Results

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Juvenile rheumatoid arthritis (JRA) is a relatively common chronic illness in children. It is the result of complex processes which are developed on the genetic background and started by triggering event, leading to the clinical picture of JCA. Immune system stands in the center of all the processes involved in the genesis of JCA. ANCA are autoantibodies directed against antigens present in the cytoplasmic granules of neutrophils and monocytes. The specific diagnostic connection between ANCA and JRA was repeatedly reported.

Results of the current study are demonstrated in the following tables and paragraphs:

- Demographic characteristics of the studied cases has shown that they had an age of 10.883 ± 1.551 years. The male to female ratio was 4:6 (table-1)

- Regarding the clinical variables in the studied cases, it has been shown that disease onset varied from polyarticular onset (36.7 %) to pauciarticular onset (46.7 %) and systemic onset (16.7%). Functional capacity ranged from Grade I (36.7 %) to Grade II (53.3 %), Grade III (6.7 %) and Grade IV (3.3 %). The studied cases had a disease duration of 4.223 ± 1.568 years. 23.3 % of cases had high disease activity, 16.7 % of

cases had moderate activity, 20.0 % had low activity and 40.0 % had no active disease (table-2)

- In respect to associated systemic manifestations, uveitis was reported in 7 cases (23.3 %), lymphadenopathy in 3 cases (10.0 %), splenomegaly in 2 cases (6.7 %), hepatomegaly in 1 case (3.3 %), fever in 5 cases (16.7 %) and rash in 4 cases (13.3 %) (table-3).

- The laboratory profile in the studied cases was as follows: ESR (62.033 ± 20.967), Hb % (9.493 ± 1.916), platelet count (235.0 ± 74.206) and WBCs (9.936 ± 4.486) (table-4)

- Immunological parameters in the studied cases has demonstrated that 23.3 % of cases are RF (+),63.3 % are ANA (+) and 43.3 % are ANCA (+) (table-5).

- Radiological findings in the studied cases included soft tissue swelling and/or OP in the hip in 3 cases (10.0 %) and knee in 4 cases (13.3 %), minor joint erosions in knee in 1 case (3.3 %), deformity and severe erosions in knee in 1 case (3.3 %), growth abnormalities in hip in 8 cases (26.7 %) and knee in 10 cases (33.3 %) (table-6).

- Comparison of the ANCA (+ve) and ANCA (-ve) with age and sex showed that ANCA +ve cases have significantly higher frequency of males, while both groups have statistically similar ages (table-7).

- Comparison of clinical variables in the studied groups shows that ANCA +ve cases have significantly higher frequency of polyarticular onset than ANCA -ve cases, while no significant differences were detected regarding functional capacity, uveitis and disease duration (table-8).

- Comparison of disease activity in the studied groups had showed no significant differences (table-9)

- Comparison of laboratory variables in the studied groups showed no significant differences between both groups regarding ESR, Hb, Platelet count, WBCs (table-10).

- Comparison of laboratory variables between JRA and controls shows that cases with JRA have significantly higher ESR levels than controls (table-11).

- Comparison of ANCA (+ve) and ANCA (-ve) with immunological parameters showed no significant differences between both groups regarding the frequency of RF (+) and ANA (+) cases (table-12).

- Comparison of radiological findings in the studied groups showed no significant differences between both groups regarding the frequency of radiological features (table-13).

- Correlation Among ANCA titer and disease activity shows no significant association between ANCA titer and disease activity (table-14).

