RESULTS

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Two groups were studied in this work:

- **Group (I):**

Included 20 patients with juvenile rheumatoid arthritis (JRA) fulfilling the criteria for diagnosis of JRA by ***Cassidy et al. (1986).*** Their disease durations ranged between 7–120 months with a mean of 39.1±32.4months.

Eleven patients (55%) were females and 9 patients (45%) were males.

Their ages ranged between 4 – 16 years (mean ± SD 9.2 ± 3.9 years).

-Group (II):

- Included 20 apparently healthy children as a control group.
- They were 12 females (60%) and 8 male (40%)
- Their ages ranged between 4– 13 years (mean ± SD 8.4 ± 2.95 years).
- Both groups were matched regarding age and sex (P>0.05),**(Table2,3).**

Table (1) and figure (2) show the clinical characteristics of the twenty JRA patients.

Eight patients (40%) had polyarticular onset JRA, 7 patients (35%) had pauciarticular onset while 5 patients (25%) had systemic onset JRA **(Figure, 1).**

The mean articular index (AI) score was 16.4 ± 10.6.

The mean visual analogue scale (VAS) was 5.1±1.9 cm.

The mean disease activity score (DAS) was 4.0 ± 1.1

As regard the functional capacity grading ***(Steinbrocker et al., 1949).***

Eight patients (40%) had grade I, 8 patients (40%) had grade II and 4 patients had grade III **(Figure, 3).**

The mean juvenile arthritis functional assessment report (JAFAR) score was 8.4 ± 4.4 among the patients.

The mean clinical knee score was 2.7 ± 2.5 while the mean clinical hip score was 0.7 ± 1.6.

Concerning the laboratory findings among the JRA patients. The mean hemoglobin concentration (HB%) was10.0±1.4gm/dl, the mean ESR level was (47.2±17.5 mm/1sthour)and the mean CRP level was 29.2±20.9 **(Figure, 4).**

Five patients (25%) had rheumatoid factor positive while 15 patients (75%) had rheumatoid factor negative disease.

Ultrasonographic examination of both knees and hips revealed:

The mean USG knee synovial thickness was 4.2 ± 2.4 mm.

The mean knee effusion volume was 3.8 ± 3.1 cc and the mean hip synovial joint space (SJS) width was 4.6 ± 2.7 mm.

Figure (5) shows pattern of clinical knee joint involvement among the 20 JRA patients.

In our study, clinical knee joint involvement was present in 15 patients (75%) out of the 20 patients examined.

Six patients 40% had polyarticular onset disease, 5 patients (33.3%) had pauciarticular onset and 4 patients (26.7%) had systemic onset disease.

Bilateral knee joint involvement was found in 11 patient (73.3%) while unilateral involvement was found in 4 patients (26.7%). ie., clinical knee joint involvement was observed in 26 knees out of the 40 knees examined.

Figure (6): shows pattern of clinical hip joint involvement among the 20 JRA patients.

Clinical hip joint involvement was present in 7 patients (35%) out of the 20 patients examined.

Three patients (43%) had polyarticular onset JRA, 2 patients (28.5%) had pauciarticular onset while 2 patients (28.5%) had systemic onset disease.

Unilateral involvement was found in 5 patients (71%) while bilateral involvement was found in 2 patients (29%).ie., clinical hip joint involvement was observed in 9 out of the 40 hips examined.

Table (4) and figure(7) Show comparison between the mean of the ultrasonographic findings in the JRA patients and the control group.

The means USG knee synovial thickness was 4.2 ± 2.4 mm in the JRA patients compared to a mean of 1.7 ± 0.3 mm in the control group **(Figure 16, 17).**

There was a highly statistically significant difference ($P < 0.001$) between both groups.

The mean USG hip SJS width was 4.6 ± 2.7 mm in the JRA patients compared to a mean of 3.9 ± 0.9 mm in the control group **(Figure 18, 19).**

There was a statistically insignificant difference($P > 0.05$) between both group.

Table (5) and figure(8): show comparison between the mean ultrasonogaphic (USG) findings in theJRA patients according to their local activity.

The mean USG knee synovial thickeness was 5.2 ± 2.3 mm in the clinical active knees compared to a mean of 2.3 ± 1.0 mm in the clinically

inactive knees. There was a highly statistically significant difference ($P > 0.001$) between both groups.

The mean USG Hip SJS width was 7.5 ± 4 mm in the clinically active hips compared to a mean of 3.8 ± 1.5 mm in the clinically inactive hips.

There was a highly statistically significant difference ($P > 0.001$) between both groups.

The mean USG knee effusion volume was statistically significantly higher in the clinically active knees than the clinically inactive knee being 4.8 ± 3.6 cc and 2.0 ± 0.9 cc respectively ($P < 0.05$).

Table (6): shows comparison between the clinical, laboratory and ultrasonographic findings in the JRA patients according to their disease onset.

The disease duration, AI score, VAS , DAS score, clinical knee score, clinical hip score and JAFAR score showed statistically insignificant difference ($P > 0.001$) among the polyarticular, pauciarticular and systemic onset JRA patients.

There was a highly statistically significant difference ($P < 0.001$) regarding the hemoglobin level being lowest in the polyarticular onset JRA patients (mean ± SD 9.1 ± 1.3 gm/dl).

As regard ESR level, there were statistically significant differences ($P < 0.001$) among the different disease onset types being highest in the polyarticular onset JRA (mean ± SD 55.1 ± 11.6 mm/1st hour) and lowest in the pauciarticular onset JRA (mean ±SD 30.7 ± 8.4 mm/1st hour).

There were statistically insignificant differences ($P < 0.001$) among the patients as regard CRP level **(Figure 9).**

There were statistically significant differences ($P < 0.001$) among the different disease onset types as regard the USG knee effusion volumes being greatest in the systemic onset type (mean ± SD 6.7 ± 5.1 cc) and lowest in the pauciarticular onset type (mean ± SD 2.4 ± 1.2 cc).

As regard the USG knee synovial thickness and the USG hip SJS width there was a statistically insignificant difference among the different disease onset types ($P > 0.05$). **(Figure 10)**

Table (7): shows comparison between the clinical, laboratory and ultrasonographic findings in JRA patients according to their RF (seropositivity).

There were statistically insignificant differences ($P > 0.05$). between patients with seronegative and those with seropositive disease as regarding disease duration, AI score, VAS , DAS score, clinical knee score, clinical hip score, JAFAR score, HB level, ESR level, CRP level, USG knee synovial thickness and USG knee effusion volume.

USG hip SJS width is statistically significantly higher ($P < 0.05$). in patients with seropositive than those with seronegative disease.

Table (8) and figures (11,12): Show comparison between the clinical laboratory and ultrasonographic findings in JRA patients according to disease activity.

There were high statistically significant differences ($P < 0.001$) among the patients with a low, moderate and high disease activity regarding CRP and the ESR levels being highest in those with a high disease activity (mean ± SD 60.9 ± 15.6 mm/1st hour), (50.3 ± 24.6 mg/L) respectively.

There were statistically significant differences ($P < 0.05$) among the patients as regard AI score and JAFAR score being highest in patients with a high disease activity (mean ± SD 25.9 ± 11.0, 11.1 ± 4.9) respectively.

Patients with a high disease activity had statistically lower hemoglobin level (mean ± SD 9.4 ± 1.0 gm/dl), ($P < 0.05$).

