

RESULTS

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The cases under study were divided into 3 groups according to the type of the renal injury .

Group (1) : The cases showed no tubular or glomerular injury .

This group was formed of 11 males and 3 females .

Group (2) : The cases showed tubular dysfunction only without evidence of A.R.F. . This group was formed of 9 males and 5 females .

Group (3) : The cases showed evidence of A.R.F.

This group was formed of 7 males and 3 females .

The results of this work were illustrated in the following tables :-

Table (6) :

It presented the number, sex, range, mean and standard deviation of gestational age (in weeks) and birth weight (in kg) for the three groups and control group .

Control group : Showed a mean gestational age of 40 ± 1.05 w, and a mean birth weight of 3.28 ± 0.19 kg .

Group I : Showed a mean gestational age of 40.64 ± 0.93 w, and a mean birth weight of 3.42 ± 0.22 kg .

Group II : Showed a mean gestational age of 40.43 ± 0.92 w, and a mean birth weight of 3.43 ± 0.22 kg .

Group III : Showed a mean gestational age of 40.40 ± 1.17 w, and a mean birth weight of 3.49 ± 0.26 kg .

There were no significant differences between the three groups and control group, and there were no significant differences inbetween the three groups , regarding their gestational age and birth weight .

Table(7.7)^a:

It presented the range, mean, and standard deviation of Apgar score at 1,5,10, and 20 min for the three groups and control group.

Control group :

At 1 min, the range was 7-9, and mean was 8.1 ± 0.74
At 5 min, the range was 8-10, and the mean was 9.2 ± 0.63
At 10 min, the range was 9-10 , and mean was 9.3 ± 0.67
At 20 min, the range was 9-10, and the mean was 9.9 ± 0.32

Group I :

At 1 min, the range was 7-9 , and the mean was 8.54 ± 0.65
At 5 min. the range was 8-10 , and the mean was 9.29 ± 0.61
At 10 min, the range was 9-10 , and the mean was 9.64 ± 0.50
At 20 min, the range was 9-10 , and the mean was 9.93 ± 0.27

Group II :

At 1 min, the range was 4-6 , and the mean was 5.07 ± 0.73
At 5 min, the range was 6-8 , and the mean was 6.64 ± 0.63
At 10 min, the range was 7-9 , and the mean was 7.71 ± 0.73
At 20 min, the range was 8-9 , and the mean was 8.64 ± 0.50

Group III :

At 1 min, the range was 2-4 , and the mean was 2.20 ± 0.63

At 5 min, the range was 4-6 , and the mean was 5.20 ± 0.63

At 10 min, the range was 6-7 , and the mean was 6.80 ± 0.73

At 20 min, the range was 7-8 , and the mean was 7.60 ± 0.52

The Apgar scores were significantly lower in group III at each 1,5,10, and 20 min than for group II and group I and control group. Also the Apgar scores were significantly lower in group II at each 1,5,10, and 20 min than for group I and control group, but there was no significant difference between group I and control group .

Table (8) :

It presented the mean and standard deviation values of serum urea in mg/dl , serum creatinine in mg/dl , and urine creatinine in mg/dl .

Control group :

The mean value for serum urea was 53 ± 6.5 mg/dl .

The mean value for serum creatinine was 0.68 ± 0.08 mg/dl .

The mean value for urine creatinine was $43,1 \pm 22.09$ mg/dl .

Group I :

The mean value for serum urea was 53.93 ± 8.85 mg/dl ,

The mean value for serum creatinine was 0.69 ± 0.07 mg/dl ,

The mean value for urine creatinine was 44.71 ± 11.3 mg/dl .

Group II :

The mean value for serum urea was 56.64 ± 2.27 mg/dl ,

The mean value for serum creatinine was 0.72 ± 0.08 mg/dl ,
The mean value for urine creatinine was 46.74 ± 25.26 mg/dl ,

Group III :

The mean value for serum urea was 57.3 ± 3.97 mg/dl ,
The mean value for serum creatinine was 0.8 ± 0.28 mg/dl ,
The mean value for urine creatinine was 53.69 ± 15.22 mg/dl .

The differences in the serum urea were statistically insignificant inbetween the three groups and between the three groups and control group .

Again, the differences between the three groups as regarding the serum creatinine were statistically insignificant and between the three groups and control group .

Also, the differences inbetween the three groups as regarding the urine creatinine were statistically insignificant and between the three groups and control group .

Table (9) :

It presented the range, mean, and standard deviation of the three groups and control group as regarding the glomerular filtration rate .

Control group :

The range was 15-27 ml/min/ 1.73 m^2 , and the mean was 21 ± 5.35 ml/min/ 1.73 m^2 .

Group I :

The range was 16-30.7 ml/min/ 1.73 m^2 , and the mean was

21.39±5.03 ml/min/1.73m² .

Group II :

The range was 16-52 ml/min/1.73m², and the mean was 20.23±11.03 ml/min/1.73m² .

Group III :

The range was 1.8-11.17 ml/min/1.73m² , and the mean was 4.98±3.02 ml/min/1.73m² .

In group III, the glomerular filtration was significantly lower than group II, group I and control group . But the differences between group I, group II, and control group were statistically insignificant .

Table (10):

It presented the mean and standard deviation of the three groups and control group as regarding the Up/Ucr, and UA/Ucr.

Control group :

The mean for Up/Ucr was 230±127.37 mg/mmol .

The mean for UA/Ucr was 17±7.53 mg/mmol .

Group I :

The mean for Up/Ucr was 235.71±152.52 mg/mmol .

The mean for UA/Ucr was 17.5±9.69 mg/mmol .

Group II :

The mean for Up/Ucr was 538.21±106.581 mg/mmol .

The mean for UA/Ucr was 23.93±8.72 mg/mmol .

Group III :

The mean for Up/Ucr was 1209 ± 435.15 mg/mmol .

The mean for UA/Ucr was 223 ± 83.14 mg/mmol .

The Up/Ucr, and UA/Ucr in group III were significantly higher than group II, group I and control group, while there were no significant differences between group I , group II and control group as regarding Up/Ucr and UA/Ucr .

Table(11):

It presented the mean and standard deviation of the three groups and control group as regarding the UR.B.P/Ucr .

Control group :

The mean was 1510 ± 699.21 µg/mmol .

Group I :

The mean was 1717.79 ± 2842.36 µg/mmol .

Group II :

The mean was 8340.5 ± 2828.19 µg/mmol .

