

3. Results

Eighty individual was enrolled in this study divided in to three groups (hypothyroidism patients, hyperthyroidism patients and control group) to assess the effect of thyroid disorder in CK, ALT, and AST activity levels. Spectrophotometer and biosystem reagents were used for activity measurement, and then SPSS computer program version 21 was used for data analysis and the results were as follow:

Table 3.1 shows a significant increase in serum activity levels of CK, ALT and AST in patients with hypothyroidism compared with control group with P.value (0.00, 0.04 and 0.00) respectively.

Table 3.2 shows a significant decrease in serum CK, ALT and AST activity levels in patients under treatment compared with others who are not under treatment with P.value (0.000, 0.012, and 0.007) respectively.

Figure 3.1 a scatter plot show a significant strong negative correlation between CK activity level and T_3 level in hypothyroidism patients (P.value = 0.00, $r = -0.788$)

Figure 3.2 a scatter plot show a significant moderate negative correlation between ALT activity level and T_3 level in hypothyroidism patients (P.value = .024, $r = -0.411$)

Figure 3.3 a scatter plot show an insignificant negative correlation between AST activity level and T_3 level in hypothyroidism patients (P.value = 0.187, $r = -0.248$)

Figure 3.4 a scatter plot show an insignificant negative correlation between CK activity levels and T_4 level in hypothyroidism patients (P.value = 0.592, $r = -0.102$)

Figure 3.5 a scatter plot show an insignificant negative correlation between ALT activity level and T_4 in hypothyroidism. (P.value = 0.989, $r = -0.003$)

Figure 3.6 a scatter plot show an insignificant positive correlation between AST activity level and T_4 in hypothyroidism. (P.value = 0.614, $r = 0.096$)

Figure 3.7 a scatter plot show an insignificant negative correlation between CK activity level and TSH level in hypothyroidism patients. (P.value = 0.749, $r = -0.61$)

Figure 3.8 a scatter plot show an insignificant negative correlation between ALT activity level and TSH in hypothyroidism patients. (P.value = 0.445, $r = -0.145$)

Figure 3.9 a scatter plot show an insignificant positive correlation between AST activity level and TSH in hypothyroidism patients.
(P.value = 0.547, $r=0.114$)

Table 3.1: comparison between serum activity levels of CK, ALT and AST in hypothyroidism patients and control group.

| Variables | Hypothyroidism N=30 | Control N=30 | P.value |
|-----------|------------------------|-----------------|---------|
| CK U/L | 93.83±63.63 | 23.87±4.92 | 0.00 |
| ALT U/L | 18.07±7.53 | 14.77±4.51 | 0.04 |
| AST U/L | 28.02±9.39 | 18.30±2.54 | 0.00 |

Independent sample T test was used for comparison, value concenter significant at level ≤ 0.05

Table3.2: Comparison between mean of serum CK ALT and AST activity levels in hypothyroidism patients under treatment and others who are not under treatment (new cases).

| Variables | Under treatment N=14 | New cases N=16 | P.value |
|-----------|-------------------------|-------------------|---------|
| CK U/L | 49.29±21.65 | 132.81±62.83 | 0.000 |
| ALT U/L | 14.57±3.90 | 21.13±8.37 | 0.012 |
| AST U/L | 23.29±8.20 | 32.19±8.52 | 0.007 |

Independent sample T test was used for comparison, value conceder significant at level ≤ 0.05