Table 1: Demographic characteristics of the studied cases (n=30)

Age (years)	Range	8.5 - 14.0
	Mean ± SD	10.883 ± 1.551
Sex	Male: n (%)	12 (40.0 %)
	Female: n (%)	18 (60.0 %)

SD: Standard deviation.

n: number

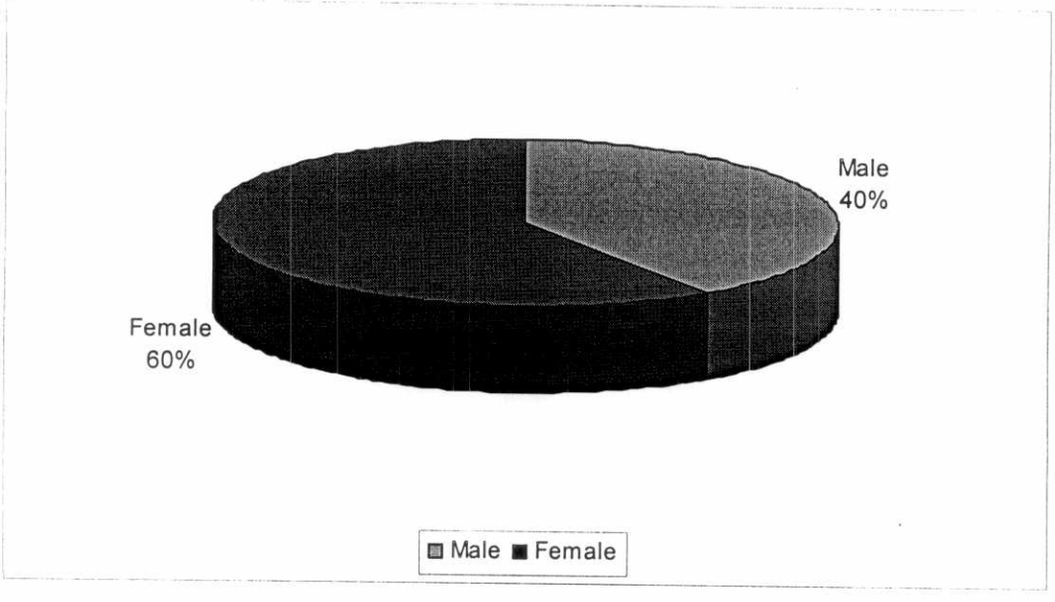

Fig.1 Sex distribution in the studied cases

Table 2: Clinical variables of the studied cases

		n (%)
Disease onset	Polyarticular	11 (36.7 %)
	Pauciarticular	14 (46.7 %)
	Systemic	5 (16.7%)
Functional capacity	Grade I	11 (36.7 %)
	Grade II	16 (53.3 %)
	Grade III	2 (6.7 %)
	Grade IV	1 (3.3 %)
Disease duration (years)	Range	1.5 - 8.0
	Mean ± SD	4.223 ± 1.568
Disease activity	High activity	7 (23.3 %)
	Moderate activity	5 (16.7 %)
	Low activity	6 (20.0 %)
	Not active	12 (40.0 %)

Table 3: Associated systemic manifestations in the studied cases

	n (%)
Uveitis	7 (23.3 %)
Lymphadenopathy	3 (10.0 %)
Splenomegaly	2 (6.7 %)
Hepatomegaly	1 (3.3 %)
Fever	5 (16.7 %)
Rash	4 (13.3 %)