Group III :

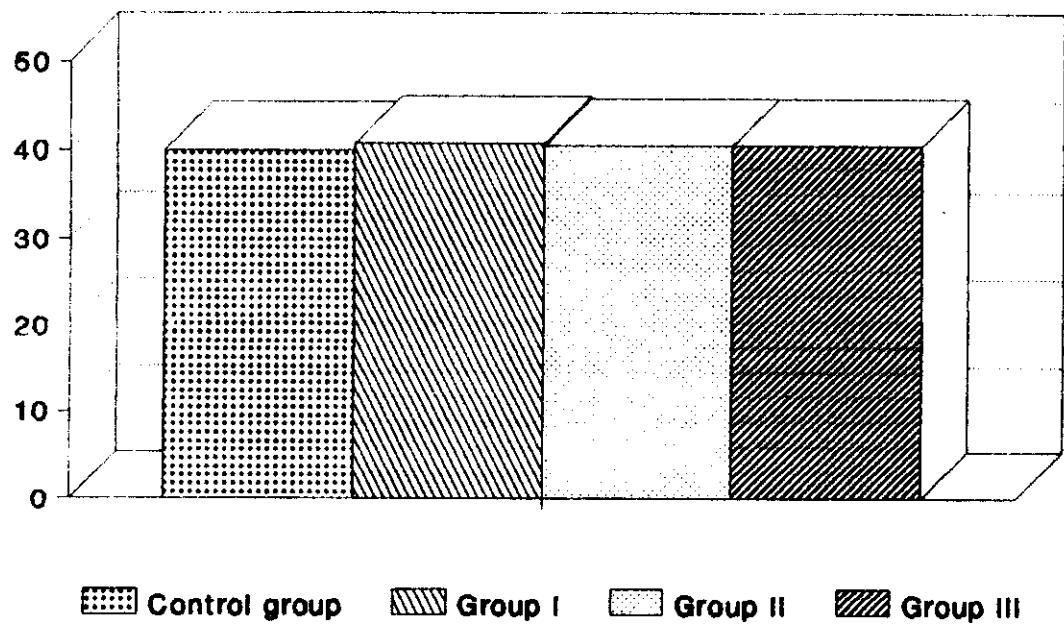
The mean was 42766.8 ± 25218.17 µg/mmol .

There were significant differences between the three groups as regarding UR.B.P/Ucr, but, there was no significant difference between group I and control group .

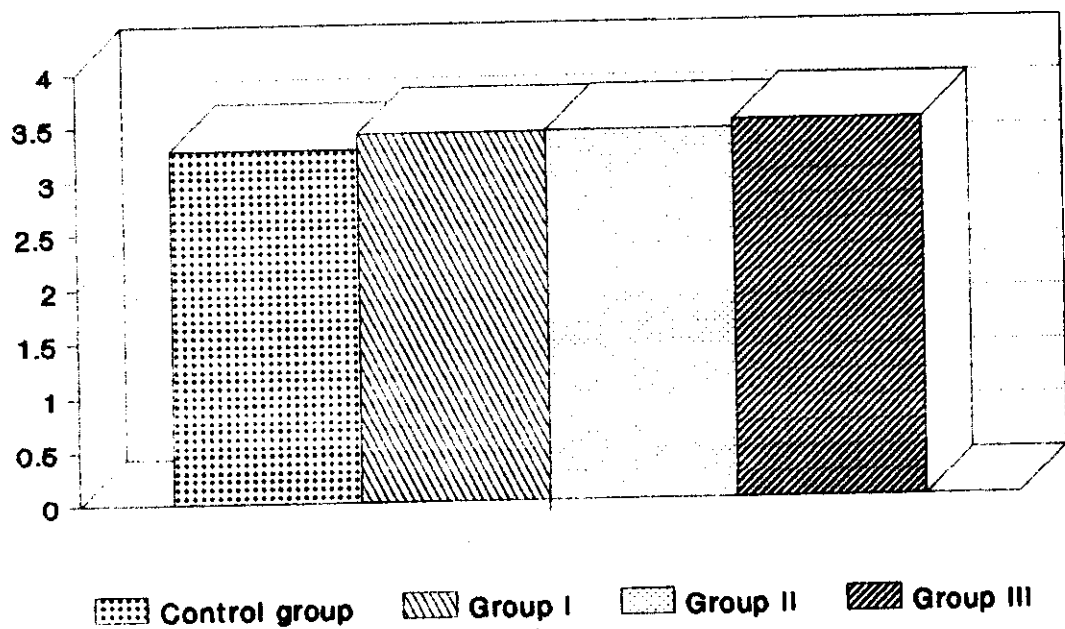
Table 6 : Number, sex, gestational age (G.A), and body weight (B.W) distribution of neonates under study in the three groups and control group .

| | Group (I) | Group (II) | Group (III) | control group | P |
|----------------|------------|------------|-------------|---------------|-------|
| Number | 14 | 14 | 10 | 10 | |
| Sex | 10M 4F | 9M 5F | 7M 3F | 6M 4 F | |
| GA | 39-42 | 39-42 | 39-42 | 38-41 | |
| range | | | | | |
| mean & S.D. | 40.64±0.93 | 40.43±0.92 | 40.40±1.17 | 40±1.05 | |
| T ₁ | | 0.06075 | | | >0.05 |
| T ₂ | | | 0.5439 | | >0.05 |
| T ₃ | | | 0.0638 | | >0.05 |
| T ₄ | | | | 1.5468 | >0.05 |
| T ₅ | | | | 1.0277 | >0.05 |
| T ₆ | | | | 0.8836 | >0.05 |
| B.W | 3.1-3.8 | 3-3.7 | 3.2-3.9 | 2.8-3.4 | |
| range | | | | | |
| mean & S.D. | 3.42±0.22 | 3.43±0.22 | 3.49±0.26 | 3.28±0.19 | |
| T ₁ | | 0.0861 | | | >0.05 |
| T ₂ | | | 0.6755 | | >0.05 |
| T ₃ | | | 0.5980 | | >0.05 |
| T ₄ | | | | 1.7116 | >0.05 |
| T ₅ | | | | 1.7664 | >0.05 |
| T ₆ | | | | 2.0494 | >0.05 |

T₁ = T between group I and group II
 T₂ = T between group II and group III
 T₃ = T between group I and group III
 T₄ = T between group I and Control group
 T₅ = T between group II and Control group
 T₆ = T between group III and Control group



**Fig (3): Gestational age (W)
in all groups**



**Fig (3): Body weight (Kg)
in all groups**

Table 7 : Range, mean and standard deviation of Apgar score at 1 and 5 min. in the three groups and control group .