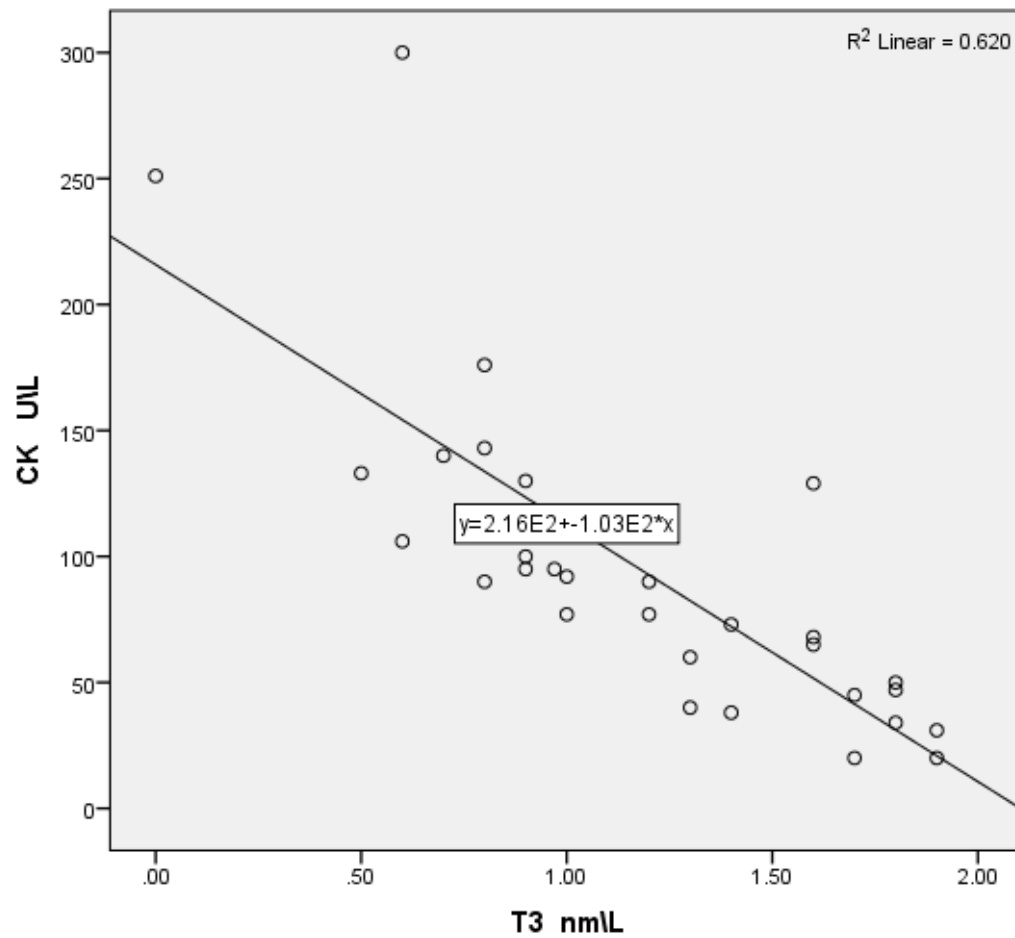


Figure 3.1: correlations between CK activity level and T₃ level in hypothyroidism.
(P.value = 0.00, r = -.788)