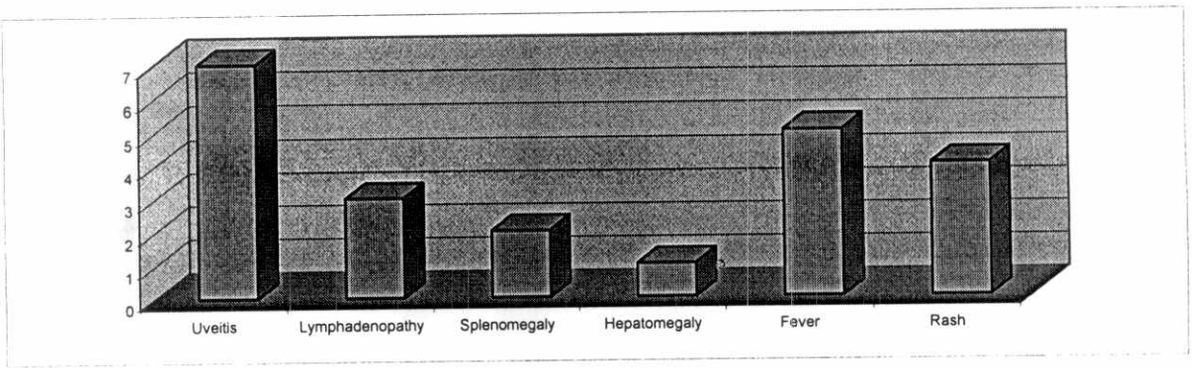

Fig. 2 Associated systemic manifestations in the studied cases

Table 4: Laboratory variables of the studied cases

	Range	Mean ± SD
ESR	23.0 - 111.0	62.033 ± 20.967
Hb %	6.6 - 13.5	9.493 ± 1.916
Platelet count	123.0 - 395.0	235.0 ± 74.206
WBCs	3.8 - 18.0	9.936 ± 4.486

Table 5: Immunological parameters in the studied cases

	n	%
RF (+)	7	23.3
ANA (+)	19	63.3
ANCA (+)	13	43.3

Table 6: Radiological findings in the studied cases

	Hip	Knee
Soft tissue swelling and/or OP	3 (10.0 %)	4 (13.3 %)
Minor joint erosions	-	1 (3.3 %)
Deformity and severe erosions	-	1 (3.3 %)
Gross destruction and deformity	-	-
Growth abnormalities	8 (26.7 %)	10 (33.3 %)
Total	9 (30.0 %)	7 (23.3 %)

Table 7: Comparison of the ANCA (+ve) and ANCA (-ve) with age and sex

		ANCA (+ve) (n=13)	ANCA (-ve) (n=17)	Student t test	
				t	p
Age		10.846 ± 1.625	10.911 ± 1.543	-0.11	0.91
				Chi-square test	
Sex	Male	8 (61.5 %)	4 (23.5 %)	X^2	p
	Female	5 (38.5 %)	13 (76.5 %)	4.43	0.035*

This table shows that ANCA +ve cases have significantly higher frequency of males, while both groups have statistically similar ages.

Table 8: Comparison of the ANCA (+ve) and ANCA (-ve) with clinical variables.

		ANCA (+ve) (n=13)	ANCA (-ve) (n=17)	Chi-square test	
				X^2	p
Onset	Polyarticular	9 (69.2 %)	2 (11.8 %)	11.7	0.003
	Pauciarticular	4 (30.8 %)	10 (58.8 %)		
	Systemic	-	5 (29.4 %)		
Uveitis		3 (30.8 %)	4 (47.1 %)	0.81	0.37
Functional capacity	I	5	6		
	II	7	9		
	III	1	1		
	IV	-	1		
				Student t test	
				t	P
Disease duration (years)		4.138 ± 1.434	4.288 ± 1.704	-0.25	0.8

This table shows that ANCA +ve cases have significantly higher frequency of polyarticular onset than ANCA -ve cases, while no significant differences were detected regarding functional capacity, uveitis and disease duration.

