groups ($P$ < 0.0001), while no significant differences in SHBG, LH, and FSH ($P$ > 0.05) can be noted. All other biochemical parameters measured were significantly different (including serum lipids, glucose urea and creatinine).

**Table 1. Demographic features of cardiovascular disease patients and control subjects**

| Parameter | CVD Patients N = 40 | Control group N = 46 |
|---|---|---|
| Age (yr) | 46.43 ± 9.8 | 44.17 ± 8.1 |
| BMI (kg/m$^2$) | 30.65 ± 5.53 | 30.09 ± 5.27 |
| glucose (mmol/l) | 6.07 ± 1.64 | 5.39 ± 1.26* |
| TG (mmol/l) | 2.5 ± 0.73 | 1.76 ± 0.54‡ |
| Cholesterol (mmol/l) | 5.74 ± 0.73 | 4.42 ± 0.73‡ |
| HDLc (mmol/l) | 0.91 ± 0.22 | 1.18 ± 0.21‡ |
| LDLc (mmol/l) | 3.7 ± 0.71 | 2.38 ± 0.7‡ |
| VLDL c (mmol/l) | 1.14 ± 0.33 | 0.8 ± 0.25‡ |
| Atherogenic index | 4.38 ± 1.45 | 2.15 ± 0.87‡ |
| Urea (mmol/l) | 7.42 ± 1.95 | 5.94 ± 0.71‡ |
| Creatinine (µmol/l) | 88.6 ± 25.67 | 74.18 ± 7.47† |
| FSH (IU/l) | 7.3 ± 5.15 | 7.4 ± 5.52 |
| LH (IU/l) | 6.96 ± 2.72 | 5.61 ± 2.08* |
| TT (nmol/l) | 9.34 ± 3.51 | 15.14 ± 5.16‡ |
| SHBG (nmol/L ) | 32.43 ± 16.9 | 33.39 ± 15.39 |

TT = total testosterone, * = $P$ < 0.05, † $P$ = < 0.005, ‡ $P$ = < 0000.1

In the control group, there was a significant negative correlation of BMI with each of total testosterone, and SHBG (r = - 0.263, $P$ = 0.04) (r = - 0.259, $P$ = 0.049) respectively, and significant negative correlations of the postprandial TG with the total testosterone, and SHBG as shown in the fig. 1 and 2, respectively.

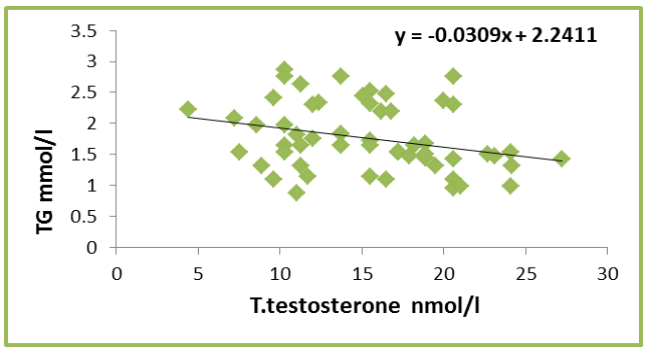


**Fig. 1. Correlation between serum total testosterone and postprandial triglycerides**

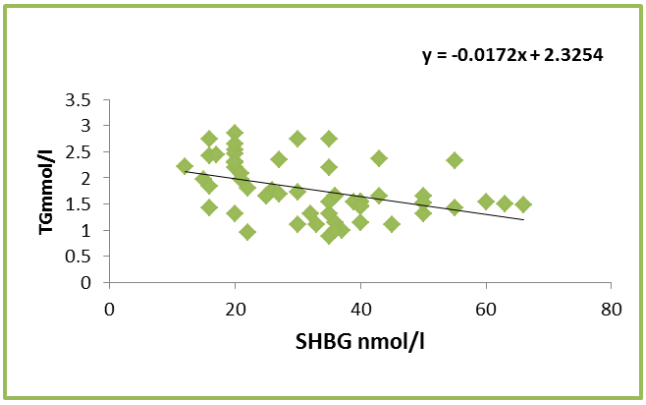


**Fig. 2. Correlation between serum sex hormone and postprandial triglycerides**

In the CVD patients' group serum total testosterone was negatively correlated with BMI (r = - 0.348, $P$ = 0.028). There was also a negative correlation between total testosterone and postprandial TG as shown in fig. 3.

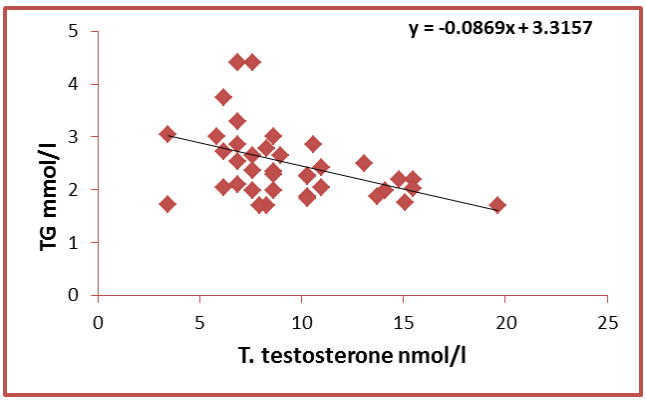


**Fig. 3. Correlation between serum total testosterone and postprandial Triglyceride**

## Discussion

The present results show clearly low serum testosterone in the CVD patients relative to the normal controls, and this reduction in serum testosterone was associated with higher rise in the serum postprandial triglycerides. On the other hand the low serum testosterone negatively correlated with the BMI. Previous report had suggested a role for testosterone in visceral obesity [24]. Visceral fat contains a good number of androgen receptors, and these appear to inhibit the action of lipoprotein lipase and fatty acid/triglyceride uptake; the androgen receptors thus limit fat accumulation [25].