**Table: (1): Means of age ±SD standard deviations among the study groups**

| Age (m) / Study group | Mean ± SD | t | P |
|---|---|---|---|
| **- Cases (n = 44)** | 30. 7 ± 43.4 | 0.53 | > 0.05 (NS) |
| **- Control (n = 16)** | 34.4 ± 9.3 | | |

- NS= Non significant.

- This table shows insignificant difference between cases and controls as regard age.

**Figure (1): Means of age:**

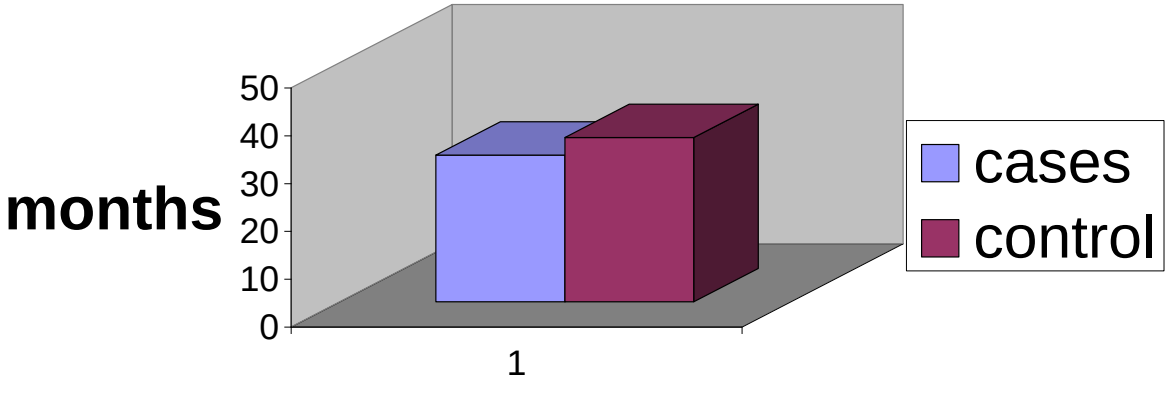


**Table: (2) Means of weight ± SD among study groups**

| Wt (kg) / Study group | X ± SD | t | P |
|---|---|---|---|
| - Cases (n = 44) | 11.8 ± 10.8 | 0.8 | > 0.05 (NS) |
| - Control (n = 16) | 13.2 ± 1.4 | | |

- NS= Non significant.

- This table shows insignificant difference between cases and controls as regard weight.

## Figure (2): Means of weight:

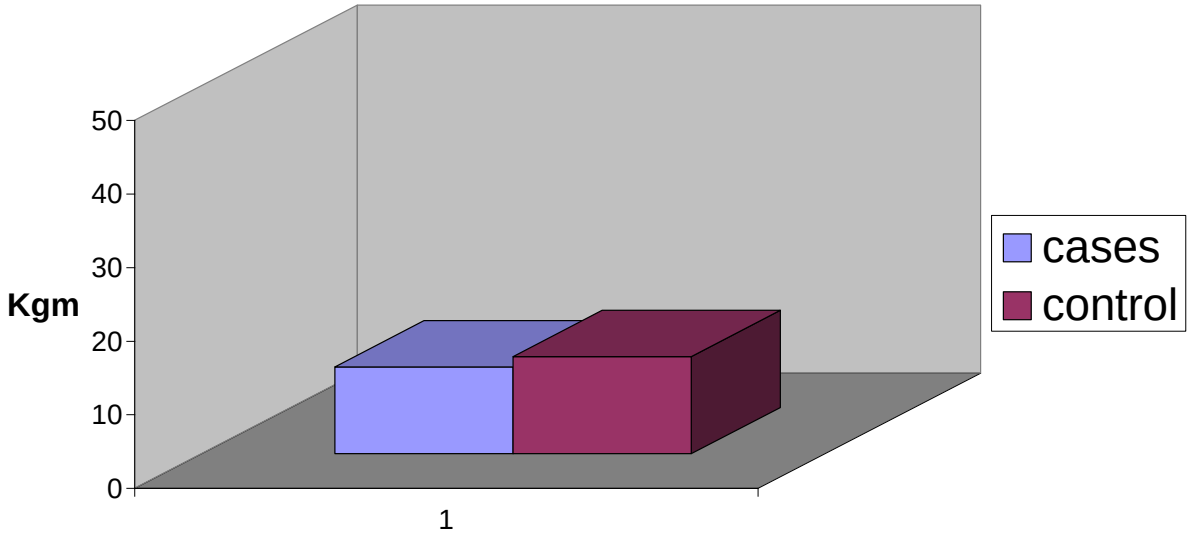


**Table (3): Means of height ±SD among study groups**

| Ht (cm) / Study group | X ± SD | t | P |
|---|---|---|---|
| **- Cases(n = 44)** | 85.6 ± 25.9 | 2.24 | < 0.05 (S) |
| **- Control (n = 16)** | 94.6 ± 3.8 | | |

- S= significant.

- This table shows significant difference between cases and controls as regard height.