There was a statistically insignificant difference ($P > 0.05$) regarding disease duration, VAS, clinical knee score and clinical hip score.

Patients with a high disease activity had a statistically higher ($P < 0.05$) USG knee synovial thickness (mean ± SD 6.7 ± 1.7 mm) and USG knee effusion volume (mean ± SD 7.9 ± 5.2 cc), than patients with low and moderate disease activity.

Table (9) and figures (13,14): Show comparison between the clinical, laboratory and ultrasonographic findings in the JRA patients according to their functional capacity.

Patients with functional capacity grade III had statistically higher disease duration (mean ± SD 60.3 ± 25.4 month) ($P < 0.001$) and JAFAR (mean ± SD 12.4 ± 3.7) ($P < 0.05$) than patients with grade I and Grade II.

There were statistically insignificant differences (P > 0.05) among the patients with grade I, II and III as regard AI score, VAS, DAS score, clinical knee score, clinical hip score, hemoglobin level, ESR level, CRP level, USG knee synovial thickness, USG knee effusion volume or USG hip SJS width

Table (10) shows correlation coefficients between the clinical and laboratory variables of the JRA patients in relation to their ultrasonographic findings.

There were significant positive correlations (P<0.05) between USG knee synovial thickness and AI scores (r = 0.74), DAS scores (r = 0.73), clinical knee scores (r = 0.71), ESR levels (r = 0.61) and CRP levels (r = 0.51).while there were insignificant correlations (P>0.05) as regards disease durations (r = 0.18), VASs (r = 0.21), JAFAR scores (r = 0.13), clinical hip scores (r = 0.23) and hemoglobin levels (r = - 0.31).

There were significant positive correlations (P<0.05) between USG knee effusion volumes and AI scores (r = 0.64), VASs (r = 0.41), DAS scores (r = 0.83), clinical knee scores (r = 0.71), ESR levels (r = 0.61) and CRP levels (r = 0.51) and there were significant negative correlations with the hemoglobin levels (r = - 0.81).

There were insignificant correlations (P>0.05) with the disease durations (r = 0.23), JAFAR scores (r = 0.37) and clinical hip scores (r = 0.15).

Concerning USG hip SJS, there were significant positive correlations (P<0.05)with DAS scores (r = 0.52), clinical hip scores (r = 0.43) and ESR levels (r = 0.70). while there were insignificant correlations (P>0.05) with disease durations (r = 0.17), AI scores (r = 0.36), VASs (r = 0.18), JAFAR scores(r = 0.25), clinical knee scores (r = 0.11), hemoglobin levels (r = -0.25) and CRP levels (r = 0.38).

Interpretation of results Table (11) and Figure (15):

For our calculations, the upper limit of normal value(cut off point) for USG knee synovial thickness was 2.3 mm recorded as the mean of controls+2 SD.

In our study 26 knees out of 40 knees examined were clinically active. 25 knees out of the 26 clinically active knees shows pathological USG synovial thickness > 2.3 mm.

Seven clinically inactive knees showed USG pathological synovial thickness > 2.3 mm.

Two knees of the control showed USG pathological synovial thickness > 2.3 mm.

These results yielded a sensitivity 82.5% a specificity 95%, a PPV 94.3% and a NPV 84.4%.

None of our control subjects showed intra-articular knee effusion while USG knee effusion was detected in 90% of our patients, implicating 100% specificity of the US in detecting effusion in clinically active joints.

Concerning the USG hip SJS, the upper normal limit (cut off point) is 5.7 mm recorded as mean of controls + 2 SD.

In our study 9 hips out of 40 hips examined were clinically active Five of them showed pathological SJS widening > 5.7 mm.

Six hips which were apparently inactive showed USG pathological SJS widening > 5.7 mm.

Six hips of the control subjects also showed USG pathological SJS widening > 5.7 mm.

These results yielded a sensitivity 32.5%, a specificity 85%, PPV %, 68.4% and a NPV 55.7%.

Table (1): Clinical Characteristics of the 20 JRA patients.

-Age/years, mean ± SD (range)	9.2 ± 3.9 (4 - 16)
-Gender, male/female (%)	9 / 11 (45% - 55%)
-Disease onset (%)	Pauci./poly./syst. 7/8/5 (35% - 40% - 25%)
-Disease duration/months, mean ± SD(range)	39.1 ± 32.4 (7 -120)
-Articular index, mean ± SD	16.4 ± 10.6
-Visual analogue scale (cm), mean ± SD	5.1 ± 1.9
-Disease activity score, mean ± SD	4.0 ± 1.1
-Functional capacity grading (%)	I / II / III 8/8/4 (40% - 40% - 20%)
-JAFAR score, mean ± SD	8.4 ± 4.4
-Clinical knee score, mean ± SD	2.7 ± 2.5
-Clinical hip score, mean ± SD	0.7 ± 1.6
-Hemoglobin (gm/dl), mean ± SD	10.0 ± 1.4
-ESR level (mm/1st hour), mean ± SD	47.2 ± 17.5
-CRP level (mg/l), mean ± SD	29.2 ± 20.9
-Rheumatoid factor (%)	5 +ve / 15 –ve (25% - 75%)
-USG knee synovial thickness (mm), mean ± SD	4.2 ± 2.4
-USG knee effusion volume(cc), mean ± SD	3.8 ± 3.1
-USG hip SJS space width (mm), mean ± SD	4.6 ± 2.7

JAFAR = Juvevile arthritis functional assessment report.

ESR = Erythrocyte sedimentation rate

CRP = C-reactive protein

USG = Ultrasonographic

SJS = Synovial joint space

Table (2): Age distribution in the studied groups

Group	JRA		Controls	
	Min.	Max.	Min.	Max.
Age	4	16	4	13
Number	20		20	
$\bar{X}$	9.19		8.14	
± SD	3.95		2.95	
T	0.62			
P	>0.05			

P > 0.05 = Insignificant

Table (3): Sex distribution in the studied groups

Group	JRA		Controls	
	N	%	N	%
Female	11	55	12	60
Male	9	45	8	40
X^2	0.1			
P	>0.05			