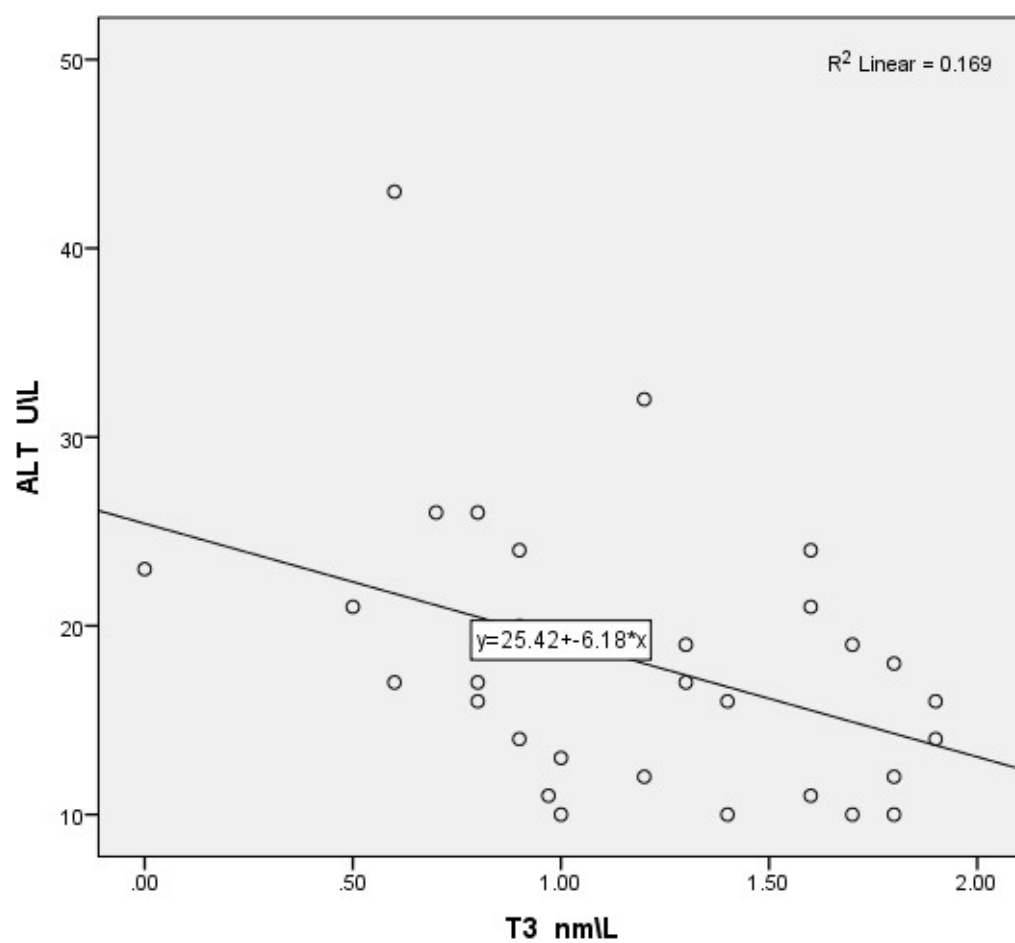


Figure 3.2: correlations between ALT activity level and T₃ level in hypothyroidism.
(P.value = .024, r = -0.411)