**Figure (3): Means of height:**

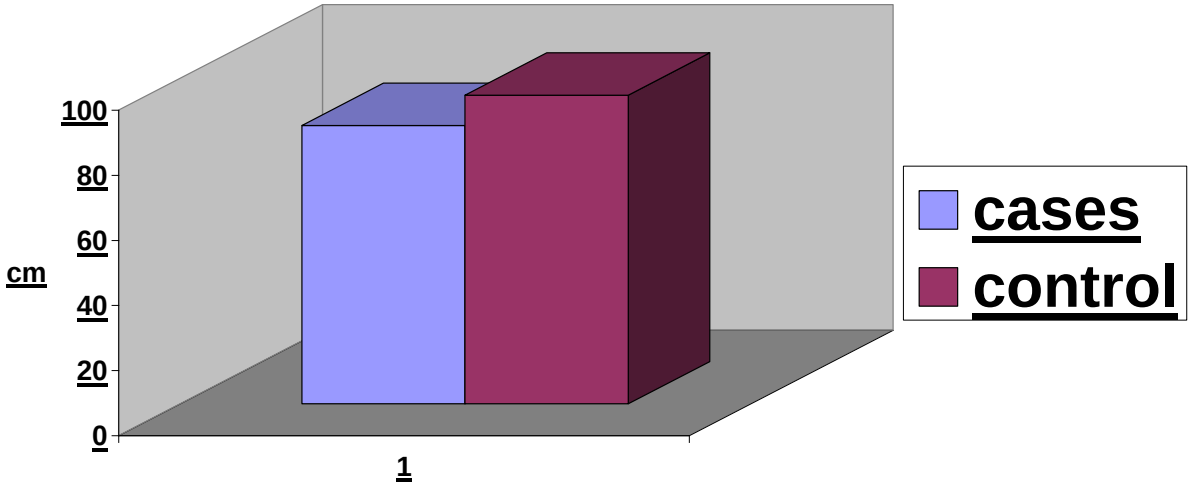


**Table (4): Means of hemoglobin ± SD among study groups**

| HB (gm) / Study group | X ± SD | t | P |
|---|---|---|---|
| **- Cases (n = 44)** | 9.7 ± 1.7 | 5.85 | < 0.001 (HS) |
| **- Control (n = 16)** | 11.9 ± 1.1 | | |

- HS = highly significant.

- This table shows highly significant difference between cases and controls as regard hemoglobin.

## Figure (4): Means of hemoglobin%:

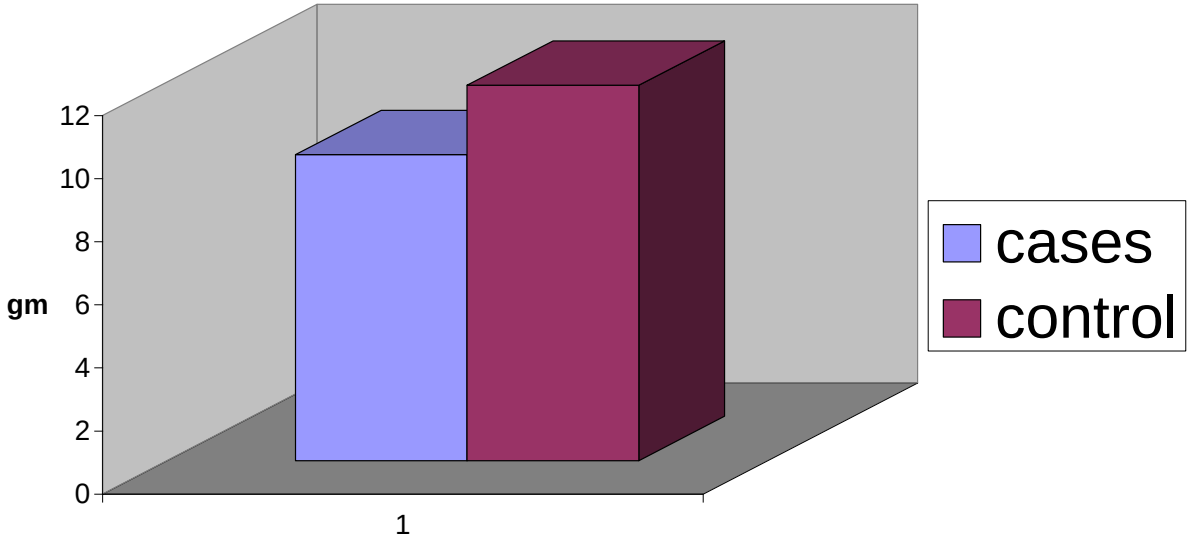


**Table (5): Means of urea ±SD among study groups**

| Urea / Study group | X ±SD (mg/dl) | t | P |
|---|---|---|---|
| - Cases (n = 44) | 26.3±8.4 | 1.09 | > 0.05 (NS) |
| - Control (n = 16) | 24.6 ± 3.6 | | |

- NS= Non significant.
- This table shows insignificant difference between cases and controls as regard urea.

## Figure (5): Means of blood urea:

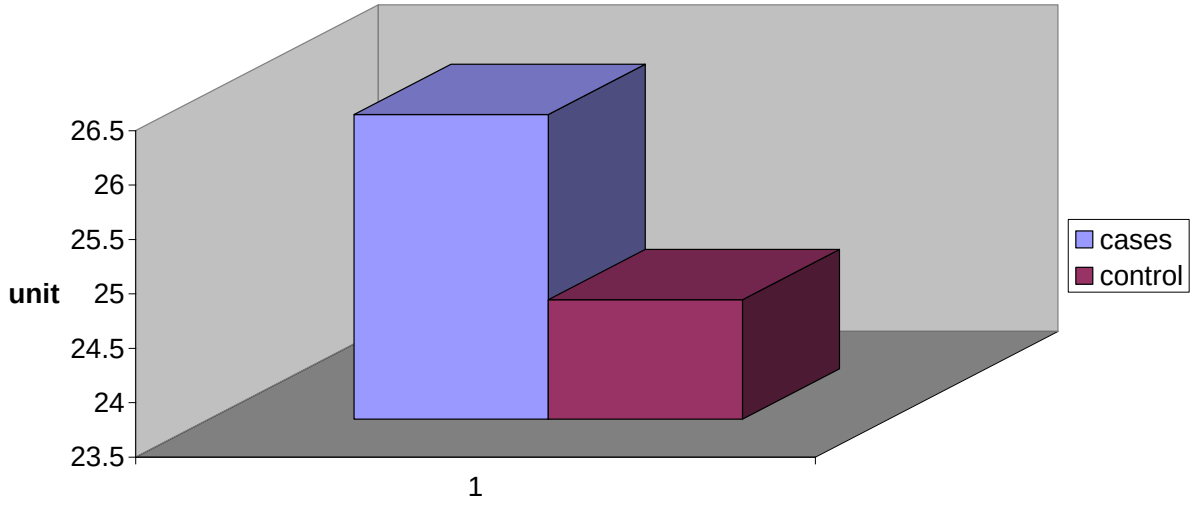


**Table (6): Means of creatinine ±SD among study groups**

| Creatinine / Study group | X ±SD (mg/dl) | t | P |
|---|---|---|---|
| - Cases (n = 44) | 0.8 ± 0.3 | 3.87 | < 0.001 (HS) |
| - Control (n = 16) | 0.6 ±0.1 | | |

- HS= Highly Significant.