| Apgar score | | Group (I) | Group (II) | Group (III) | Control group | P |
|-------------|----------------|-----------|------------|-------------|---------------|--------|
| 1 min | range | 7-9 | 4-6 | 2-4 | 7-9 | |
| | mean & S.D. | 8.54±0.65 | 5.07±0.73 | 2.20±0.63 | 8.10±0.74 | |
| | T ₁ | | 13.4321 | | | <0.05* |
| | T ₂ | | | 24.115 | | <0.05* |
| | T ₃ | | | 10.2768 | | <0.05* |
| | T ₄ | | | | 1.0624 | >0.05 |
| | T ₅ | | | | 9.9572 | <0.05* |
| 5 min | T ₆ | | | | 19.983 | <0.05* |
| | range | 8-10 | 6-8 | 4-6 | 8-10 | |
| | mean & S.D. | 9.29±61 | 6.64±0.63 | 5.20±0.63 | 9.2±0.63 | |
| | T ₁ | | 11.2348 | | | <0.05* |
| | T ₂ | | | 15.8214 | | <0.05* |
| | T ₃ | | | 5.5069 | | <0.05* |
| | T ₄ | | | | 0.3319 | >0.05 |
| | T ₅ | | | | 9.7597 | <0.05* |
| | T ₆ | | | | 14.1421 | <0.05* |

Table 7-a : Range, mean and standard deviation of Apgar score at 10 and 20 min. in the three groups and control group .

| Apgar score | Group (I) | Group (II) | Group (III) | Control group | P |
|----------------|-----------|------------|-------------|---------------|--------|
| 10 min | 9-10 | 7-9 | 6-7 | 9-10 | |
| range | | | | | |
| mean & S.D. | 9.64±0.50 | 7.71±0.73 | 6.80±0.73 | 9.3±0.67 | |
| T ₁ | | 8.1283 | | | <0.05* |
| T ₂ | | | 15.1814 | | <0.05* |
| T ₃ | | | 3.8825 | | <0.05* |
| T ₄ | | | | 1.3636 | >0.05 |
| T ₅ | | | | 5.4964 | <0.05* |
| T ₆ | | | | 9.9340 | <0.05* |
| 20 min | 9-10 | 8-9 | 7-8 | 9-10 | |
| range | | | | | |
| mean & S.D. | 9.92±0.27 | 8.64±0.50 | 7.60±0.52 | 9.9±0.32 | |
| T ₁ | | 8.5218 | | | <0.05* |
| T ₂ | | | 13.06644 | | <0.05* |
| T ₃ | | | 4.9532 | | <0.05* |
| T ₄ | | | | 0.2325 | >0.05 |
| T ₅ | | | | 7.5588 | <0.05* |
| T ₆ | | | | 12.0114 | <0.05* |