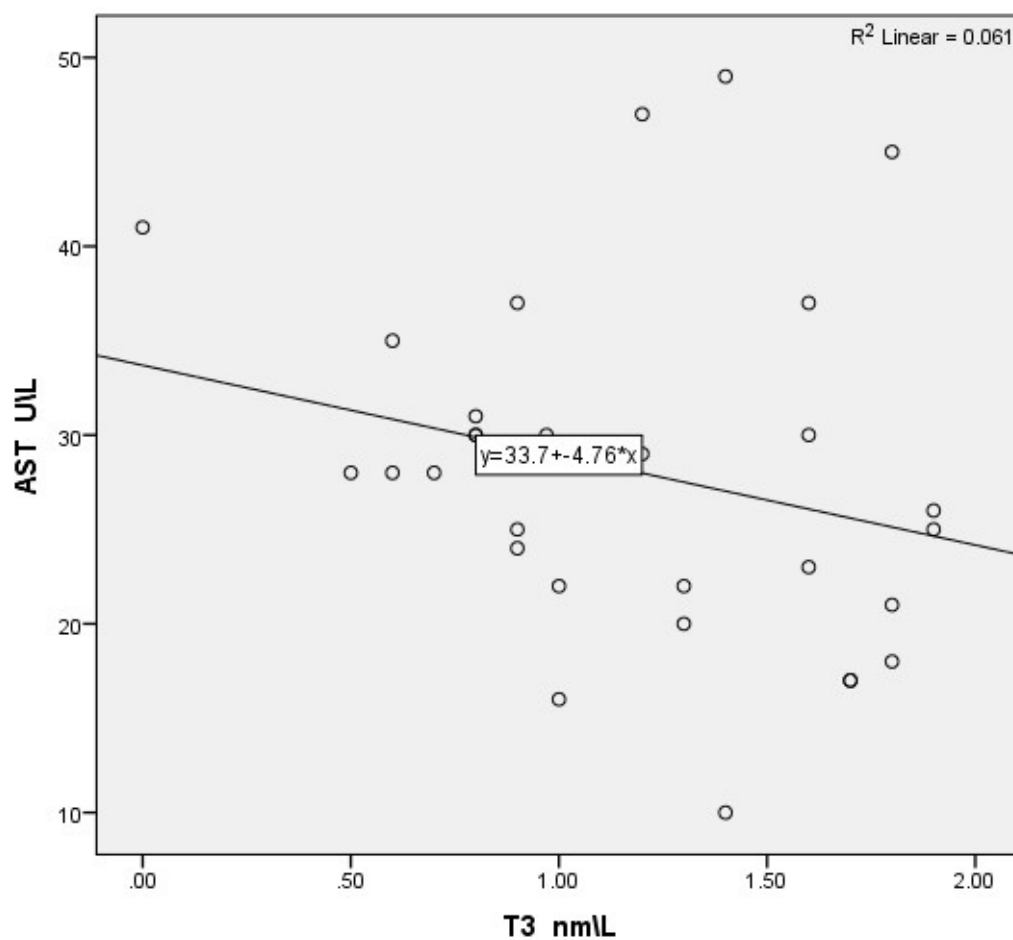


Figure 3.3: correlation between AST activity level and T₃ level in hypothyroidism.
(P.value = 0.187, r = -0.248)

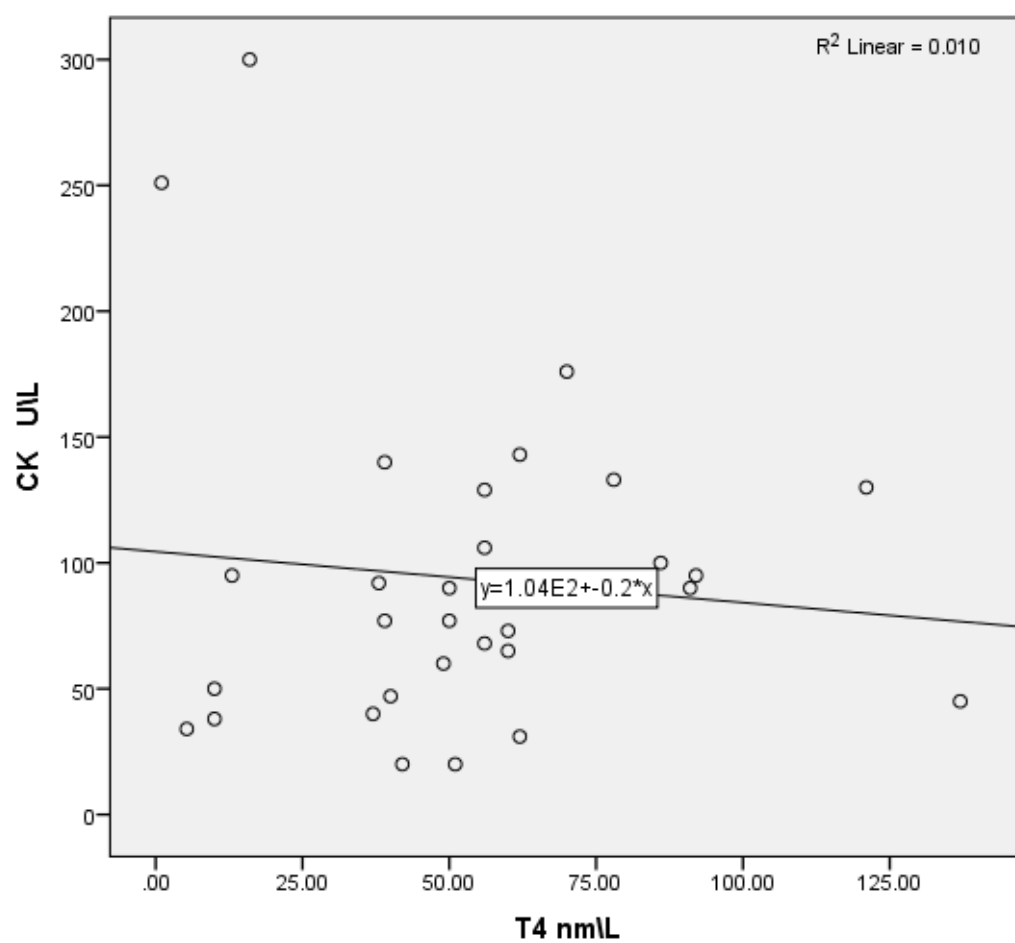


Figure 3.4: correlations between CK activity levels and T₄ level in hypothyroidism.
(P.value = 0.592, r = - 0.102)