- This table shows highly significant difference between cases and controls as regard creatinine although both parameters values are normal.

**Figure (6): Means of creatinine:**

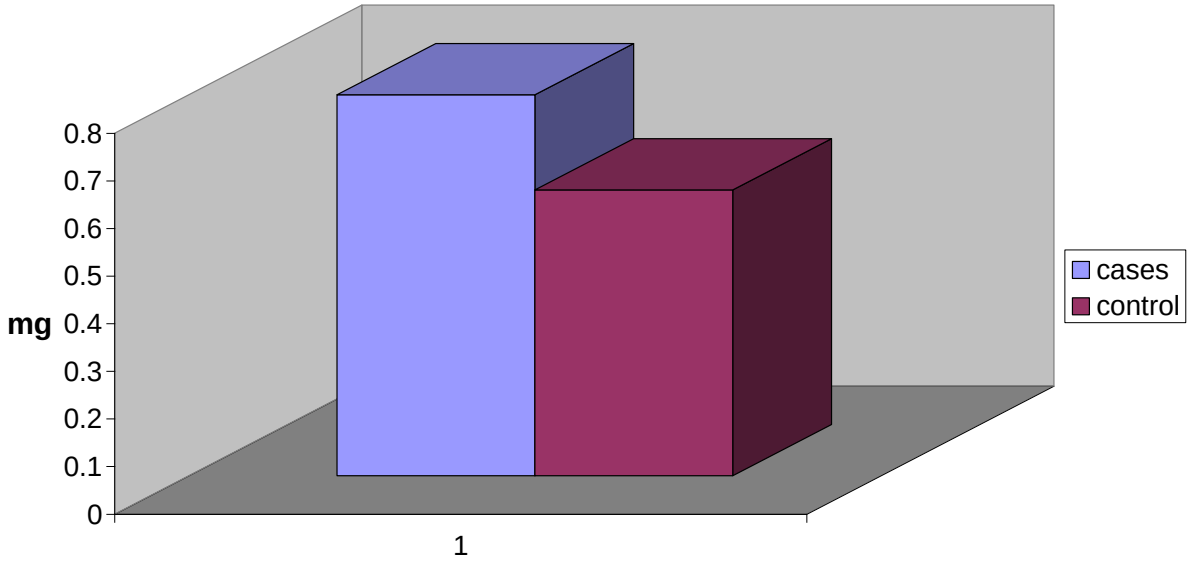


**Table (7): Means of creatinine clearance± SD among study groups**

| Creatinine clearance / Study group | X ± SD (ml/min/1.73 $m^2$) | t | P |
|---|---|---|---|
| - Cases (n = 44) | 61.8 ± 31.9 | 4.39 | < 0.001 (HS) |
| - Control (n = 16) | 88.9 ± 15.4 | | |

- HS= Highly Significant.

- This table shows highly significant difference between cases and controls as regard creatinine clearance.