P > 0.05 = Insignificant

Fig.(1) Types of disease onset of the twenty JRA patients

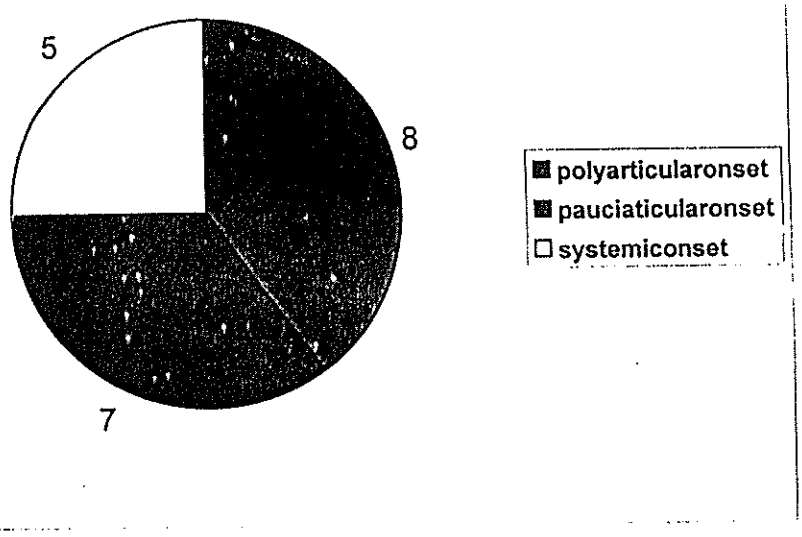

Fig. (2) : Clinical characteristics of the JRA patients

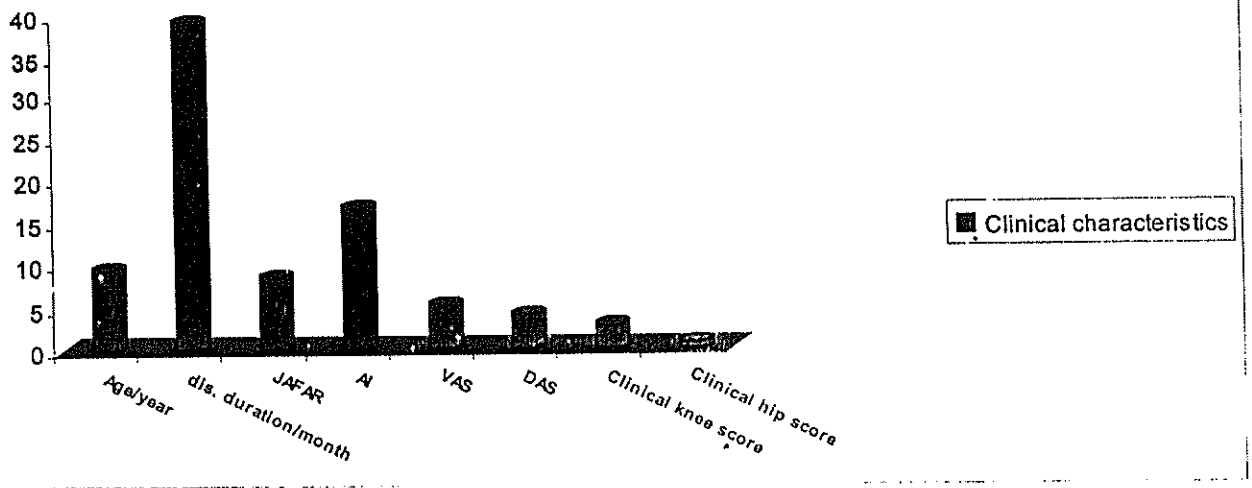

Fig.(3) : Functional capacity grading

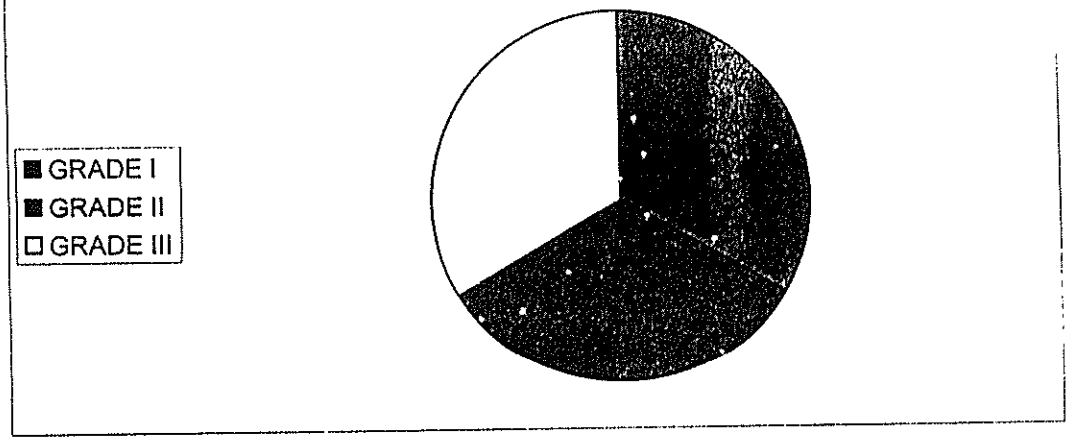

Fig (4): Laboratory findings of the JRA patients

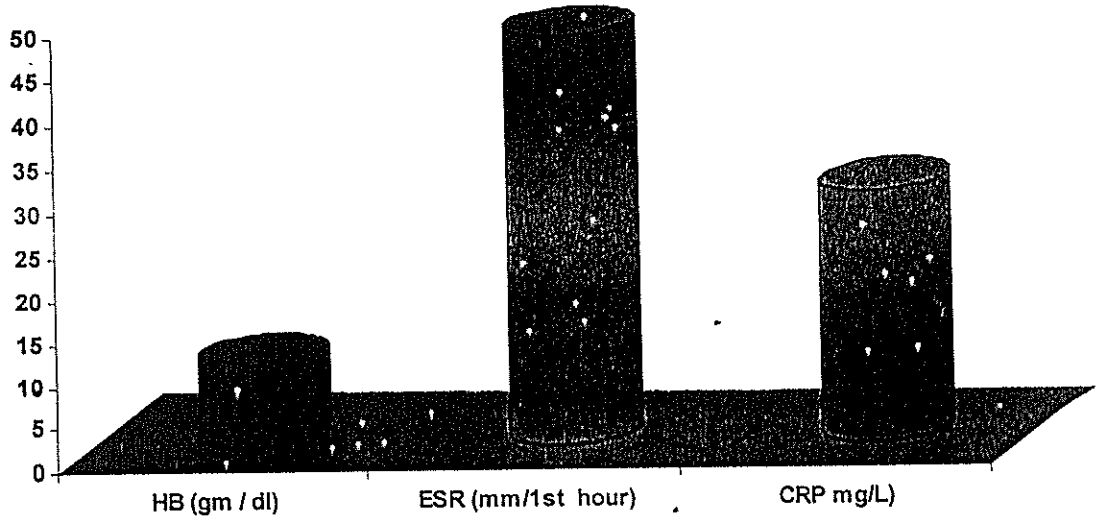

Fig (5) : Pattern of clinical knee joint involvement among the 20 JRA patients

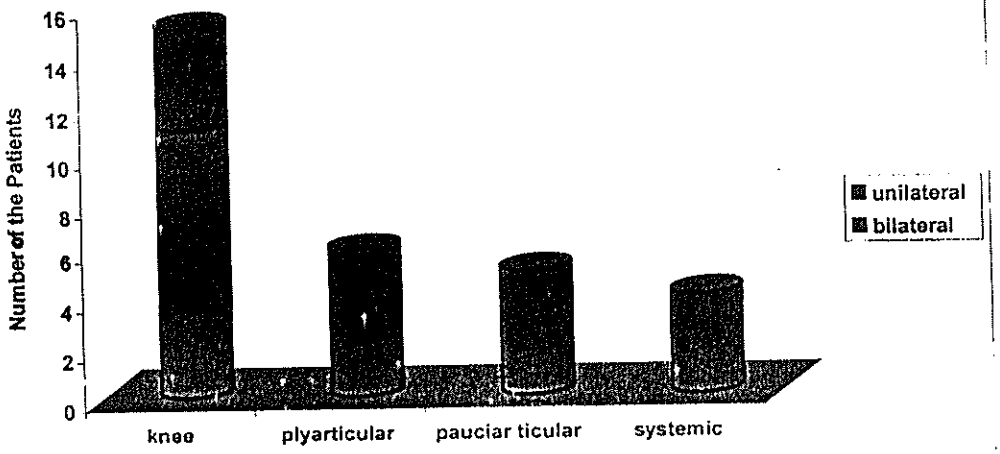

Fig (6) : Pattern of clinical hip joint involvement among the 20 JRA patients

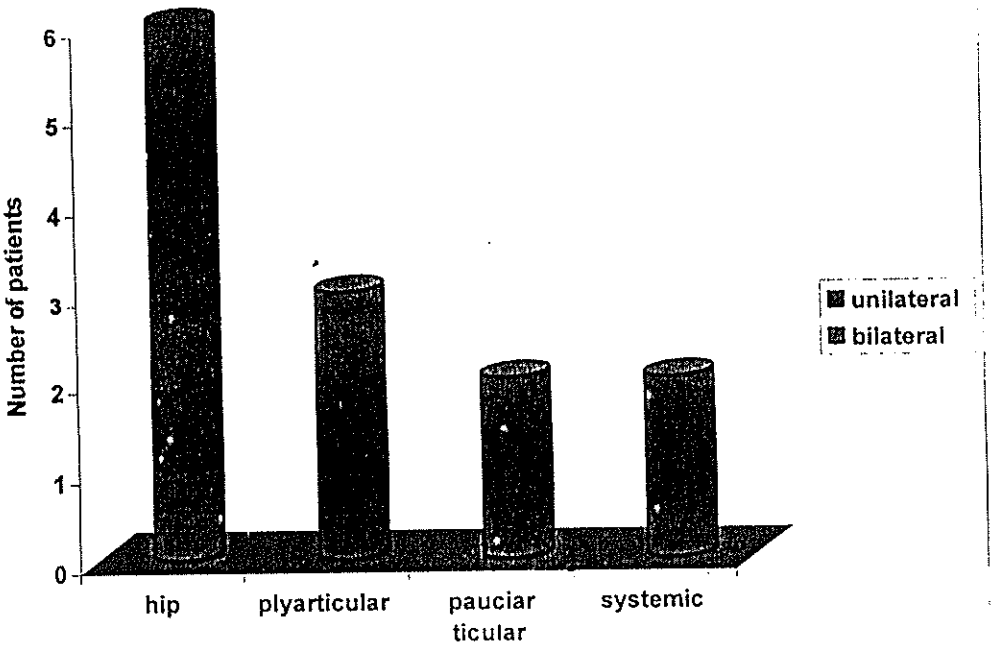

Table (4): Comparison between the mean of the ultrasonographic findings in the JRA patients and the control group.

Ultrasonographic findings	JRA (N=20)		Control (N=20)		t	P
	$\bar{X}$	± SD	$\bar{X}$	± SD		
Knee synovial. thickness(mm)	4.2	2.4	1.7	0.3	4.7	<0.001**
Hip SJS width(mm)	4.6	2.7	3.9	0.9	1.1	>0.05

P>0.05 = Insignificant
