

Results

Patient's characteristics:

The present study was carried out on three groups:

✎ Group I a:

Included 22 patients suffering from chronic renal failure underwent hemodialysis and we studied them pre-dialysis session.

-14 females&8males.

-Age ranged from 7to16years with a

Mean age of 11.65 ± 4.36 years.

✎ Group I b:

Included the same 22 patients suffering from chronic renal failure underwent hemodialysis and we studied them post dialysis sessions.

✎ Control group:

-Included 10 persons matched normal control.

-Females & males.

-Age ranged from 7 - 16 with a mean age of 13.36 ± 2.49 years.

There were no significant statistical difference between control group and group I a & b as regard age ($p > 0.117$). (Table 7).

Basic clinical characteristics:

Weight among the studied groups:

✎ Group I a:

Weight ranged from 19 to 75 Kg with a mean weight of 35.11 ± 13.69 Kg.

✎ Group I b:

Weight ranged from 16.80 to 73 Kg with a mean weight of 33.18 ± 12.64 Kg.

✎ Control group:

Weight ranged from 15.70 to 75 Kg with a mean weight of 35.92 ± 14.69 Kg.

- There were no significant statistical difference between G I a and control group as regards weight ($p>0.05$).
- There were no significant statistical difference between G I b and control group as regards weight ($p>0.05$).
- There were no significant statistical difference between G I a and G I b as regards weight ($p>0.05$). (Table 8).

Systolic blood pressure among the studied groups:

✎ Group I a:

Systolic blood pressure ranged from 100 to 170 mmhg with a mean systolic pressure 126.36 ± 15.58 mmhg.

✎ Group I b:

Systolic blood pressure ranged from 90 to 160 mmhg with a mean systolic pressure 113.18 ± 14.60 mmhg.

✎ Control group:

Systolic blood pressure ranged from 85 to 153 mmhg with a mean systolic pressure 116.39 ± 23.28 mmhg.

- There were highly significant statistical difference between group I a, group I b and control group ($p<0.05$). With group I a much higher than group I b and control group.

(Table 9).

Diastolic blood pressure among the studied groups:

✎ G I a:

Diastolic blood pressure ranged from 60 to 130 mmhg with a mean diastolic pressure 85.45 ± 17.92 mmhg.

✎ G I b:

Diastolic blood pressure ranged from 60 to 110 mmhg with a mean diastolic pressure 75 ± 10.57 mmhg.

✎ Control group:

Diastolic blood pressure ranged from 58 to 112 mmhg with a mean diastolic pressure 85 ± 15.39 mmhg.

- There were highly significant statistical difference between group I a, group I b and control group ($p<.05$) with group Ia equal to control group higher than group Ib.

-Laboratory investigation among the studied groups:

HB level among the studied groups:

G I a:

HB level ranged from 6 to 10.10 mg\ dL with a mean HB level 8.55 ± 1.27 mg\ dL.

G Ib:

HB level ranged from 7 to 11.5mg\ dL with a mean HB level 9.26 ± 2.35 mg\ dL .

- There were no significant statistical difference between group I a and group I b ($p>0.05$).

Blood urea level among the studied groups:

G I a:

Urea level ranged from 75 to 197mg\ dL with a mean of 129 ± 34.59 mg\ dL.

GI b:

Urea level ranged from 29 to 100mg\ dL with a mean of 57.59 ± 19.91 mg\ dL

- There were highly significant statistical difference between group I a and group I b ($p<0.001$).

Sodium level among the studied groups:

G I a:

Sodium level ranged from 123 to 164 mg\ dL with a mean of 142.5 ± 11.72 mg\ dL.

G I b:

Sodium level ranged from 120 to 166 mg\ dL with a mean of 147.04 ± 11.04 mg\ dL.

-There were no significant statistical difference between group I a and group I b ($p>0.05$).

Potassium level among the studied groups:

G I a:

Potassium level ranged from 3.10 to 8.90 mg\dl with a mean of 6.08 ± 1.49 mg\dl.

G I b:

Potassium level ranged from 3.30 to 5mg\dl with a mean of 3.76 ± 0.432 mg\dl.

-There were highly significant statistical difference between group I a and group I b ($p<0.001$).