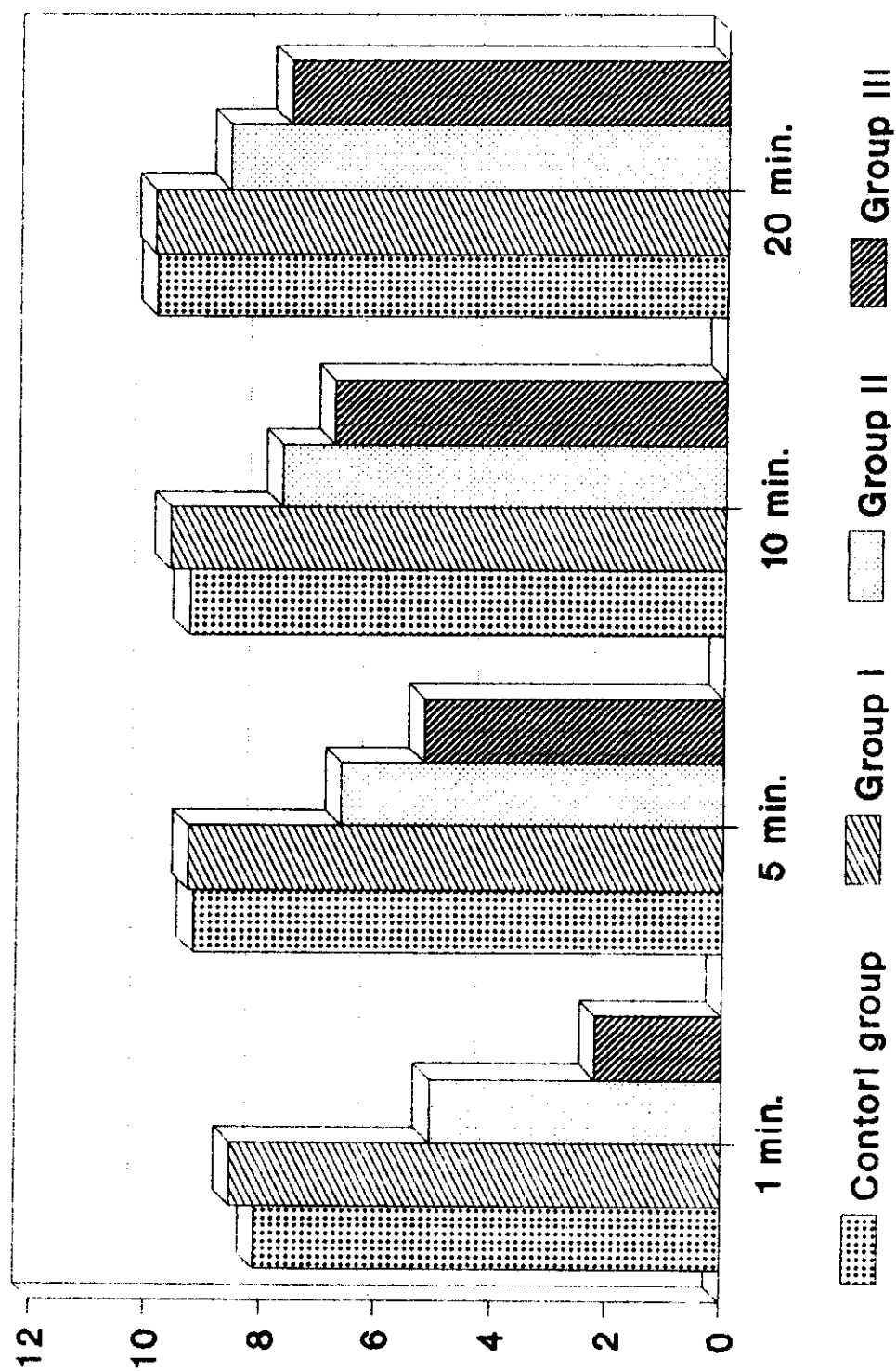
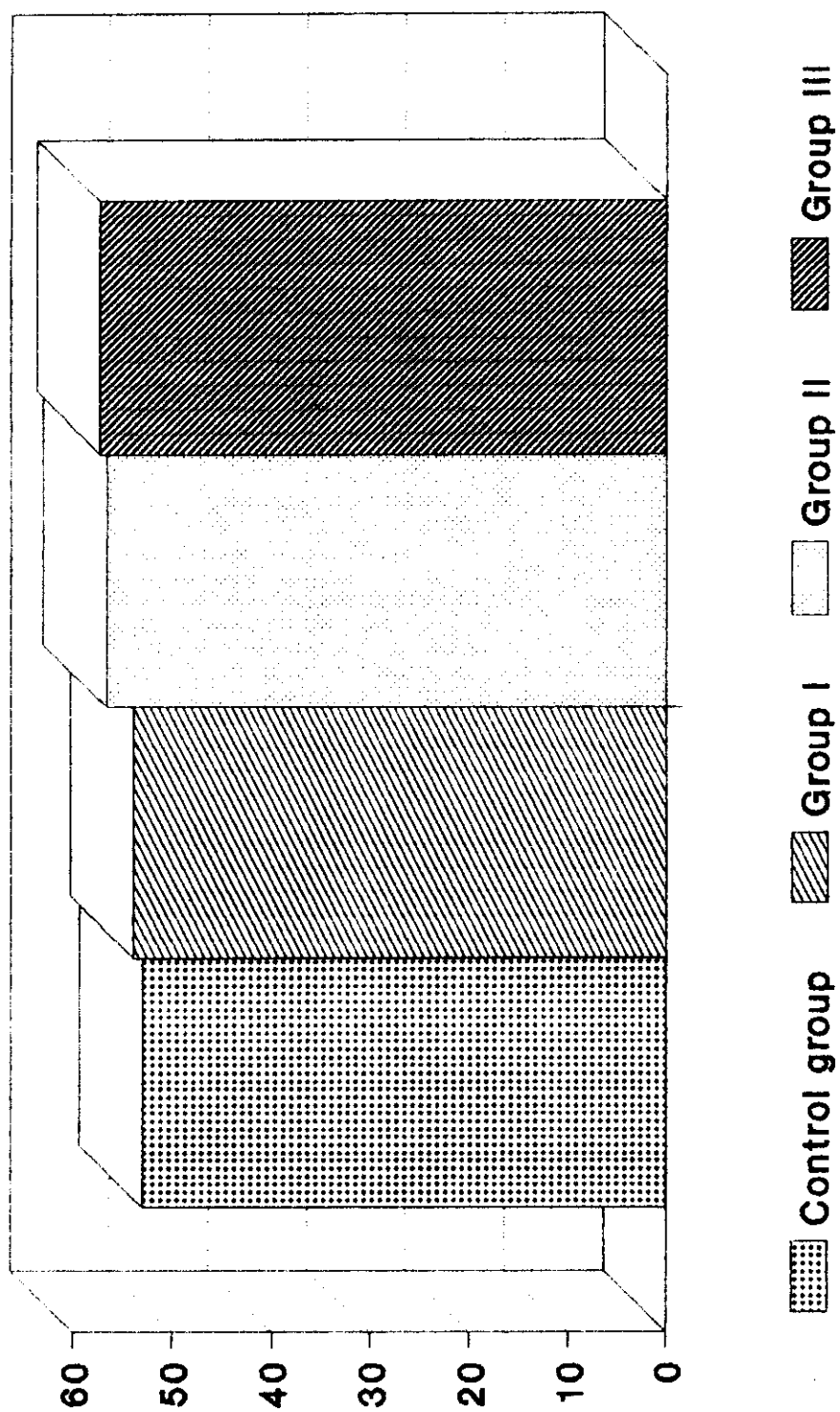