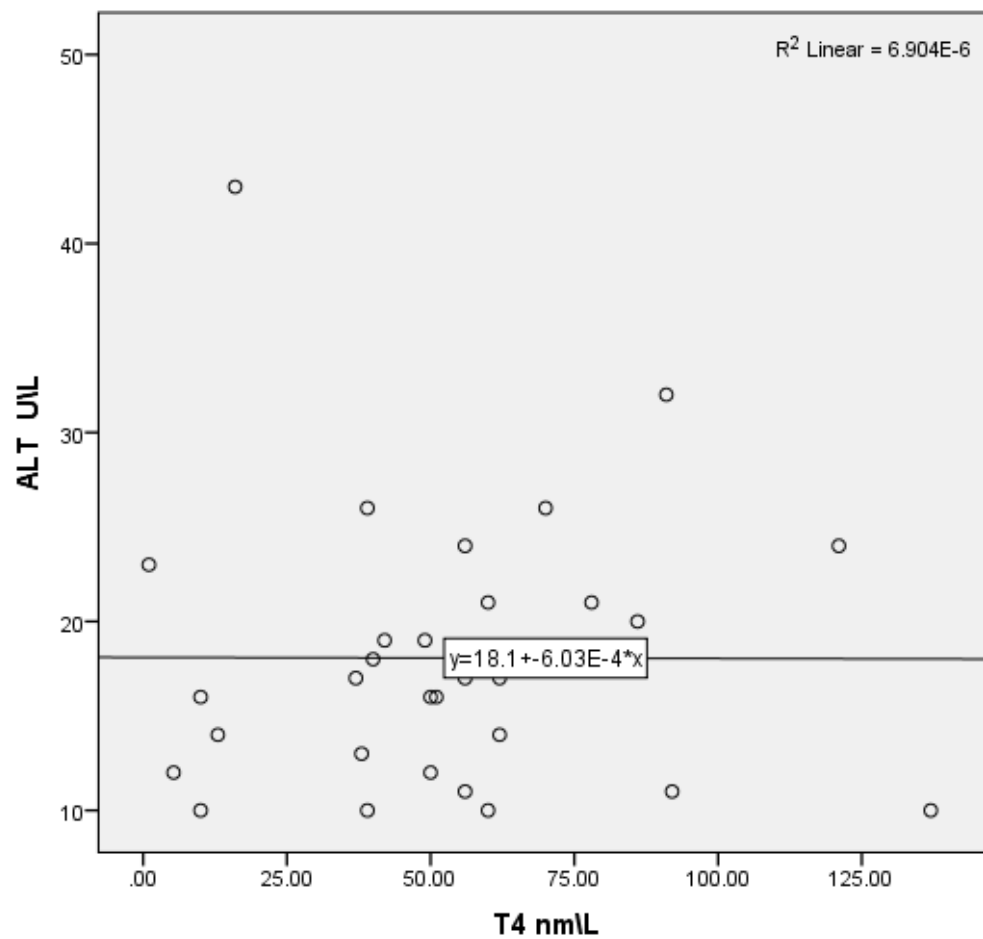


Figure 3.5: Correlations between ALT activity level and T₄ in hypothyroidism.

(P.value = 0.989, r = -0.003)