P<0.001** = Highly significant
SJS = Synovial joint space

Fig (7): The mean of the ultrasonographic (USG) findings in the JRA patients and the control group

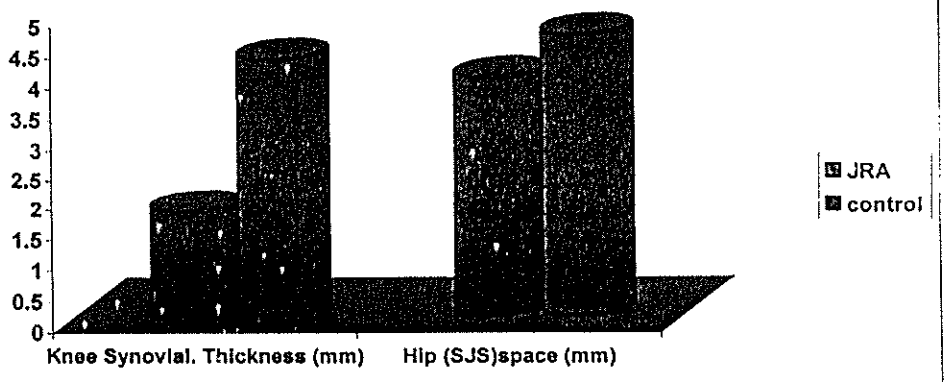

Table (5): Comparison between the mean of the ultrasonographic findings in the JRA patients according to their local joint activity.

Ultrasonograhpic findings	Active			Inactive			t	P
	N	X^-	± SD	N	X^-	± SD		
Knee synovial thickness (mm)	26	5.2	2.3	14	2.3	1.0	4.4	<0.001**
Knee effusion volume(cc)	26	4.8	3.6	14	2.0	0.9	2.9	<0.05*
Hip SJS width(mm)	9	7.5	4.0	31	3.8	1.5	4.3	<0.001**

P<0.05* = Significant
P<0.001** = Highly significant
SJS = Synovial joint space

Fig. (8) : The mean of the ultrasonographic(USG) findings in JRA patients according to their local joint activity.

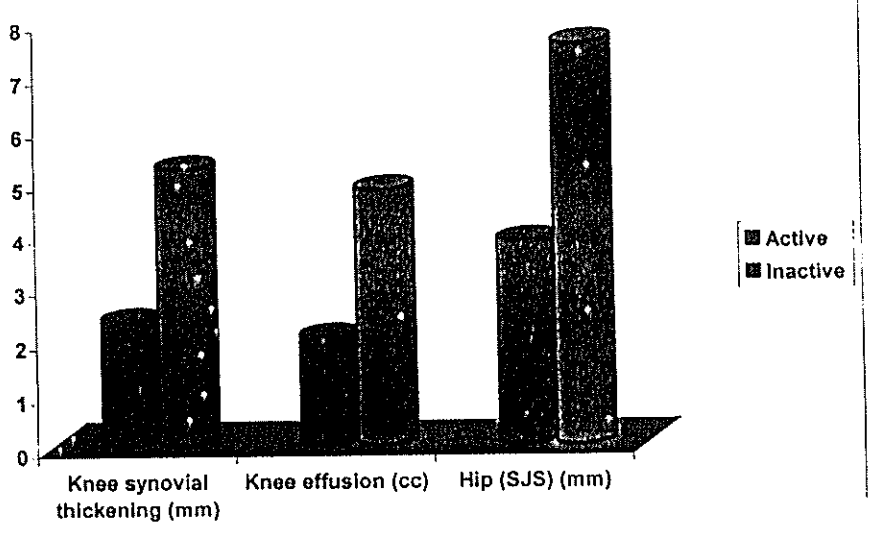

Table (6): Comparison between the clinical, laboratory and ultrasonographic findings in the JRA patients according to their disease onset.