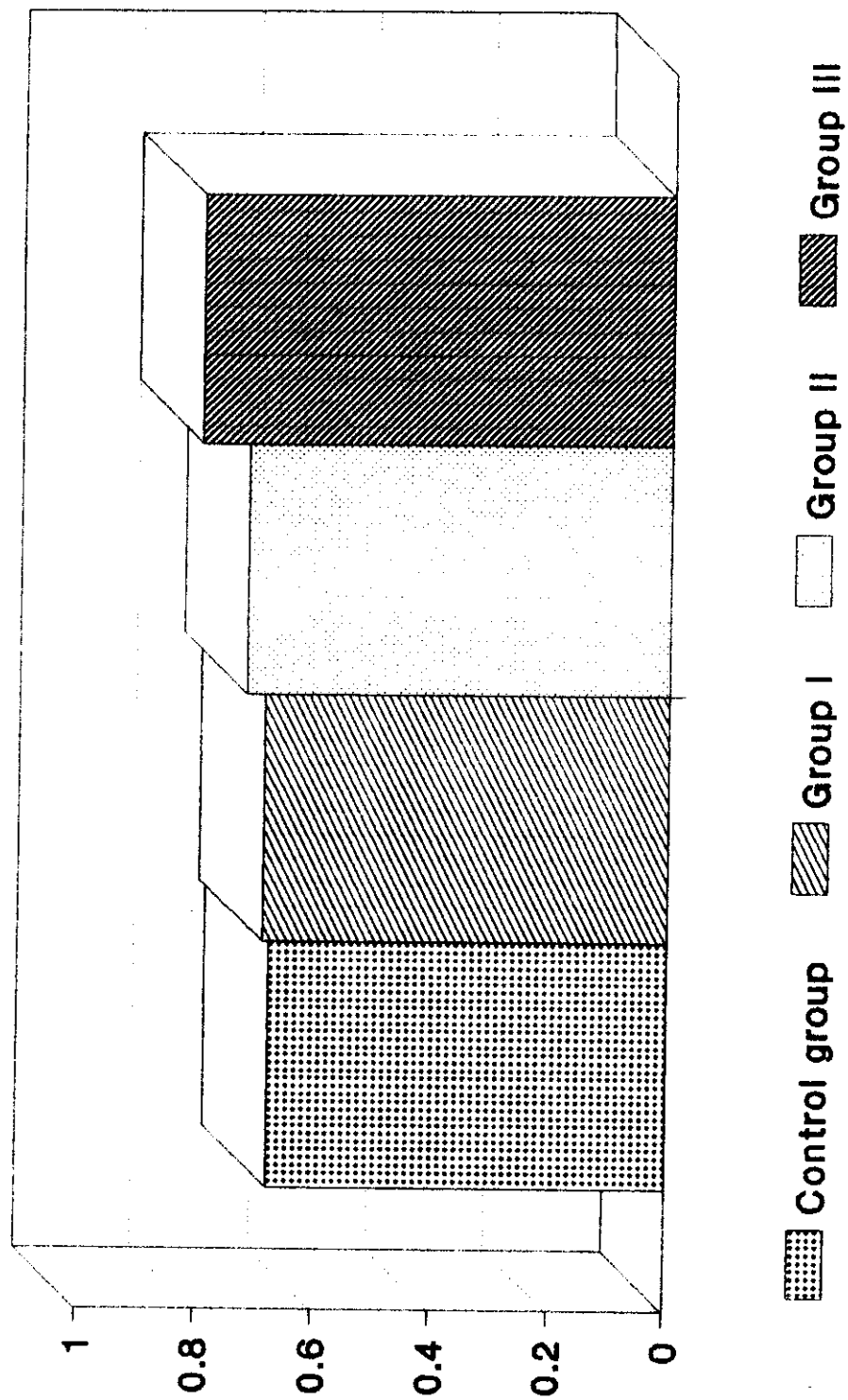
Fig (4): Apgar score in all groups

Table 8 : Mean and standard deviation of serum urea, serum creatinine and urine creatinine in the three groups and control group .

| | Group (I) | Group (II) | Group (III) | Control group | P |
|---------------------------|----------------|-------------|-------------|---------------|-------|
| Serum urea mg/dl | mean & S.D. | 53.93±8.85 | 57.30±3.97 | 53±6.5 | |
| | T ₁ | 1.111 | | | >0.05 |
| | T ₂ | | 1.209 | | >0.05 |
| | T ₃ | | 0.4706 | | >0.05 |
| | T ₄ | | | 0.4249 | >0.05 |
| | T ₅ | | | 1.7001 | >0.05 |
| | T ₆ | | | 1.7853 | >0.05 |
| Serum creatinine mg/dl | mean & S.D. | 0.69±0.07 | 0.80±0.28 | 0.68±0.08 | |
| | T ₁ | 0.9522 | | | >0.05 |
| | T ₂ | | 1.1533 | | >0.05 |
| | T ₃ | | 0.8471 | | >0.05 |
| | T ₄ | | | 0.4177 | >0.05 |
| | T ₅ | | | 1.2658 | >0.05 |
| | T ₆ | | | 1.2822 | >0.05 |
| Urine creatinine mg/dl | mean & S.D. | 44.71±11.30 | 53.96±15.22 | 43.1±22.09 | |
| | T ₁ | 1.8249 | | | >0.05 |
| | T ₂ | | 0.2372 | | >0.05 |
| | T ₃ | | 0.8053 | | >0.05 |
| | T ₄ | | | 0.0621 | >0.05 |
| | T ₅ | | | 0.3430 | >0.05 |
| | T ₆ | | | 1.5868 | >0.05 |



**Fig (5): Serum urea (mg/dl)
in all groups**



**Fig (6) : Serum creatinine (mg/dl)
in all groups**

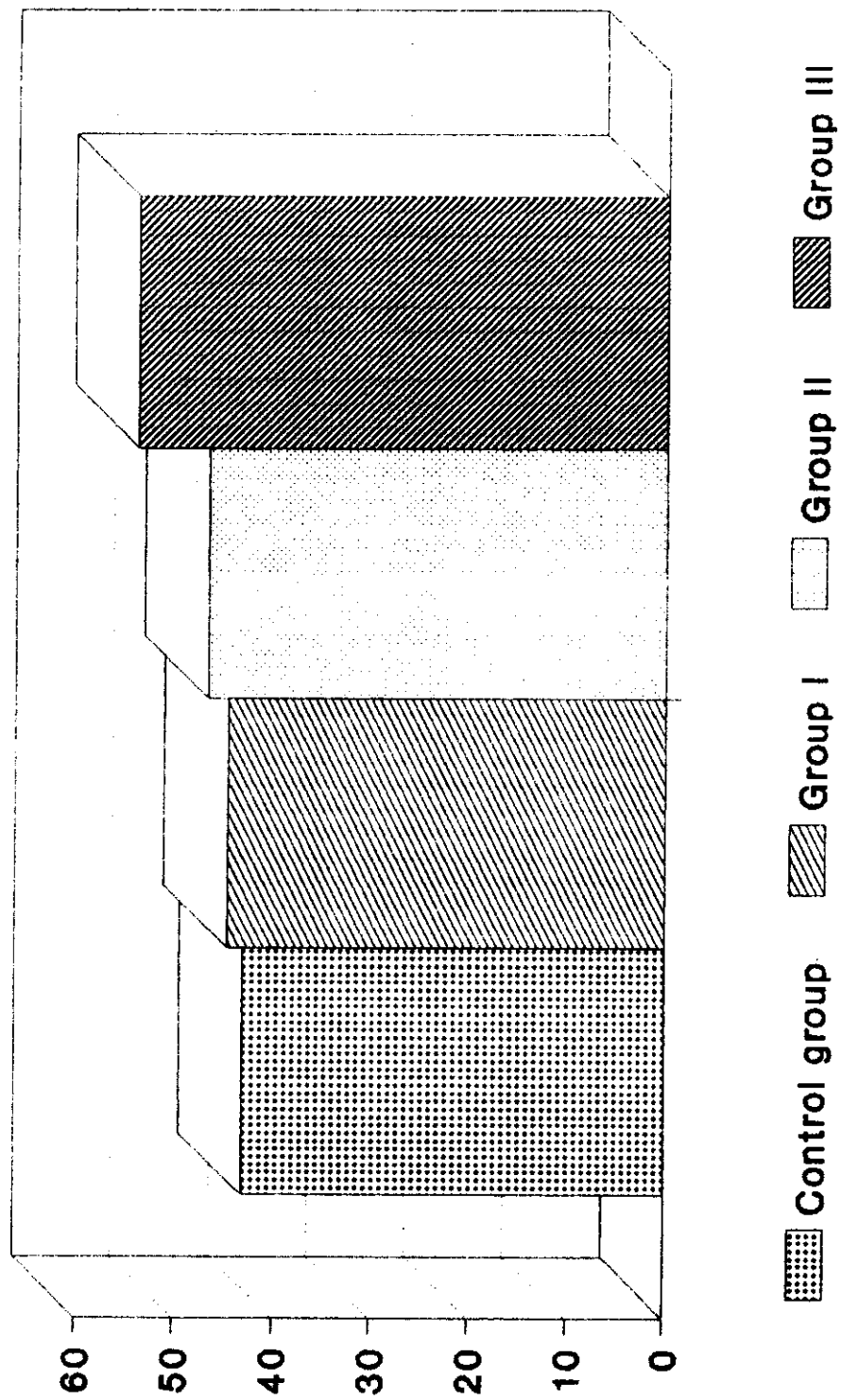


Fig (7): Urine creatinine (mg/dl)
in all groups

Table 9 : Range, mean and standard deviation of G.F.R in the three groups and control group .