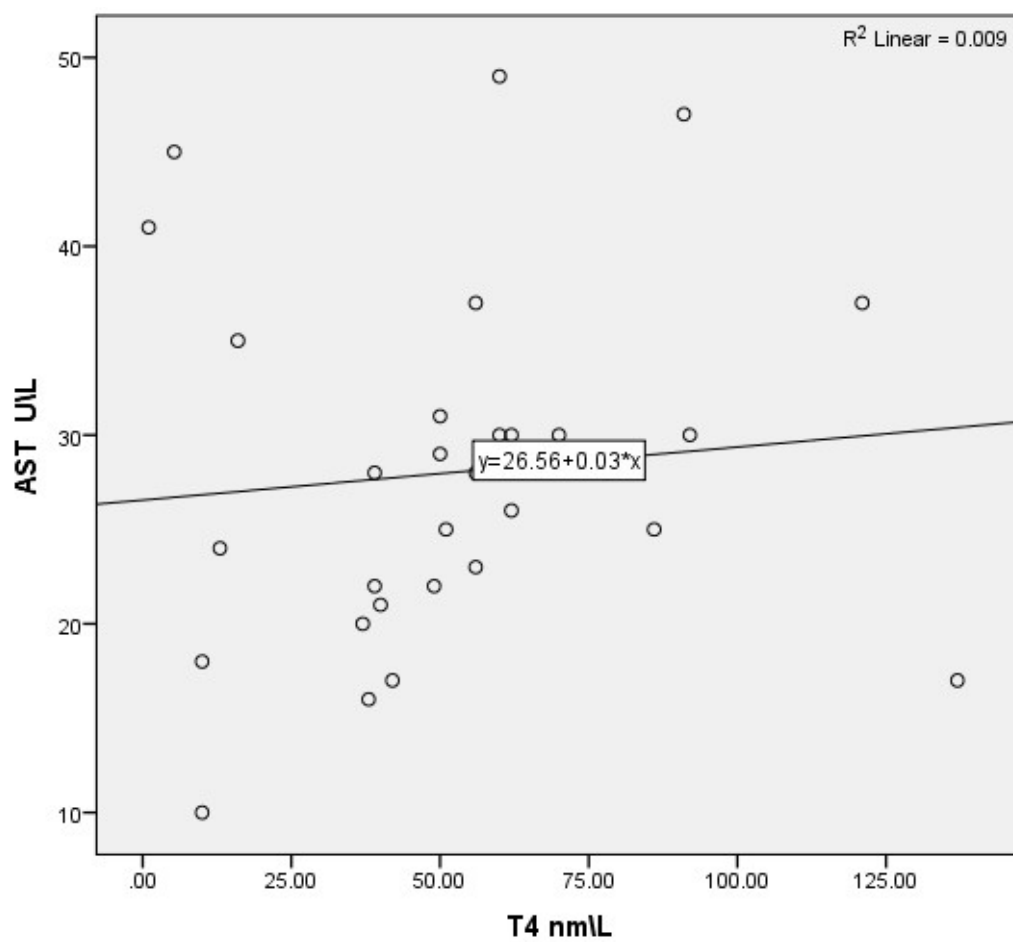


Figure 3.6: Correlations between AST activity level and T₄ in hypothyroidism.

(P.value = 0.614, r = 0.096)