	Pauciarticular (N=7)		Polyarticular (N=8)		Systemic (N=5)		F	P
	$\bar{X}$	± SD	$\bar{X}$	± SD	$\bar{X}$	± SD		
sease duration(months)	51.4	38.4	26.1	25.0	44.4	29.9	1.4	>0.05
score	11.0	9.6	21.5	11.0	15.6	8.7	2.1	>0.05
AS(cm)	4.6	2.15	4.9	1.2	6.0	2.0	1.0	>0.05
AS score	3.3	1.2	4.4	0.7	4.2	1.0	2.5	>0.05
AFAR score	6.6	4.3	8.9	3.6	10.0	5.3	1.0	>0.05
inical knee score	2.6	2.8	3.4	2.1	3.9	2.9	0.3	>0.05
inical hip score	0.5	0.9	1.2	2.4	0.9	2.1	0.2	>0.05
b level(gm/dl)	11.3	0.4	9.1	1.3	9.8	0.9	10.6	<0.001**
SR level(mm/1st hour)	30.7	8.4	55.1	11.6	51.4	18.1	7.8	<0.05*
RP(mg/l) level	24.0	13.9	40.3	26.3	22.8	14.8	1.7	>0.05
SG. Knee synovial thickness m)	4.6	3.4	3.5	1.9	4.8	1.6	0.7	>0.05
SG.knee effusion volume(cc)	2.4	1.2	3.2	2.5	6.7	5.1	4.5	<0.05*
SG hip SJS width(mm)	3.9	2.1	4.8	1.9	4.5	3.2	0.4	>0.05

AI = Articular index
VAS =Visual analogue scale .
JAFAR =Juvevile arthritis functional assessment report.
DAS =Disease activity score
Hb =Hemoglobin level
ESR =Erythrocyte sedimentation rate
CRP =C-reactive protein
USG = Ultrasonographic
SJS = Synovial joint space

P>0.05 = Insignificant
P<0.05* = Significant
P<0.001** = Highly significant

Fig (9): Laboratory finding in the JRA patients according to their disease onset

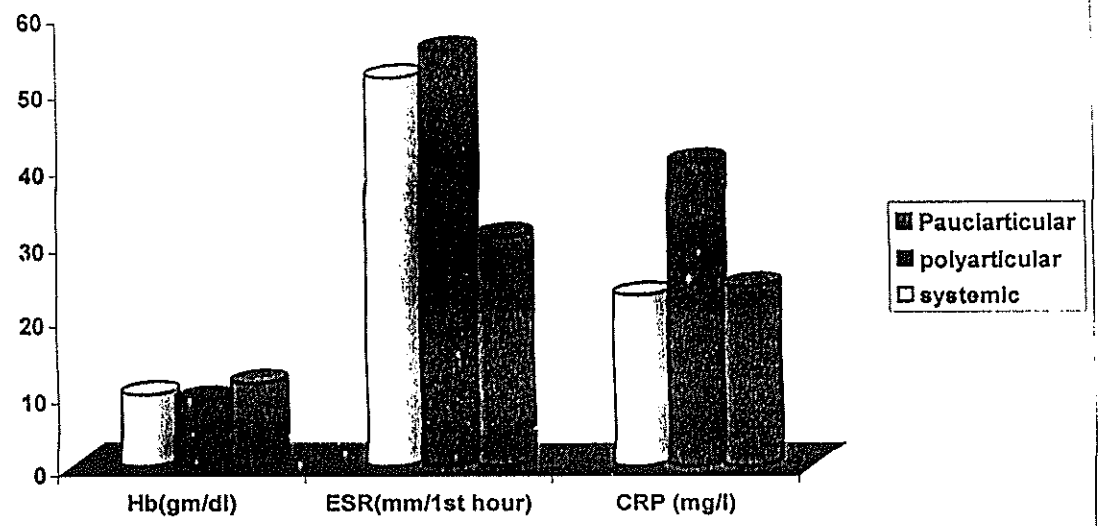

Fig.(10): The ultrasonographic findings in the JRA patients according to their disease onset.

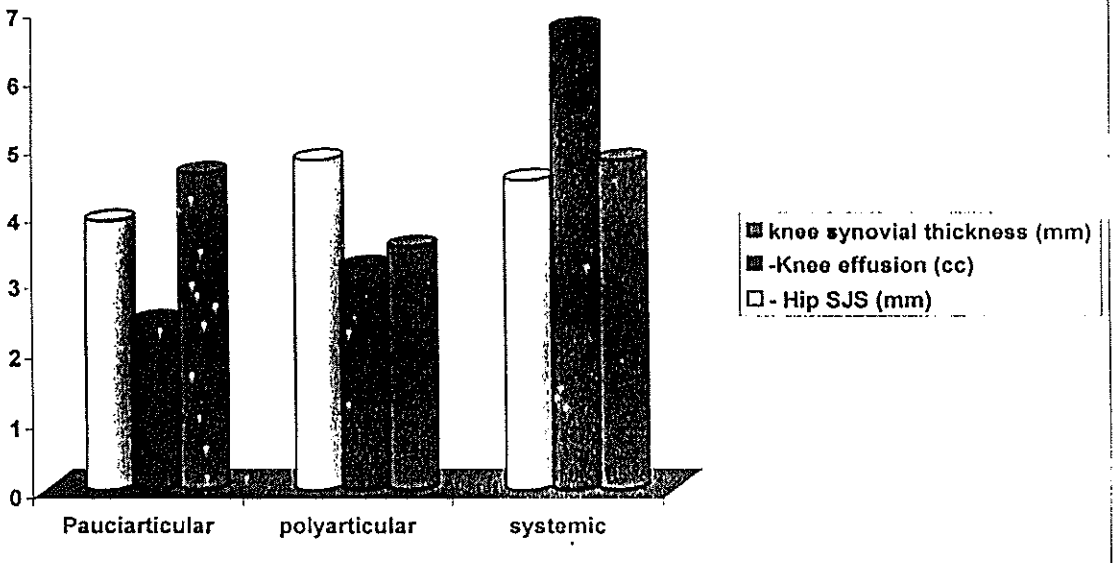

Table (7): Comparison between the clinical, laboratory and ultrasonographic findings in JRA patients according to their RF (seropositivity).

	Sero +Ve (N=5)		Sero -Ve (N=15)		t	P
	$\bar{X}$	± SD	$\bar{X}$	± SD		
Disease duration(months)	25.0	22.7	43.8	34.4	1.1	>0.05
AI score	18.8	14.3	15.5	9.5	0.6	>0.05
VAS(cm)	4.8	2.4	5.1	1.8	0.3	>0.05
DAS score	3.8	1.6	4.0	0.9	0.3	>0.05
JAFAR score	8.0	6.2	8.5	3.9	0.2	>0.05
Clinical knee score	2.4	2.0	2.9	2.4	0.2	>0.05
Clinical hip score	1.8	2.4	0.5	1.2	1.3	>0.05
Hb level (gm/dl)	10.2	0.8	10.0	1.5	0.3	>0.05
ESR level (mm/1st hour)	50.0	13.7	46.2	18.9	0.4	>0.05
CRP level (gm/l)	36.4	7.8	26.8	23.5	0.9	>0.05
USG Knee Synovial Thickness(mm)	3.4	1.4	4.2	2.6	0.8	>0.05
USG Knee effusion volume(cc)	3.5	3.2	4.1	3.1	0.5	>0.05
USG hip SJS width(mm)	5.8	1.7	3.6	1.5	2.5	<0.05*

AI = Articular index
VAS = Visual analogue scale
DAS = Disease activity score.
JAFAR= Juvevile arthritis functional assessment record.
Hb =Hemoglobin level
ESR =Erythrocyte sedimentation rate
CRP =C-reactive protein
USG = Ultrasonographic
SJS = Synovial joint space

P>0.05 = Insignificant
P<0.05* = Significant

Table (8): Comparison between the clinical, laboratory and ultrasonographic findings in the JRA patients according to their disease activity.