**Figure (7): Means of creatinine clearance:**

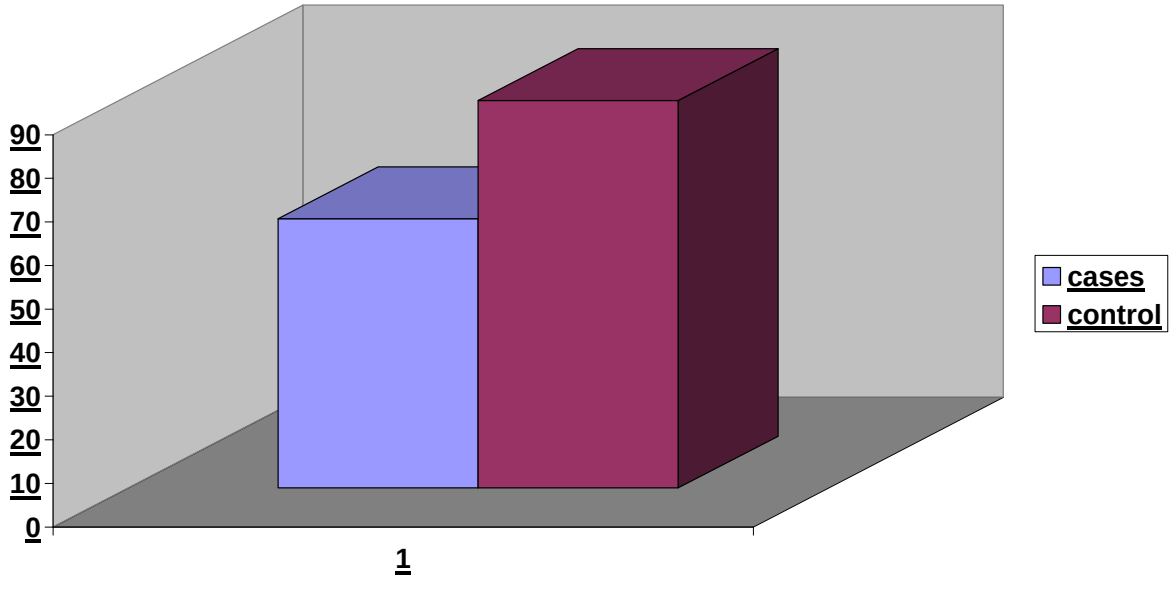
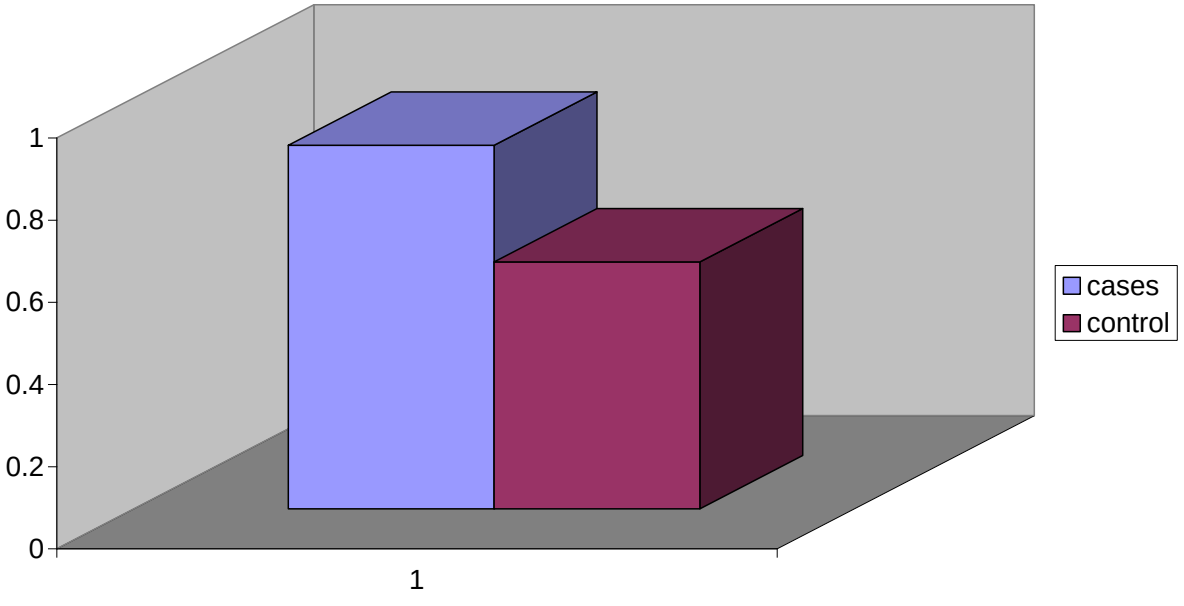


**Table (8): Means of cystatin C ±SD among study groups**

| Cystatin C / Study groups | X ±SD (mg/dl) | t | P |
|---|---|---|---|
| - Cases (n = 44) | 0.88 ± 0. 64 | 2.79 | < 0.01 (S) |
| - Control (n = 16) | 0.6 ± 0.12 | | |

- S = significant.
- This table shows significant difference between cases and controls as regard cystatin C.

## Figure (8): Means of cystatin C:



## Table (9): Means of beta 2-microglobulin± SD among study groups

| Beta 2 microglobulin / Study group | X±SD (mg/dl) | t | P |
|---|---|---|---|
| - *Cases* (n = 44) | 4.8±2.8 | 3.55 | < 0.01 (S) |
| - *Control* (n = 16) | 3.1 ± 0.9 | | |

- S= significant.
- This table shows significant difference between cases and controls as regard beta 2-microglobulin.

## Figure (9): Means of beta 2-microglobulin:

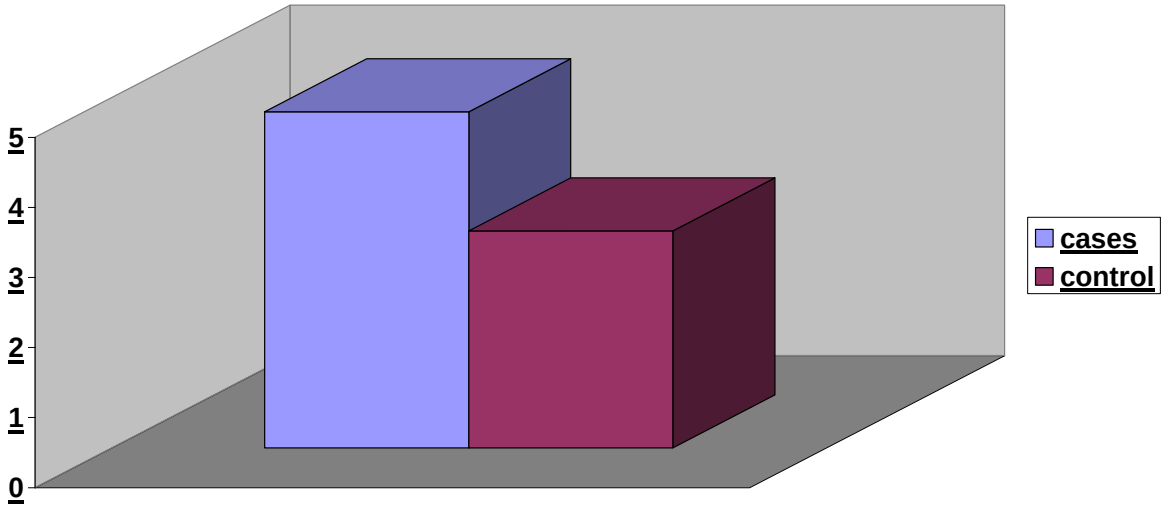


**Table (10): Correlation coefficient "r" between cystatin C and renal functions**

| Cystatine C / Renal function | " r " | P |
|---|---|---|
| **Urea** | **0.084** | **>0.05 (NS)** |
| **Creatinine** | **0.189** | **>0.05 (NS)** |
| **Creatinine clearance** | **-0.326** | **<0.05 (S)** |
| **Beta 2-microglobulin** | **0.634** | **<0.001 (HS)** |

This table shows:

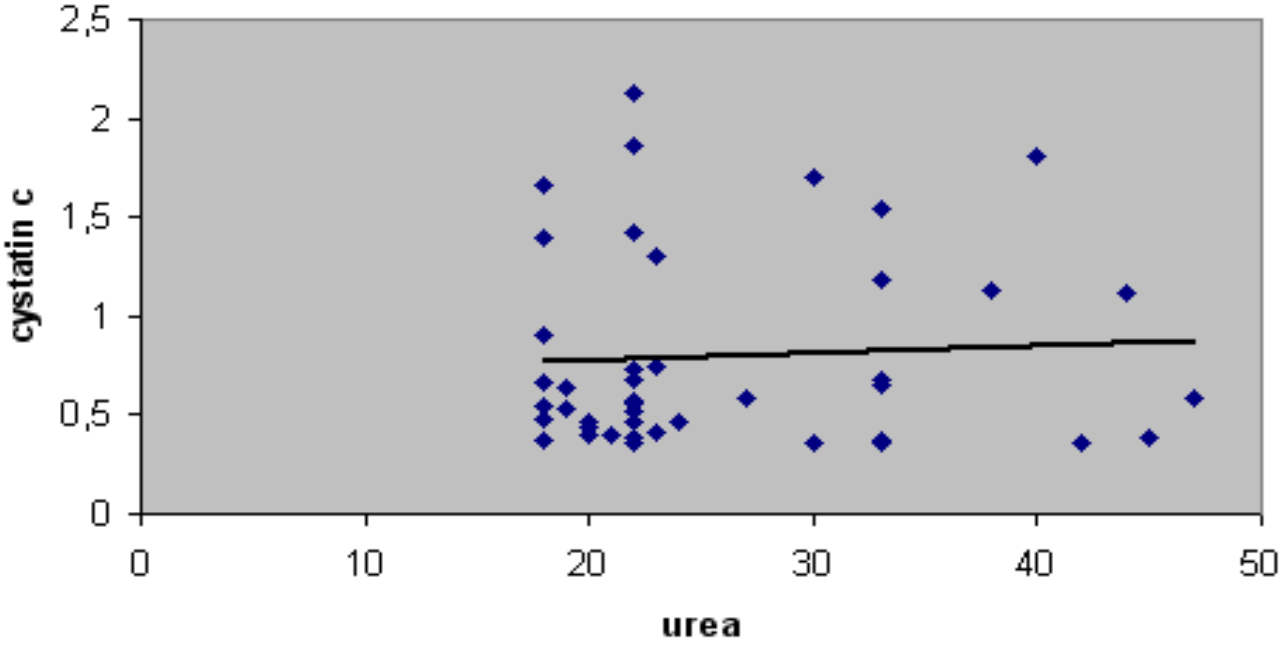
- Insignificant correlation between cystatin C with urea or creatinine.

- Negative significant correlation between cystatin C with creatinine clearance.

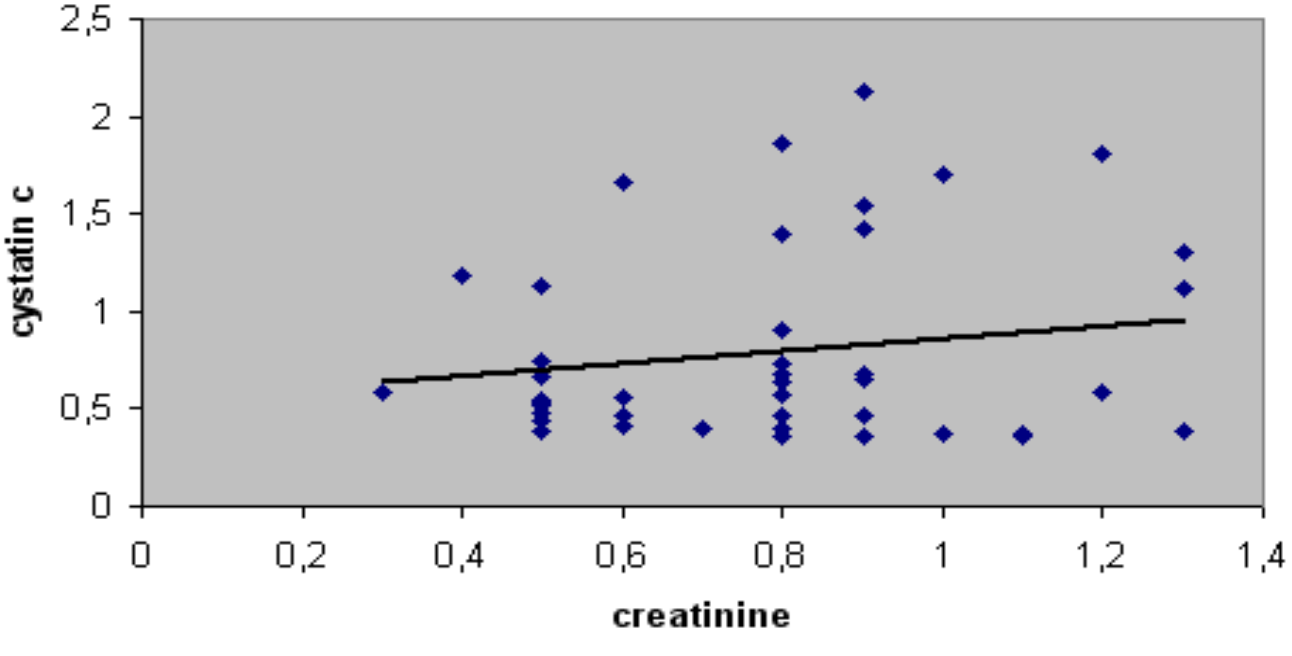
- Highly significant correlation between cystatin C with beta 2-microglobulin.