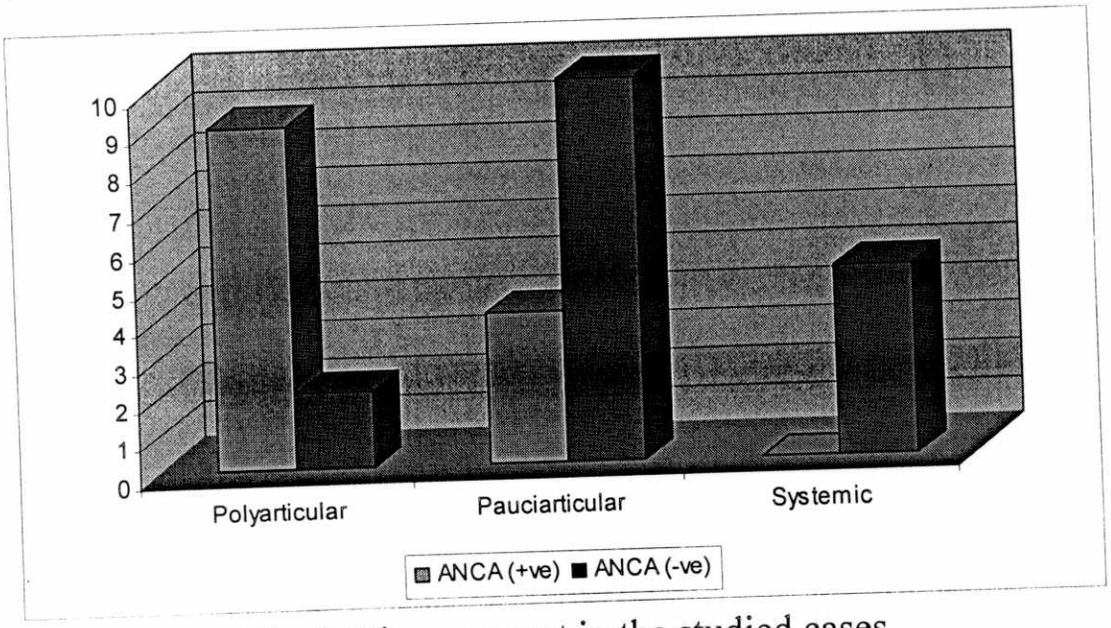

Fig. 3 Disease onset in the studied cases

Table 9: Comparison of the ANCA (+ve) and ANCA (-ve) with disease activity

		ANCA (+ve) n=13	ANCA (-ve) n=17	Chi-square test	
				X^2	p
Disease activity	+	10 (76.9 %)	8 (47.1 %)	1.82	0.18
	-	3 (23.1 %)	9 (52.9 %)		

Table 10: Comparison of the ANCA (+ve) and ANCA (-ve) with laboratory variables

	ANCA (+ve) (n=13)	ANCA (-ve) (n=17)	Student t test	
			t	P
ESR	70.461 ± 14.039	55.588 ± 23.390	2.02	0.052
Hb	9.815 ± 1.534	9.247 ± 2.178	0.80	0.43
Platelet count	240.615 ± 83.695	230.705 ± 68.424	0.35	0.72
WBCs	9.438 ± 4.623	10.317 ± 4.482	-0.52	0.60

This table shows no significant differences between both groups regarding ESR, Hb, Platelet count and WBCs.