	Low (I) (N=4)		Moderate (II) (N=12)		High (III) (N=4)		F	P
	X̄	± SD	X̄	± SD	X̄	± SD		
sease duration(months)	45.1	27.4	36.1	25.3	51.4	29.1	1.5	>0.05
score	10.2	8.3	14.3	9.1	25.9	11.0	4.6	<0.05*
AS(cm)	3.9	2.2	4.8	1.9	7.3	1.8	2.1	>0.05
FAR score	6.1	4.2	7.8	4.6	11.1	4.9	3.1	<0.05*
inical knee score	2.1	2.3	3.5	2.1	4.0	2.8	0.9	>0.05
inical hip score	0.4	0.8	1.5	2.1	2.0	2.3	0.8	>0.05
b level(gm/dl)	12.3	0.5	10.2	2.3	9.4	1.0	6.2	<0.05*
SR level(mm/1st hour)	20.8	7.3	40.2	13.6	60.9	15.6	9.2	<0.001**
RP level(gm/l)	20.7	12.3	24.9	13.8	50.3	24.6	8.6	<0.001**
SG knee Synovial Thickness(mm)	2.4	1.3	3.8	1.8	6.7	1.7	3.7	<0.05*
SG knee effusion volume(cc)	2.1	1.2	4.3	2.8	7.9	5.2	5.6	<0.05*
SG hip SJS width (mm)	3.8	2.5	4.1	2.0	4.5	3.3	0.6	>0.05

AI = Articular index
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USG = Ultrasonographic

P>0.05 = Insignificant
P<0.05* = Significant
P<0.001**=Highly significant

Fig (11): Clinical findings in theJRA patients according to their disease activity

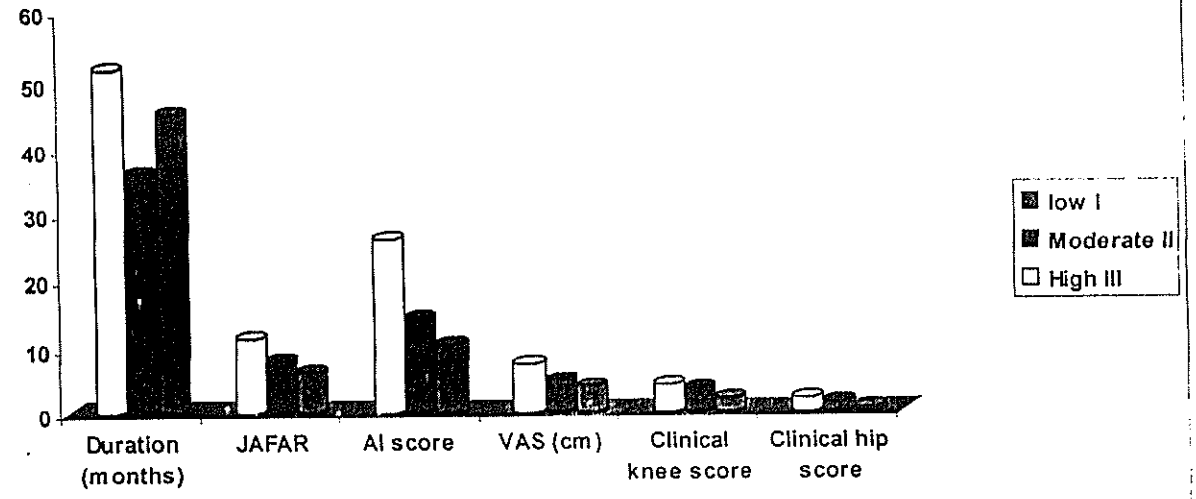


Fig (12) : Ultrasonographic findings in the JRA patient according to disease activity.

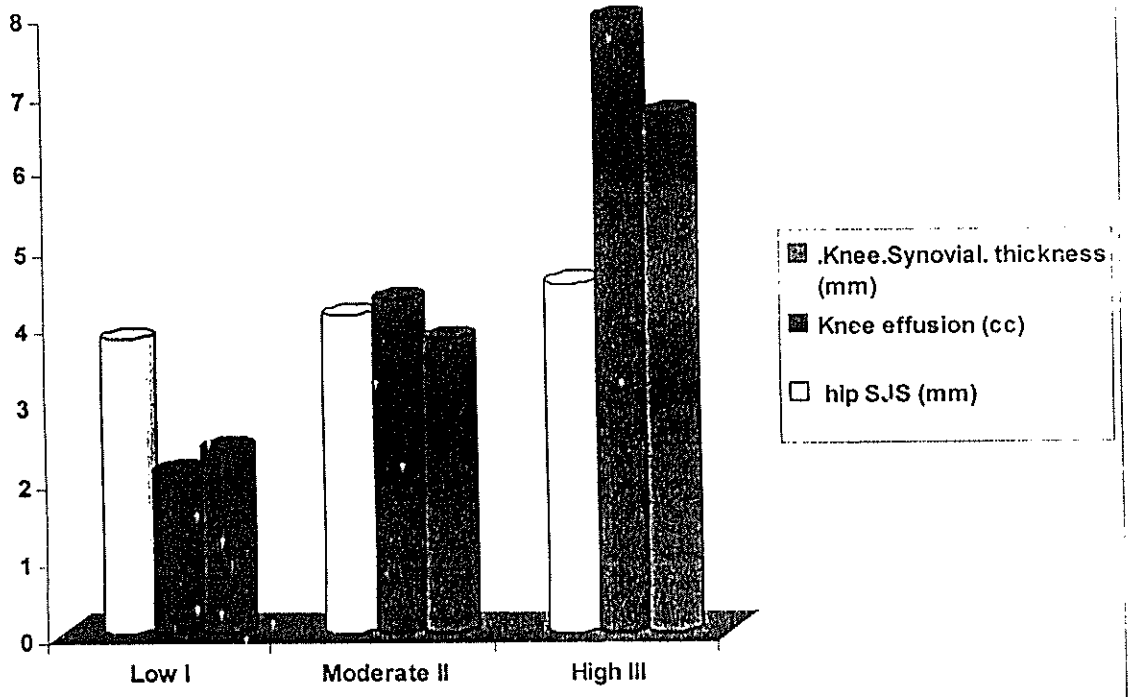


Table (9): Comparison between the clinical, laboratory and ultrasonographic findings in the JRA patients according to their functional capacity.

	Grade I (N=8)		Grade II (N=8)		Grade III (N=4)		F	P
	$\bar{X}$	± SD	$\bar{X}$	± SD	$\bar{X}$	± SD		
Disease duration(months)	32.6	19.6	36.7	29.2	60.3	25.4	9.1	<0.001**
AI score	12.4	8.6	13.9	7.4	15.9	11.3	0.8	>0.05
VAS(cm)	5.8	2.1	4.8	1.8	7.4	2.1	1.8	>0.05
DAS score	3.2	1.1	4.3	0.9	4.5	2.0	1.9	>0.05
JAFAR score	7.1	3.2	7.9	3.8	12.4	3.7	4.8	<0.05*
Clinical knee score	2.7	2.9	3.3	2.8	4.0	1.9	2.2	>0.05
Clinical hip score	0.5	0.7	1.3	2.1	2.5	2.3	1.5	>0.05
Hb level(gm/dl)	11.6	0.9	10.2	2.3	10.6	0.8	0.4	>0.05
ESR level(mm/1st hour)	40.8	12.6	50.3	11.7	51.3	18.2	0.5	>0.05
CRP level(mg/l)	30.0	15.2	45.1	25.4	35.2	16.4	1.6	>0.05
USG knee Synovial Thickness (mm)	4.9	3.8	4.2	2.6	3.9	2.1	0.9	>0.05
USG knee effusion volume(cc)	3.6	2.2	3.9	2.6	4.2	3.6	0.7	>0.05
USG hip SJS width(mm)	3.8	2.2	4.1	1.8	4.6	2.6	0.3	>0.05