**Figure (10): Correlation between cystatin C and renal functions:**

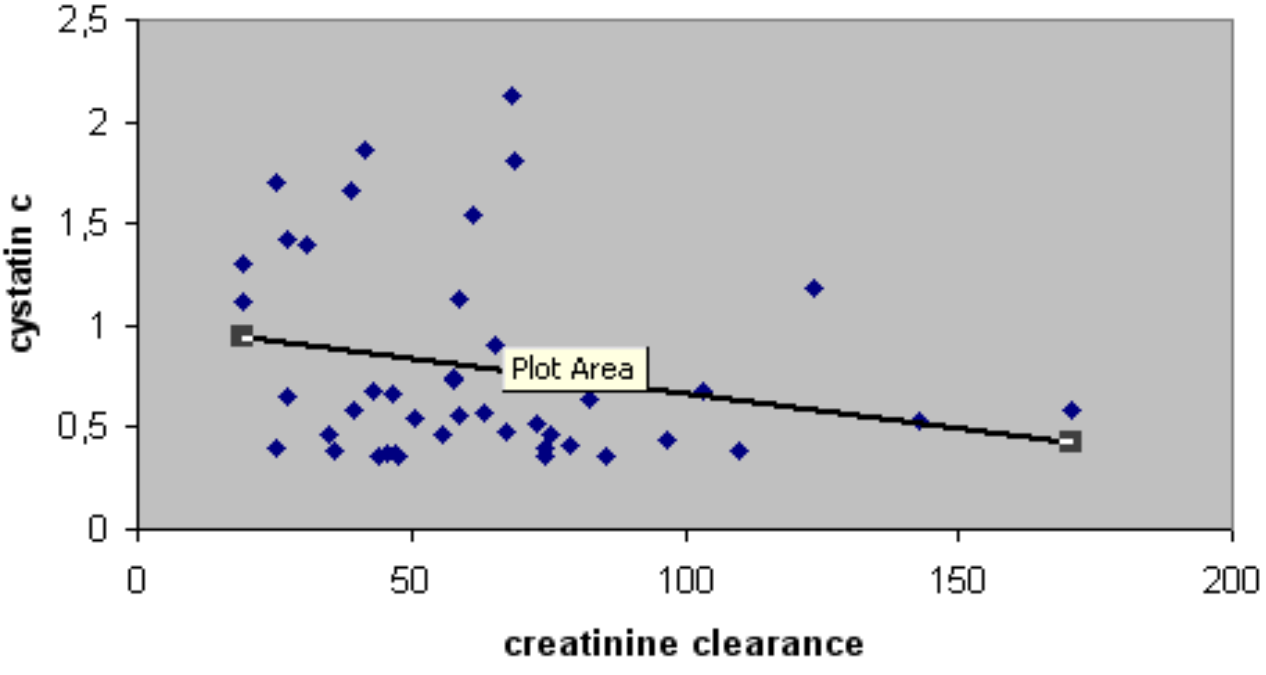
**A: Correlation between cystatin C and urea**