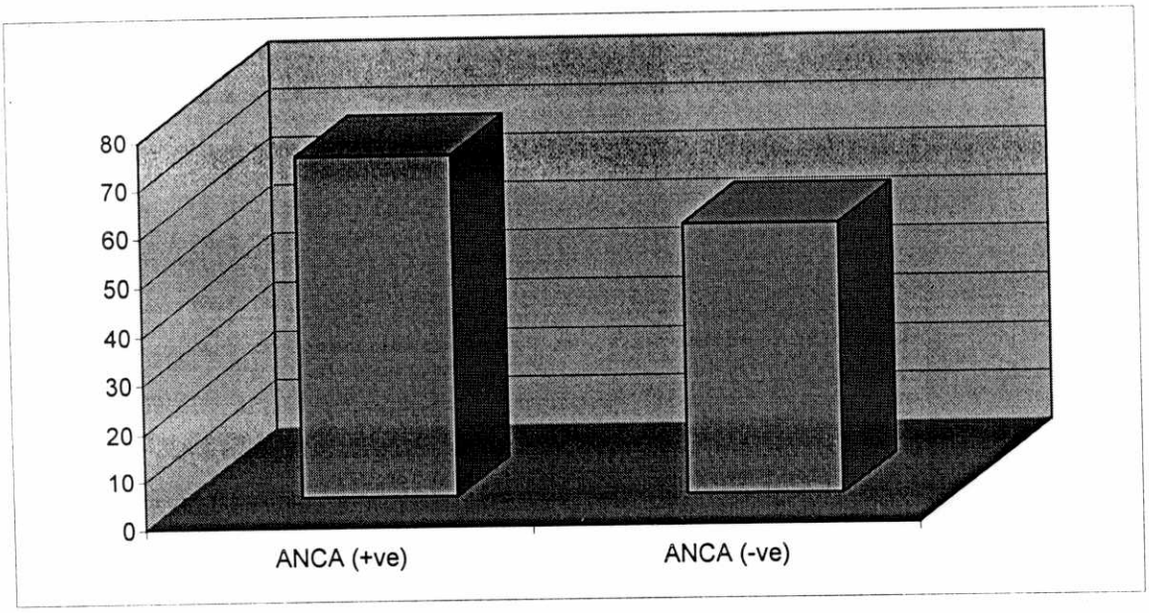

Fig. 4: ESR in the studied cases

Table 11: Comparison of laboratory variables between JRA cases and controls

	JRA (n=30)	Controls (n=20)	Student t test	
			t	P
ESR	62.033 ± 20.967	43.41 ± 11.671	2.76	0.019 *
Hb	9.493 ± 1.916	11.012 ±	1.17	0.13
Platelet count	235.0 ± 74.206	241.453 ± 65.98	0.43	0.72
WBCs	9.936 ± 4.486	9.345 ± 3.876	1.04	0.23

This table shows that cases with JRA have significantly higher ESR levels than controls.

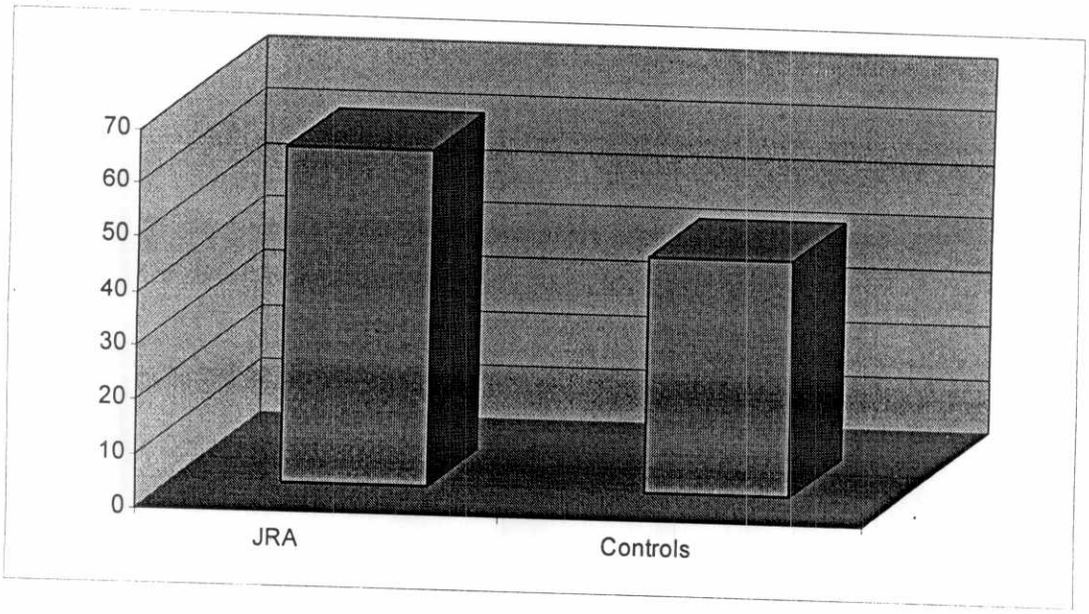

Fig. 5: Comparison of ESR between JRA cases and controls

Table 12: Comparison of ANCA (+ve) and ANCA (-ve) with immunological parameters

	ANCA (+ve) (n=13)	ANCA (-ve) (n=17)	Chi-square test	
			X^2	P
RF (+)	3 (23.1 %)	4 (23.5 %)	0.001	0.97
ANA (+)	10 (76.9 %)	9 (52.9 %)	1.82	0.18

This table shows no significant differences between both groups regarding the frequency of RF (+) and ANA (+) cases.