| | Group (I) | Group (II) | Group (III) | Control group | P |
|--|----------------|------------|-------------|---------------|--------|
| G.F.R ml/min/ 1.73m ² | range | 16-30.7 | 1.8-11.17 | 15-27 | |
| | mean & S.D. | 21.39±5.03 | 4.98±3.02 | 21±5.35 | |
| | T ₁ | 1.1830 | | | >0.05 |
| | T ₂ | | 9.9588 | | <0.05* |
| | T ₃ | | 6.5341 | | <0.05* |
| | T ₄ | | | 0.2984 | >0.05 |
| | T ₅ | | | 1.2561 | >0.05 |
| | T ₆ | | | 8.2413 | <0.05* |

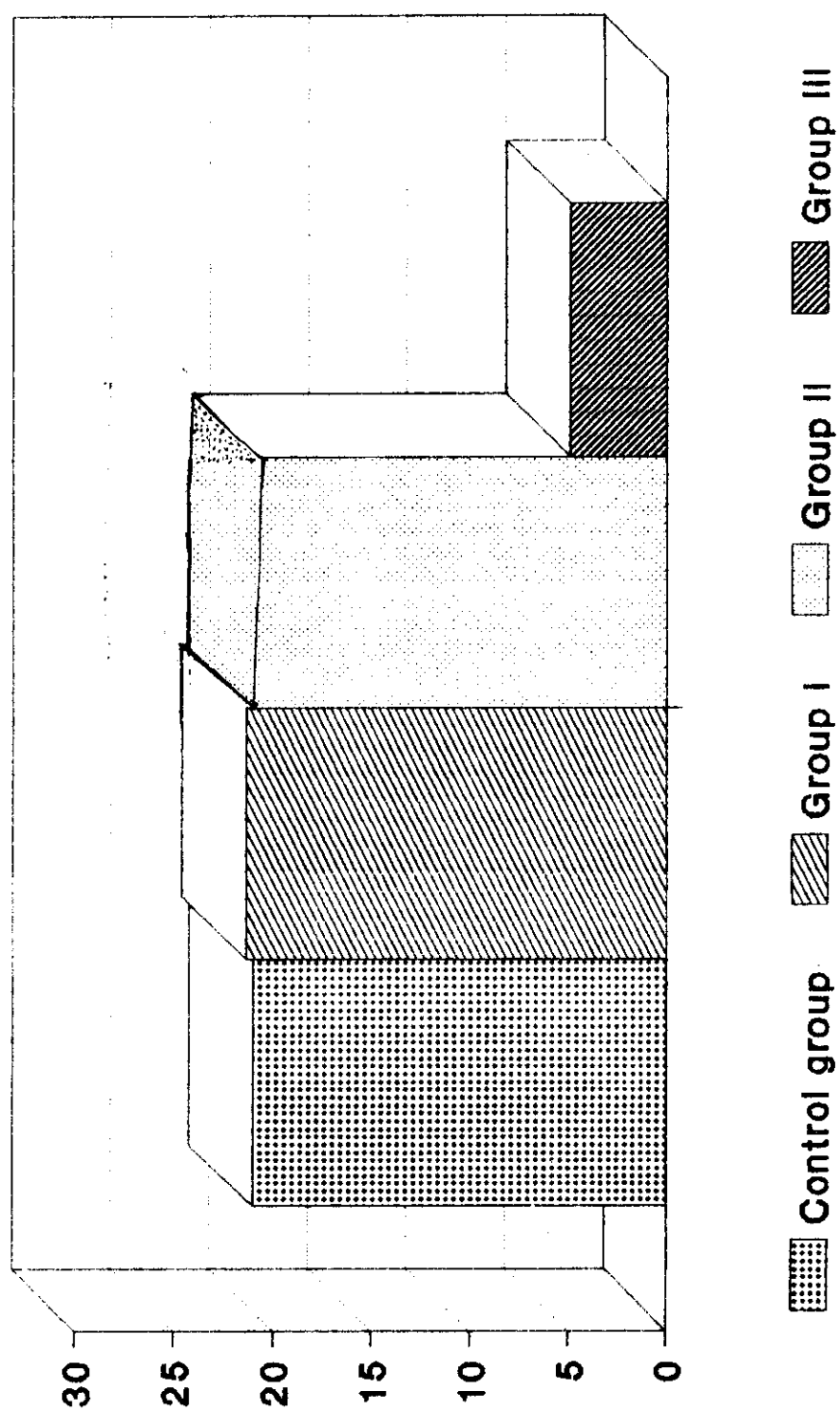
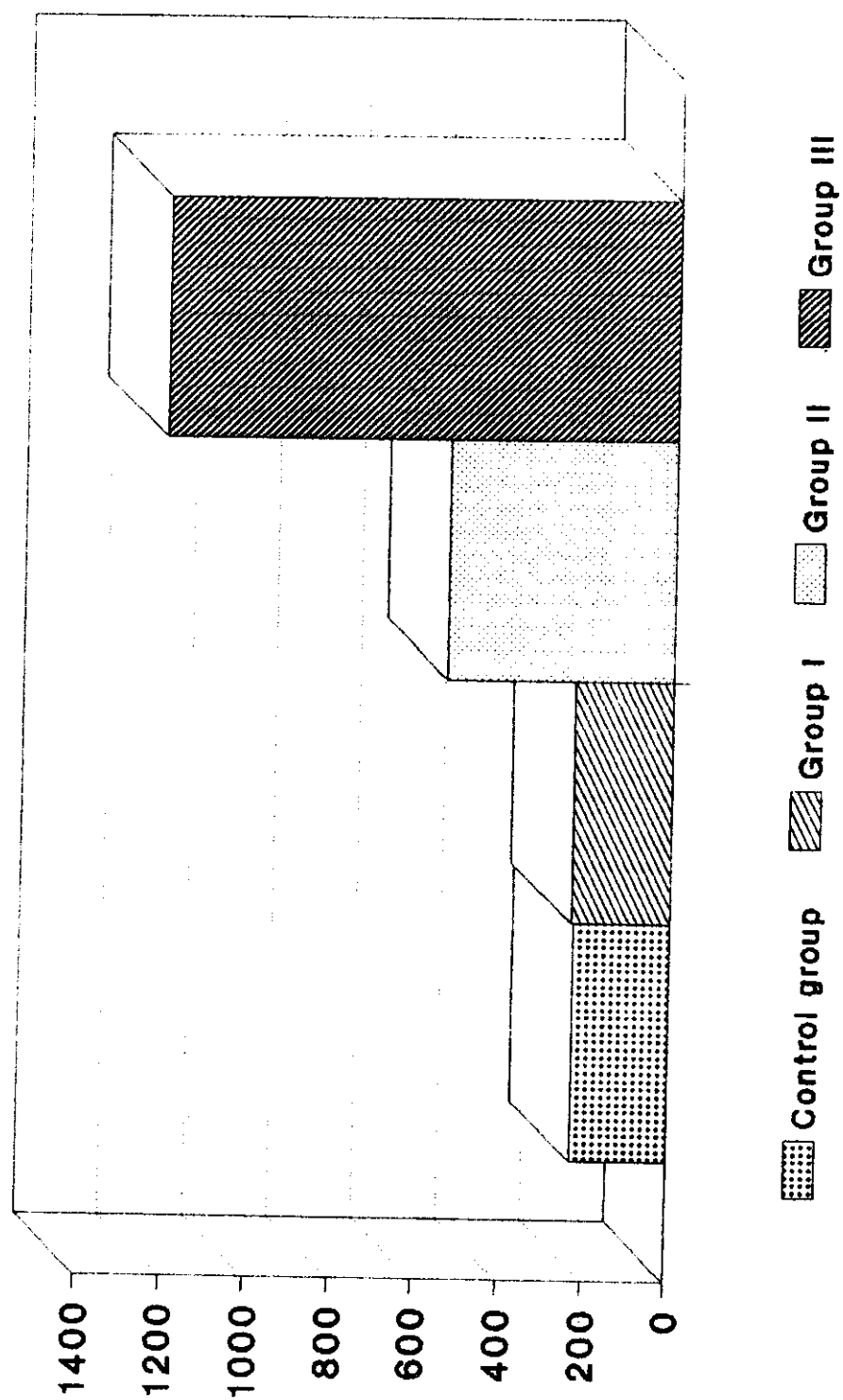