**B:-Correlation between cystatin C and creatinine**



**C:-Correlation between cystatin C and creatinine clearance**




**D:-Correlation between cystatin C and beta 2-micrtoglobulin**

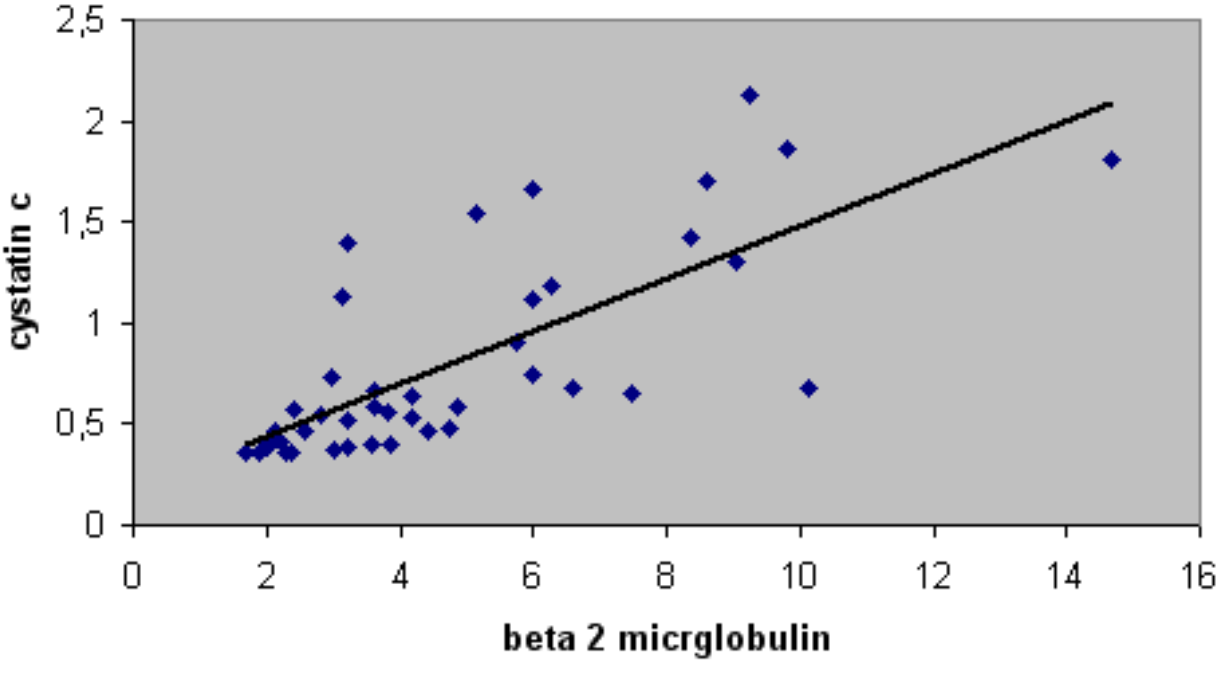


**Table (11): Correlation coefficient "r" between Beta 2-microglobulin and renal functions**

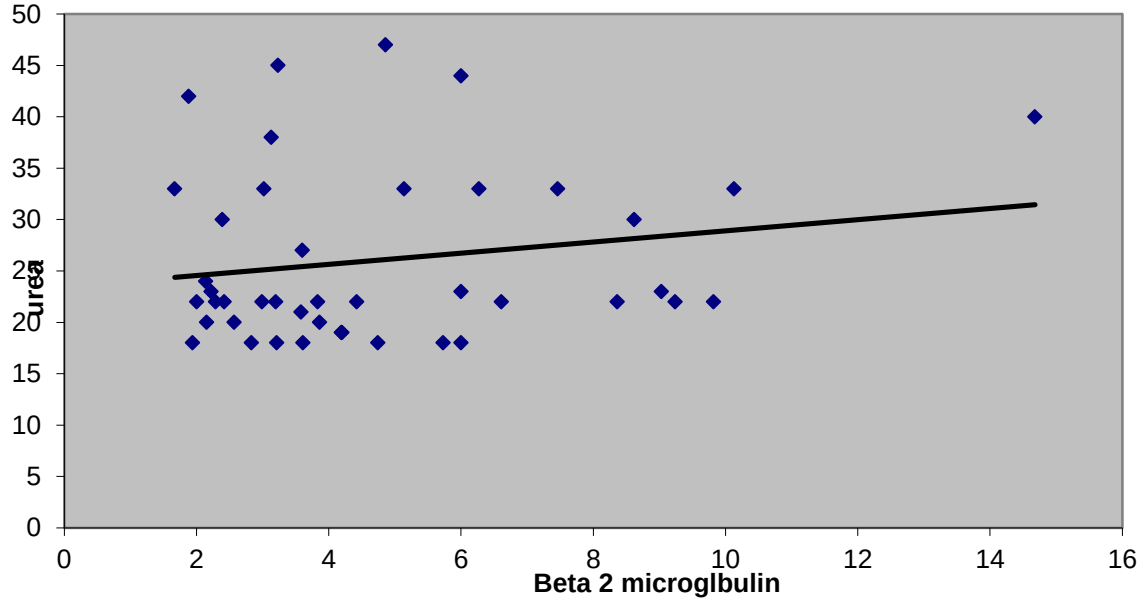
| Beta 2-microglobulin / Renal function | " r " | P |
|---|---|---|
| **Urea** | **0.192** | **> 0.05 (NS)** |
| **Creatinine** | **0.304** | **<0.05 (S)** |
| **Creatinine clearance** | **-0.357** | **< 0.05 (S)** |

This table shows:

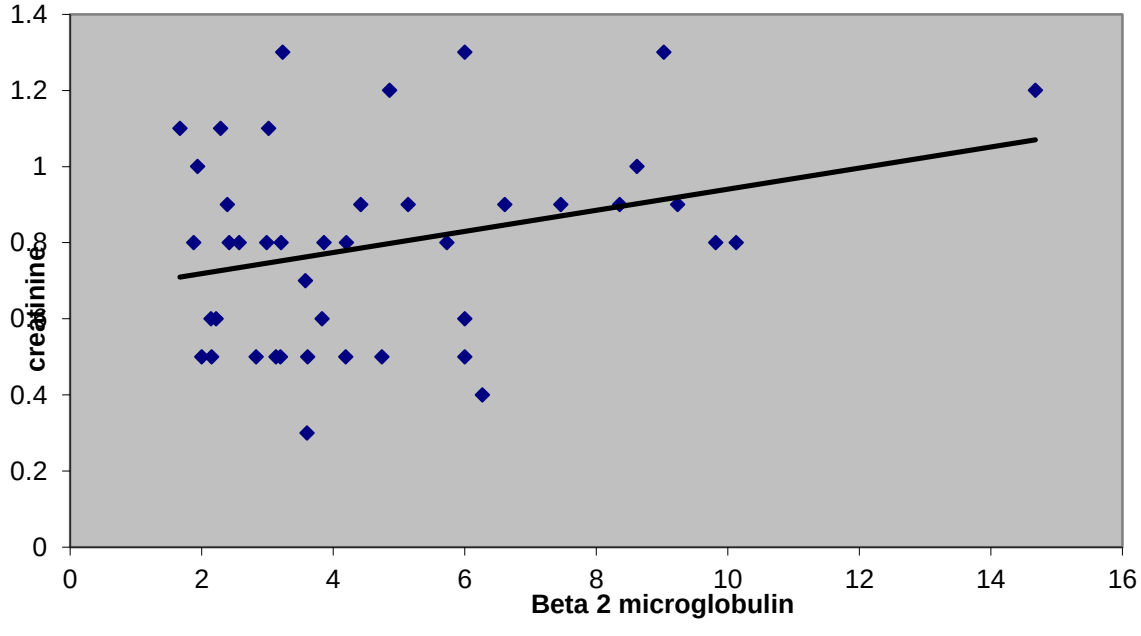
- Insignificant correlation between beta 2-microglobulin with urea.
- Significant correlation between beta 2-microglobulin with creatinine.
- Negative significant correlation between beta 2-microglobulin with creatinine clearance.

