 were of SLE and 3 were HSP, one each of Kawasaki and JIA. And proteinuria present in 6 (13.9%), of which 5 cases were of SLE ,1 case of HSP

In Tushar et al,[5] study, in 35 children ,anemia seen in highest percentage of 71.42% (in 25 childrens), with deranged RFT in 7(20%),deranged LFT in 3(8.57%). In the study by Furia et al,[6] anemia was reported in 35 (67.3%) of the patients. Singh et al,[12] study, reported anemia in 26 out of 74 patients (35.13%). which is quite less than our study. In our study, anemia was of highest percentage ,which is similar to Tushar et al,[5] and Furia et al.[6]

Test for autoantibodies was done in suspected cases of SLE, JIA, JDM, systemic sclerosis cases. In our cohort ANA was tested in 35 children out of 43, all 18 SLE patients tested for ANA were positive. Out of 14 children tested in JIA, only 7 were positive and 1 children of 2 JDM cases and 1 children of systemic sclerosis were positive. RF done in all cases of JIA of which 7 (50%) were positive and ds DNA was tested in all 18 cases of SLE, of which 3 (16.6%)were positive. While in Tushar et al,[5] study of rheumatological diseases, out of 35 children, 10 were of ANA positive with 28.57% and 1 were of RF

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positive (2.85%). Seth et al,[9] study on JIA ,out of 66 children ANA was positive in 11% cases , RF positive in 15%of polyartticular JIA. In Furia et al,[6] study of rheumatological diseases ,16 were tested for ANA,9 of which came positive and ds DNA done in 9,of which 5 were positive .

In all studies ANA having highest positive rate and ds DNA positivity rate is low. In our cohort, complements (C3,C4) done in 19 cases, of which 5 cases were having low C3,2 cases were having low C4. While in Furia et al,[6] study,6 cases were tested for complement levels(C3,C4), of which one case had of low C3 (16.7%) and low C4 in 1 children (16.7%). C3,C4 positivity rate is low in compared study similar to this study.

CONCLUSION

This study was undertaken in order to know prevalence and pattern of rheumatological diseases in children. This study has shown that, most of the children were aged more than 8 years with females predominance. Rash and fever were the most common presenting complaints in this study. SLE was the most common disease followed by JIA in this study. This study had brought out important facts about the rheumatological manifestations in children. But the study sample size was small to generalize the findings. Further research in this direction can bring out more facts about rheumatological disorders.

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