Table 13: Comparison of ANCA (+ve) and ANCA (-ve) with radiological findings.

	ANCA (+ve) (n=13)	ANCA (-ve) (n=17)	Chi-square test	
			X^2	p
Knee	3 (23.1 %)	6 (35.3 %)	0.91	0.34
Hip	4 (23.5 %)	3 (17.6 %)	0.71	0.4

This table shows no significant differences between both groups regarding the frequency of radiological features.

Table 14: Correlation Among ANCA titer and disease activity

	ANCA Titer	
	r	p
Disease activity	-0.192	0.53

r: correlation coefficient

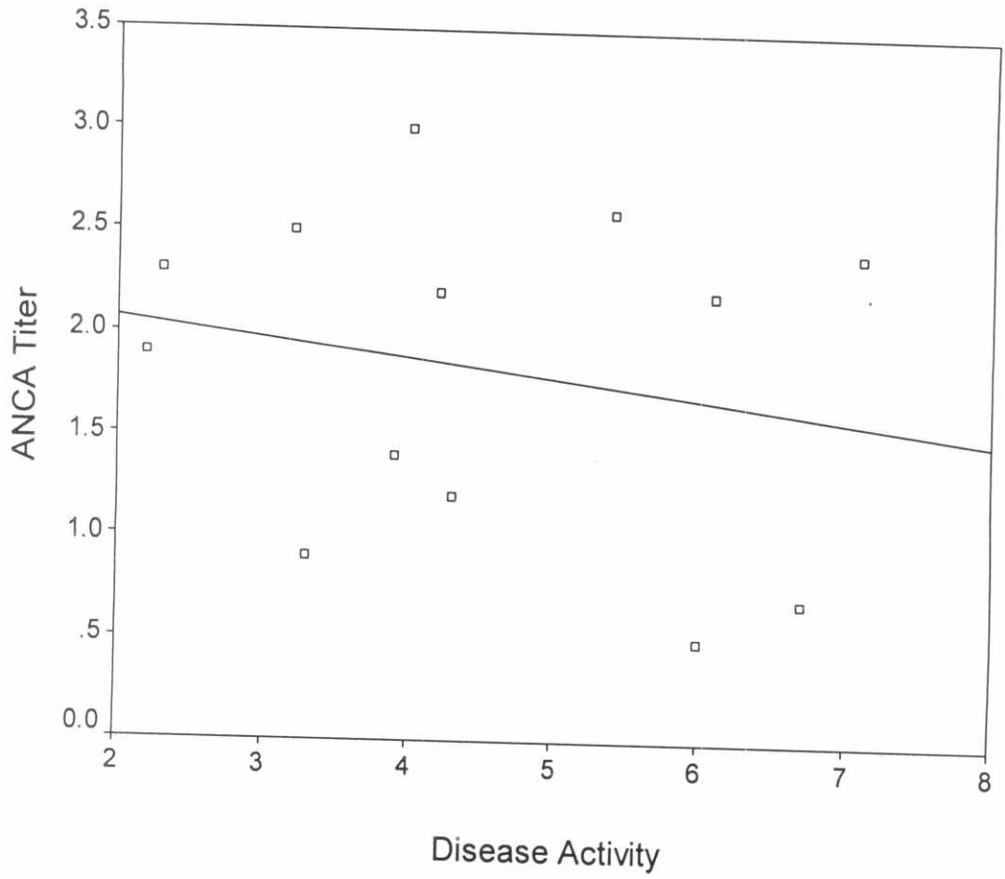

Fig. (6) This figure shows no significant association between ANCA titer and disease activity