## Figure (11): Correlation between beta 2-microglobulin and renal functions:

### A: Correlation between beta 2-microglobulin and urea:




### B: Correlation between beta 2-microglobulin and creatinine:



## C: Correlation between beta 2-microglobulin and creatinine clearance:

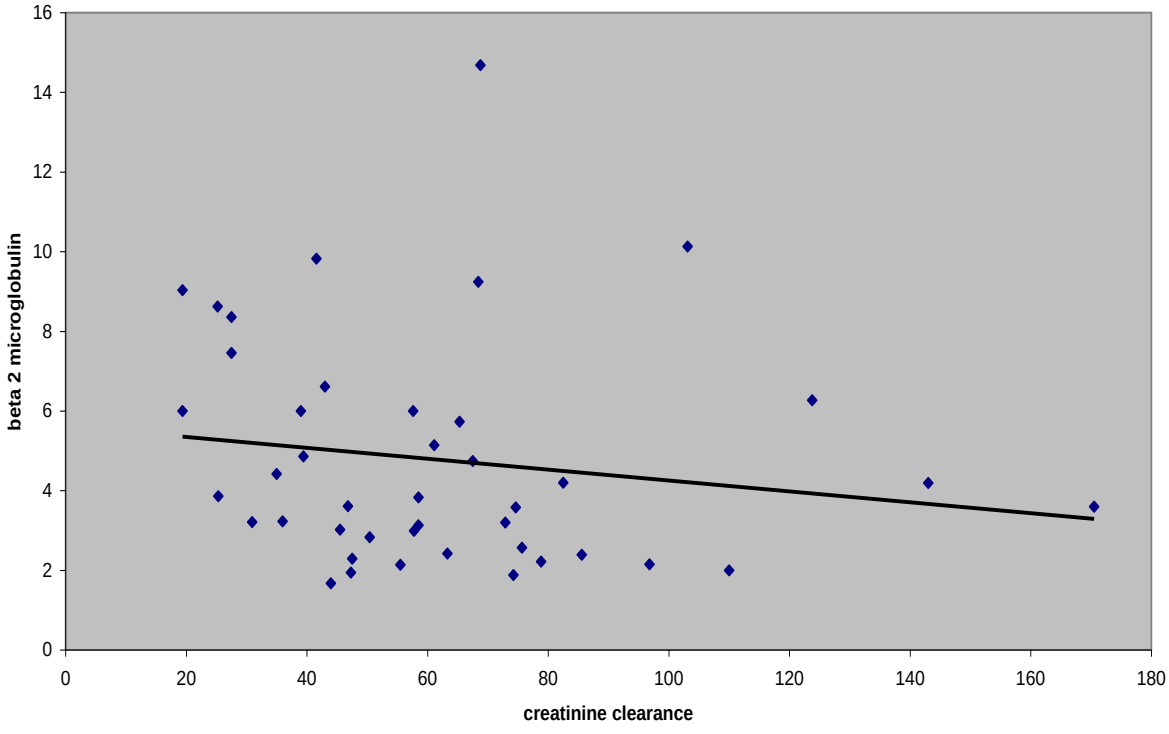


**Table (12): Distribution of the study groups according to normality of different markers of kidney injury**

| Study groups / Kidney markers | Abnormal cases | | Normal cases | |
|---|---|---|---|---|
| **Creatinine clearance** | **18 cases** | **40.9%** | **26cases** | **59%** |
| **Beta 2-microglobulin** | **31 cases** | **70.5%** | **13cases** | **9.5%** |
| **Cystatin C** | **21 cases** | **47.7%** | **23cases** | **52.3%** |

- l

This table shows that beta 2-microglobulin is the most sensitive marker for changes occur in kidney injury then cystatin C and the last marker is creatinine clearance.

**Table (13): Means of creatinine clearance ±SD according to age of cases**

| Creatinine clearance / Study group | X±SD | t | P |
|---|---|---|---|
| **<1 year** | **42.2± 16.4** | **$t_1$= 2.49** | **<0.005 (S)** |
| **>1 year** | **58.23± 18.9** | **$t_2$ = 4.32** | **<0.001 (S)** |
| **2-5 years** | **88.9± 35.1** | **$t_3$ = 2.69** | **<0.001 (S)** |

- This table shows significant difference of creatinine clearance with different ages.

**Table (14): Means of cystatin c ±SD according to age of cases**

| Cystatin C / Study group | X±SD | t | P |
|---|---|---|---|
| **<1 year** | **0.7± 0.4** | **$t_1$= 2.18** | **<0.05 (S)** |
| **>1 year** | **1.06 ±0.5** | **$t_2$ = 1.09** | **>0.05 (NS)** |
| **2-5 years** | **1.06 ±0.5** | **$t_3$ = 0.2** | **>0.05 (NS)** |

- This table shows significant difference of cystatin C with age less than 1 year.
- Insignificant difference of cystatin C with age of 1 year or more.

**Table (15): Means of beta 2-microglobulin ±SD according to age of cases**

| Beta 2-microglobulin / Study group | X±SD | t | P |
|---|---|---|---|
| **<1 year** | **5.4± 2.4** | **$t_1$= 1.47** | **>0.05 (NS)** |
| **>1 year** | **3.9 ±2.4** | **$t_2$= 0.7** | **>0.05 (NS)** |
| **2-5 years** | **4.6 ±3.5** | **$t_3$ = 0.58** | **>0.05 (NS)** |

- This table shows insignificant difference of beta 2-microglobulin with different ages.

**Table (16): Distribution of the cases according to abnormality between creatinine clearance and cystatin C**

| Kidney markers | Abnormal Cases | | t | p |
|---|---|---|---|---|
| **Creatinine clearance** | **18 cases** | **40.9%** | **12.665** | **<0.001 (HS)** |
| **Cystatin C** | **21 cases** | **47.7%** | | |

This table shows that cystatin C better than creatinine clearance.

**Table (17): Distribution of the cases according to abnormality between creatinine clearance and beta 2-microglobulin**

| Kidney markers | Abnormal Cases | | t | p |
|---|---|---|---|---|
| **Creatinine clearance** | **18 cases** | **40.9%** | **11.807** | **<0.001 (HS)** |
| **Beta 2-microglobulin** | **31 cases** | **70.5%** | | |

This table shows that beta 2-microglobulin better than creatinine clearance.

**Table (18): Distribution of the cases according to bnormality between cystatin C and beta 2-microglobulin**

| Kidney markers | Abnormal Cases | | t | P |
|---|---|---|---|---|
| **Cystatin C** | **21 cases** | **47.7%** | **9.053** | **<0.001 (HS)** |
| **Beta 2-microglobulin** | **31 cases** | **70.5%** | | |

This table shows that beta 2-microglobulin better than cystatin C.