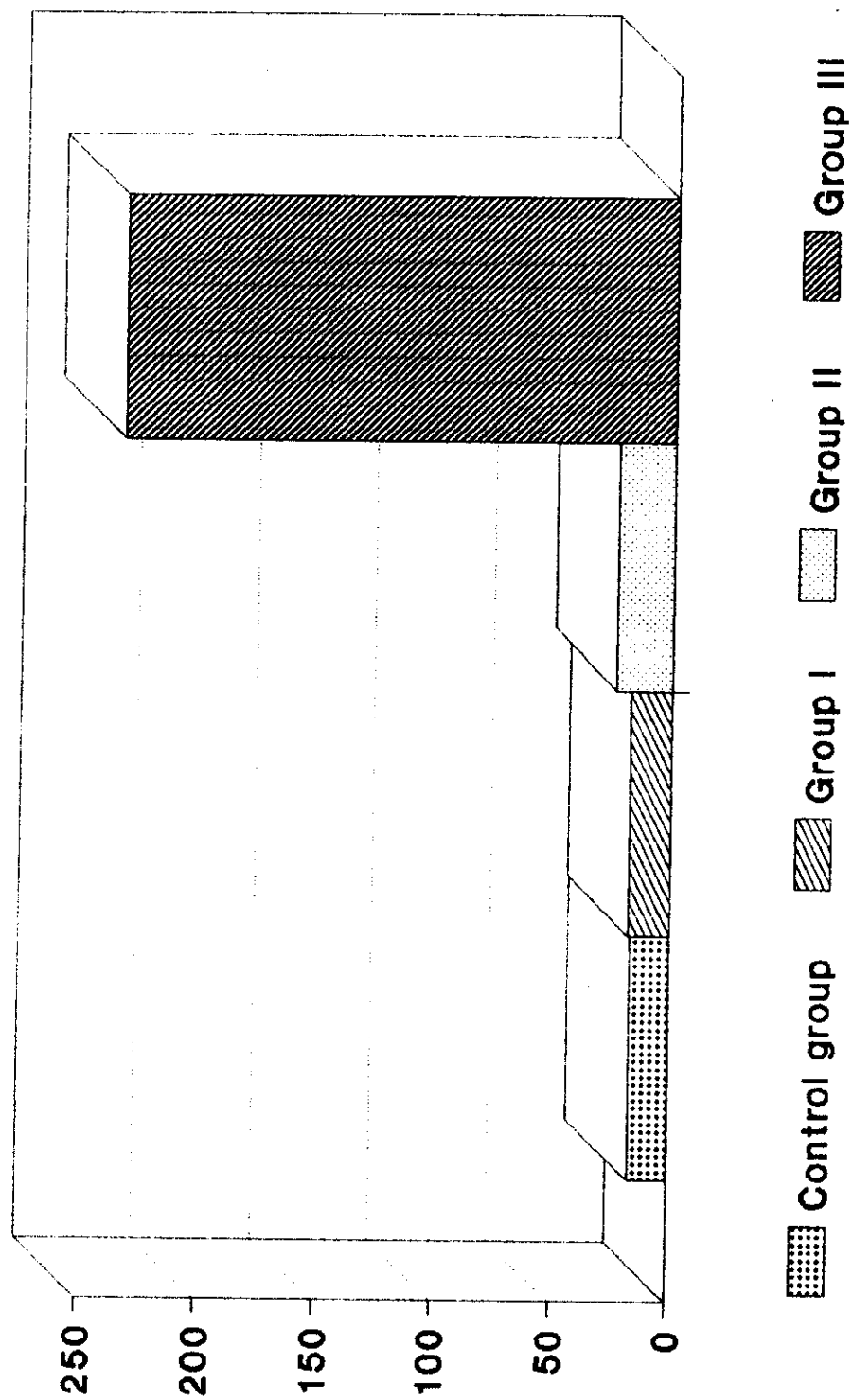
Fig (8): G.F.R. (ml/min/1.73m²)
in all groups