AI = Articular index
VAS = Visual analogue scale.
DAS = Disease activity score
JAFAR = Juvevile arthritis functional assessment record.
Hb =Hemoglobin level
ESR =Erythrocyte sedimentation rate
CRP =C-reactive protein
USG =Ultrasonographic
SJS = Synovial joint space

P>0.05 = Insignificant
P<0.05* = Significant
P<0.001** = Highly significant

Fig (13): Clinical findings in the JRA patients according to their functional capacity

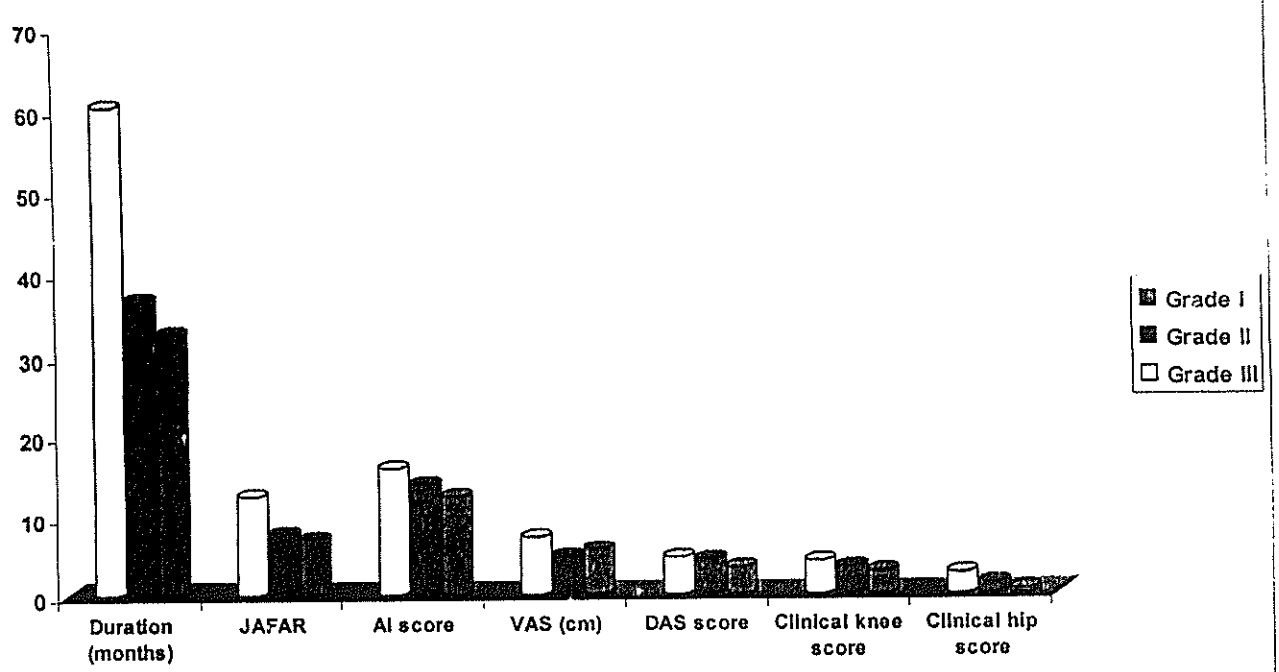


Fig (14): Ultrasonographic findings in the JRA patient according to their functional capacity.

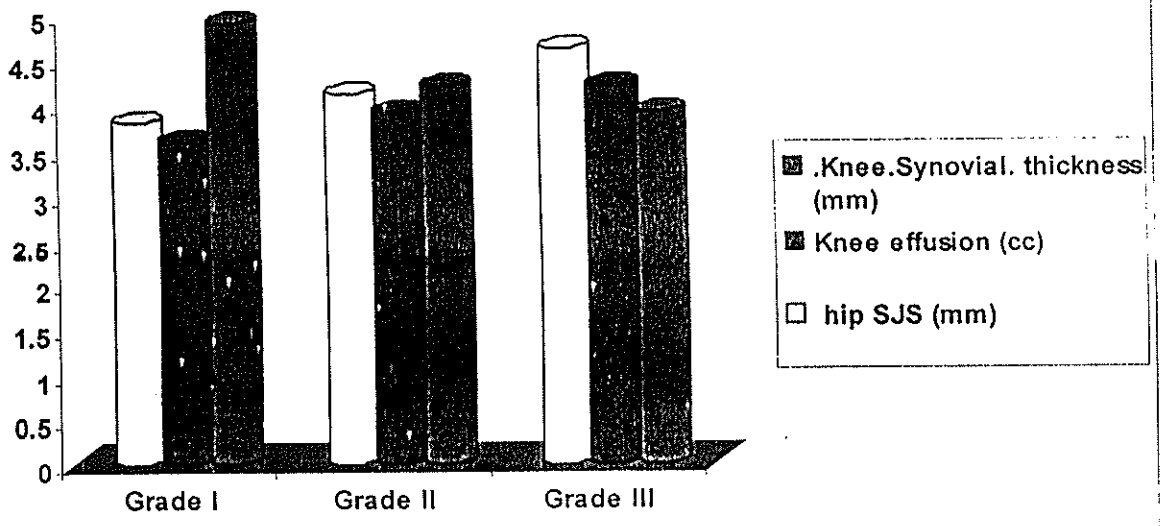


Table (10): Correlation coefficients between the clinical and laboratory variables of JRA patients in relation to their ultrasonographic findings

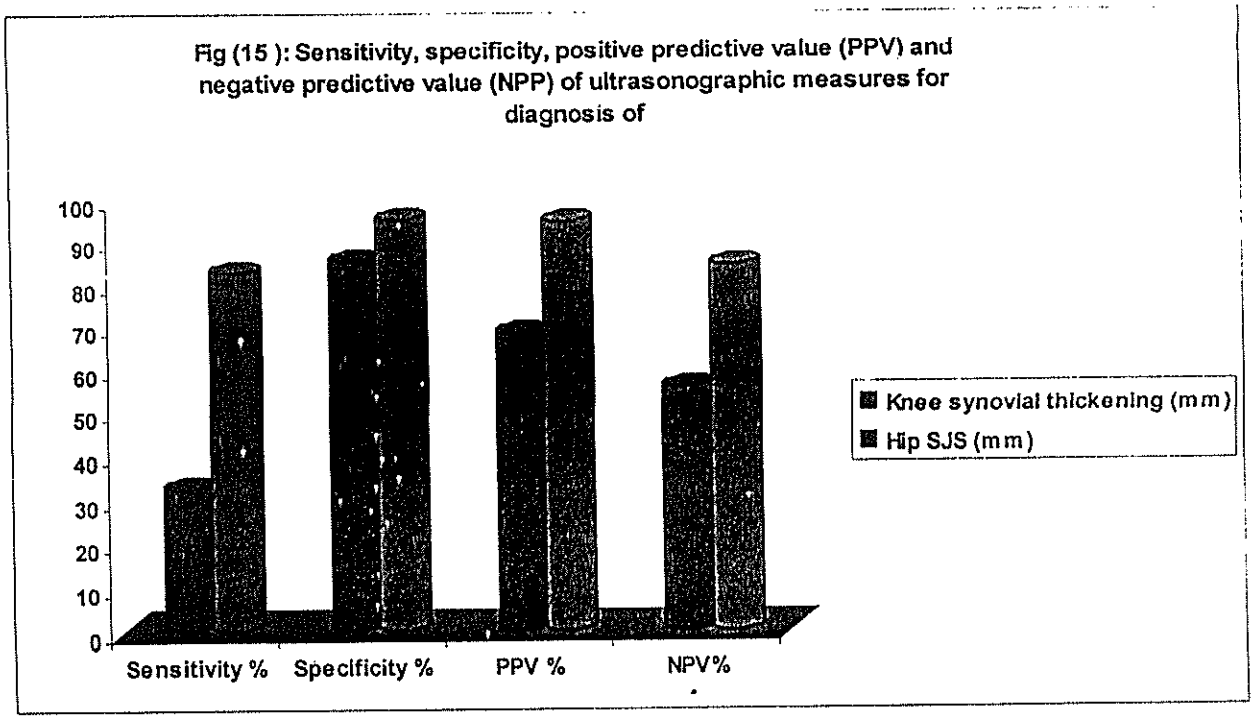
	USG.knee Syn. thickness	USG. Knee effusion volume	USG. HipSJS width
Disease duration(months)	0.18	0.23	0.17
AI score	0.74*	0.64*	0.36
VAS(cm)	0.21	0.41*	0.18
DAS score	0.73*	0.83*	0.52*
JAFAR score	0.13	0.37	0.25
Clinical knee score	0.71*	0.85*	0.11
Clinical hip score	0.23	0.15	0.43*
Hb level(gm/dl)	-0.31	-0.81*	-0.25
ESR level(mm/1st hour)	0.61*	0.44*	0.70*
CRP level(mg/l)	0.51*	0.45*	0.38