Standard pulsed Doppler among the studied groups:

1-Early transmitral velocity E wave:

As regard mean values of E wave velocities, it was 50.52 ± 38.89 cm\s in group Ia, was 37.91 ± 16.23 cm\s in group Ib and was 39.92 ± 17.25 cm\s.in control group

-There were significant statistical difference between group I a, group I b and control group ($p<0.05$)

Table (13)

2-Atrial (late) transmitral velocity a wave:

As regard mean values of A wave velocities, it was (62.30 ± 20.01) cm\s in group Ia and was (47.91 ± 40.56) cm\s.

In group Ib and was (46.69 ± 18.26) cm\s in Control group

There were significant statistical difference between group I a group I b and control group ($p<0.05$) with mean value of GI a is much higher than mean values of group Ib and control group.

(table 14).

3-Ratio of early to late transmitral velocities E\A:

- **G I a:** Ranged from 0.60 to 2.30, **G I b** Ranged from 0.50 to 2.60 and Control group Ranged from 1.30 to 3.30.

The mean levels of E\A ratio in group Ia was 1.40 ± 0.41 .and 1.31 ± 0.12 .in group Ib and was 1.11 ± 0.61 in control group

There were significant statistical difference between group I a group I b and control group ($p < 0.05$) with group Ib was much higher than group Ia and control group (table 15).

Tissue Doppler imaging among the studied groups:

(1) Diastolic lateral annular velocities:

1- Early diastolic lateral annular velocities:

As regard early diastolic lateral annular velocities (Ea wave), mean values of group Ia was $12.54 \pm 3.72 \text{ cm/s}$, it was $10.48 \pm 3.85 \text{ cm/s}$.in group Ib and was $11.39 \pm 14.93 \text{ cm/s}$ in control group.

There were significant statistical difference between group I a, group I b and control group ($p < 0.05$).With mean values in group Ia was much higher than control group GII and group Ib.(table 16).

2-Late diastolic lateral annular velocities A wave:

As regard early diastolic lateral annular velocities (Aa wave), mean values of group Ia was $8.57 \pm 3.02 \text{ cm/s}$,it was $8.95 \pm 2.42 \text{ cm/s}$ in group Ib and it was $15.75 \pm 8.02 \text{ cm/s}$ in control group.

- There were significant statistical difference between group I a, group I b and control group ($p < 0.05$).With group Ia was much lower than control group GII and group Ib. (table 17).

3-Ratio of early to late diastolic lateral annular velocities E\A:

As regard early diastolic lateral annular velocities (Ea\Aa ratio), mean values of group Ia was 1.62 ± 0.68 , it was 1.33 ± 0.52 in group Ib and was 1.96 ± 0.58 in control group. .

-There were significant statistical difference between group I a group I b and control group ($p < 0.05$).with mean values of group GIb was much lower than group Ia and control group GII. (table 18).

(II) Diastolic septal annular velocities:

1-Early diastolic septal annular velocities E wave:

As regard early diastolic septal annular velocities (Ea wave), mean values of group Ia was 11.03 ± 2.19 cm/s, it was 10.90 ± 2.66 cm/s in group Ib and was 9.57 ± 7.46 cm/s in control group.

-There were significant statistical difference between group I a group I b and control group. ($p < 0.05$). With mean values of group Ia was much higher than control group GII and group I b.

(table 19).

2-Late diastolic septal annular velocities A wave:

As regard early diastolic septal annular velocities (Aa wave), mean values of group Ia was 8.85 ± 3.68 cm/s, it was 9.75 ± 3.16 cm/s in group Ib and was 18.04 ± 6.38 cm/s in control group. .

-There were significant statistical difference between group I a group I b and control group ($p < 0.05$). With group Ia was much lower than group Ib and control group GII (table 20).

3-Ratio of early to late diastolic septal annular velocity E\A:

As regard early diastolic septal annular velocities (Ea\Aa ratio), mean values of group Ia was 1.37 ± 0.55 , it was 0.93 ± 0.51 . in group Ib and it was 0.86 ± 0.27 in control group. .

-There were significant statistical difference between group I a group I b and control group ($p < 0.05$). With group Ia was much higher than control group and group I b (table 21).