Table 10 : Mean and standard deviation of Up/Ucr and UA/Ucr in the three groups and control group .

| | Group (I) | Group (II) | Group (III) | Control group | P |
|-------------------|----------------|---------------|-------------|---------------|--------|
| Up/Ucr mg/mmol | mean & S.D. | 235.71±152.52 | 1209±435.15 | 230±127.37 | |
| | T ₁ | 1.0513 | | | >0.05 |
| | T ₂ | | 6.7817 | | <0.05* |
| | T ₃ | | 2.1204 | | <0.05* |
| | T ₄ | | | 0.4198 | >0.05 |
| | T ₅ | | | 0.4215 | >0.05 |
| | T ₆ | | | 6.8280 | <0.05* |
| UA/Ucr mg/mmol | mean & S.D. | 17.5±9.69 | 223±83.14 | 17±7.53 | |
| | T ₁ | 1.8455 | | | >0.05 |
| | T ₂ | | 7.8010 | | <0.05* |
| | T ₃ | | 7.5646 | | <0.05* |
| | T ₄ | | | 0.1422 | >0.05 |
| | T ₅ | | | 2.0795 | >0.05 |
| | T ₆ | | | 7.8256 | <0.05* |



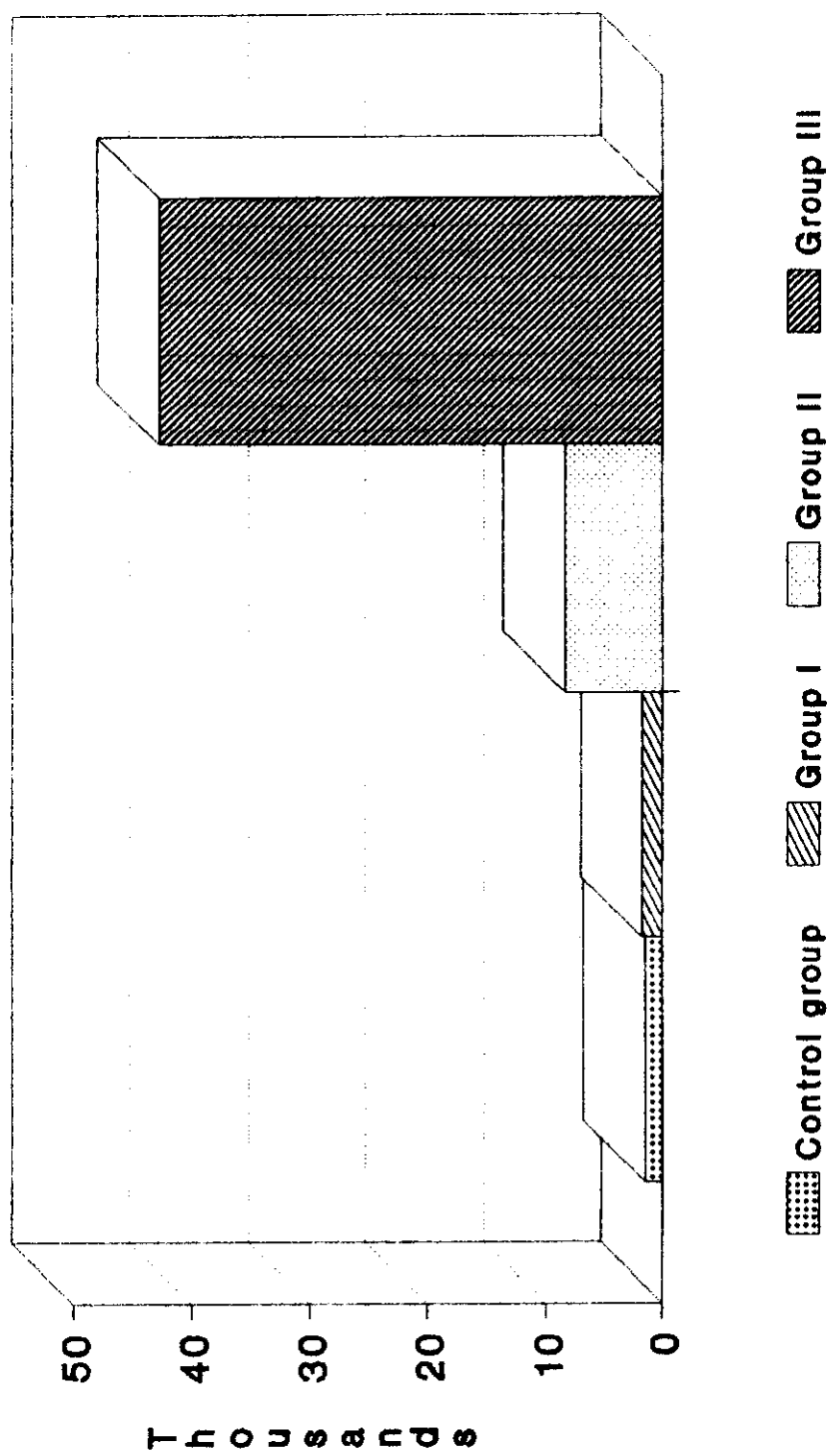
**Fig (9): Up/Ucr (mg/mmol)
in all groups**



**Fig (10): UA/Ucr (mg/mmol)
in all groups**

Table 11 : Range, mean and standard deviation of UR.B.P/Ucr in the three groups and control group .

| | Group (I) | Group (II) | Group (III) | Control group | P |
|---------------------------|----------------|-----------------|-----------------|---------------|--------|
| UR.B.P/ Ucr µg/mmol | range | 295-1315 | 22 333-106 125 | 110-1950 | |
| | mean & S.D. | 1017.79±284.236 | 8340.50±2828.19 | 710±99.21 | |
| | T ₁ | | 6.1800 | | <0.05* |
| | T ₂ | | 5.1242 | | <0.05* |
| | T ₃ | | 4.2955 | | <0.05* |
| | T ₄ | | | 0.2272 | >0.05 |
| | T ₅ | | | 8.6732 | <0.05* |
| | T ₆ | | | 5.1807 | <0.05* |



**Fig (11): UR.B.P. / Ucr ($\mu\text{g}/\text{mmol}$)
in all groups**