AI = Articular index
VAS = Visual analogue scale
DAS = Disease activity score
JAFAR= Juvevile arthritis functional assessment record
Hb =Hemoglobin level
ESR =Erythrocyte sedimentation rate
CRP = C-reactive protein
USG = Ultrasonographic
SJS = Synovial joint space

Critical value (r) = 0.39
P>0.05 = Insignificant
P<0.05* = Significant

Table (11): Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPP) of the ultrasonographic measures for diagnosis of joint activity in JRA patients.

Ultrasonographic findings	Sensitivity %	Specificity %	PPV %	NPV %
Knee Synovial. Thickness(mm)	82.5	95	94.3	84.4
Hip SJS(mm)	32.5	85	68.4	55.7



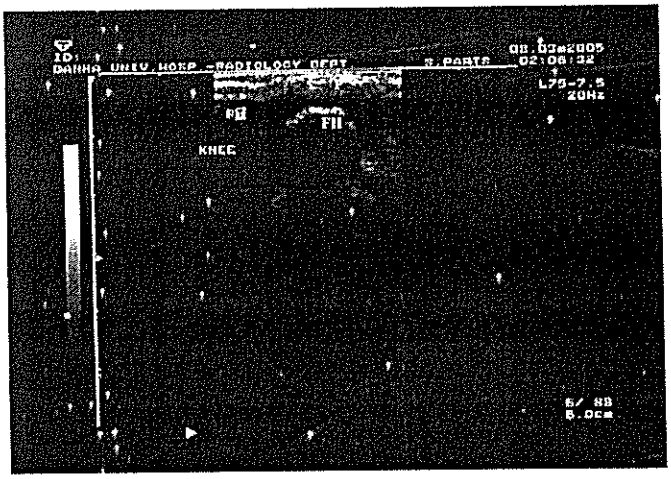


Figure (16): US of the Rt knee joint (ventral longitudinal scan of the suprapatellar pouch shows normal knee synovial thickness .

P= Patella FH= Femoral head

NB . No effusion is detected

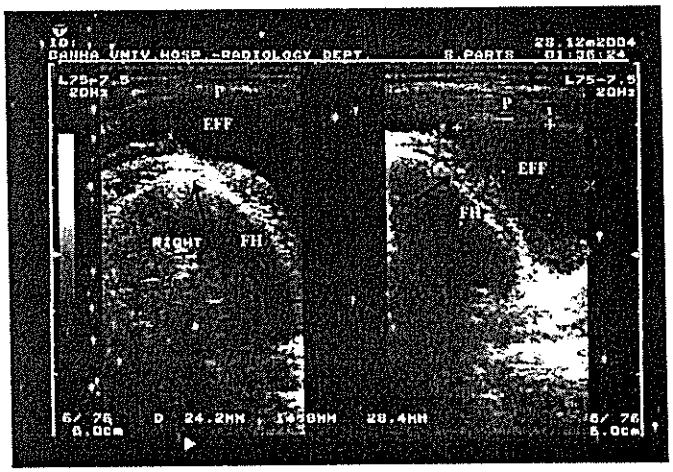


Figure (17): US of Rt knee joint (ventral longitudinal scan of the suprapatellar pouch) shows pathological knee synovial thickness (arrows) and knee effusion (EFF) in a patient with JRA .

P= Patella FH= Femoral head

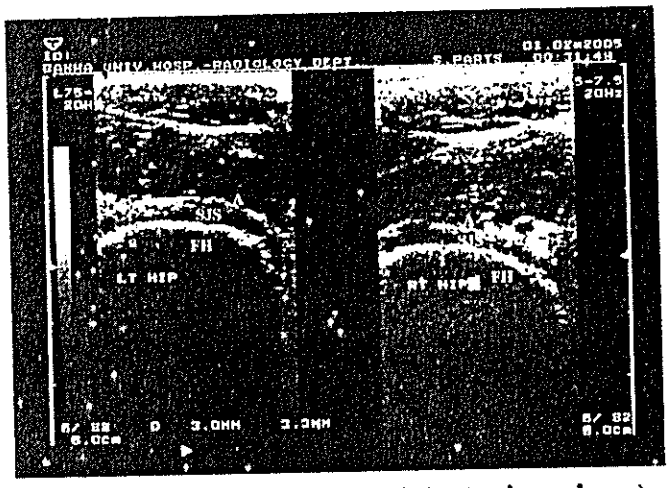


Figure (18): US of Rt and Lt hip joints (Anterior view) shows normal SJS width

A= Acetabulum FH= Femoral head

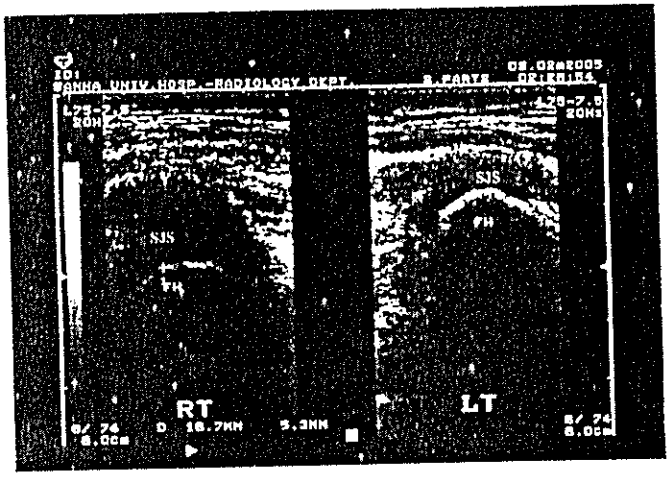


Figure (19): US of Rt and Lt hip joints (Anterior view) shows pathological wideni

SJS in a patient with JRA .

A= Acetabulum FH= Femoral head