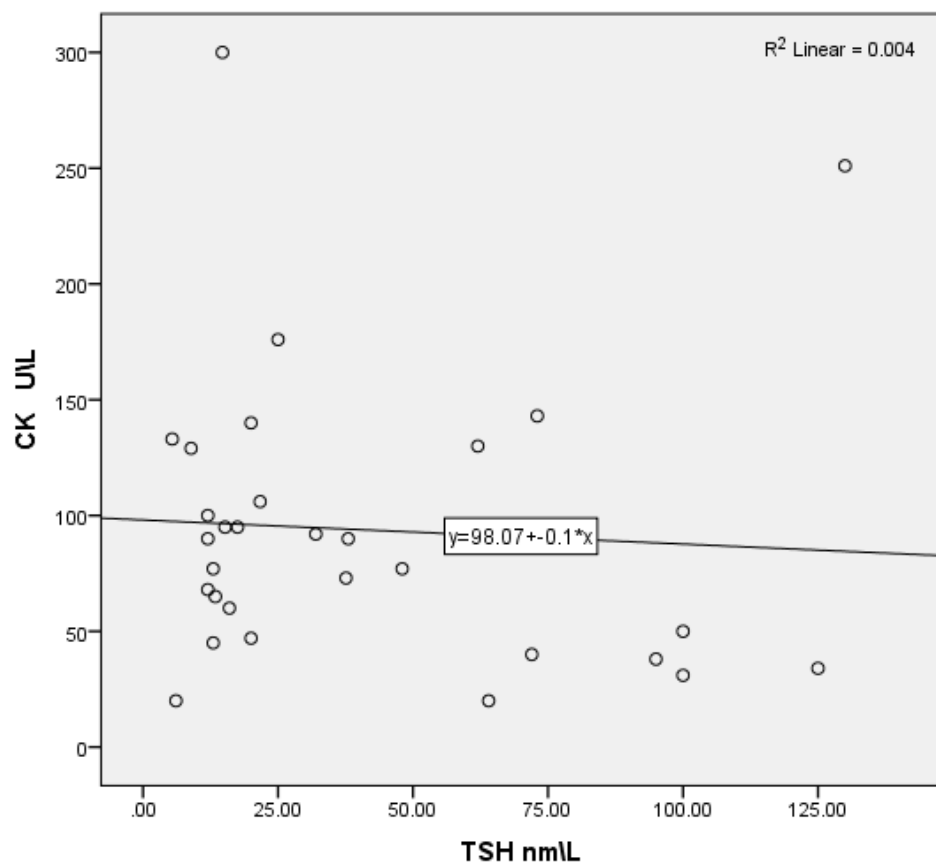


Figure 3.7: Correlation between CK activity level and TSH level in hypothyroidism.
(P.value = 0.749, $r = -0.61$)

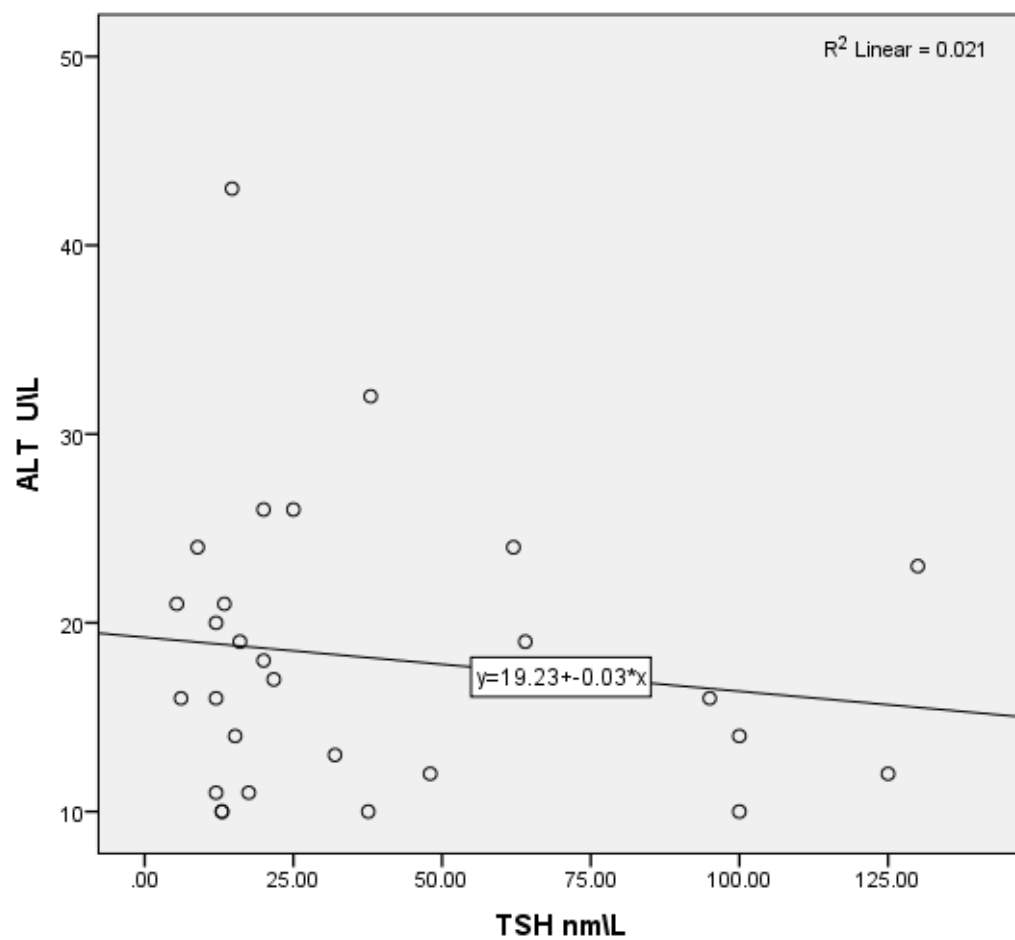


Figure 3.8: Correlation between ALT activity level and TSH in hypo thyroidism.
(P.value = 0.445, $r = -0.145$)

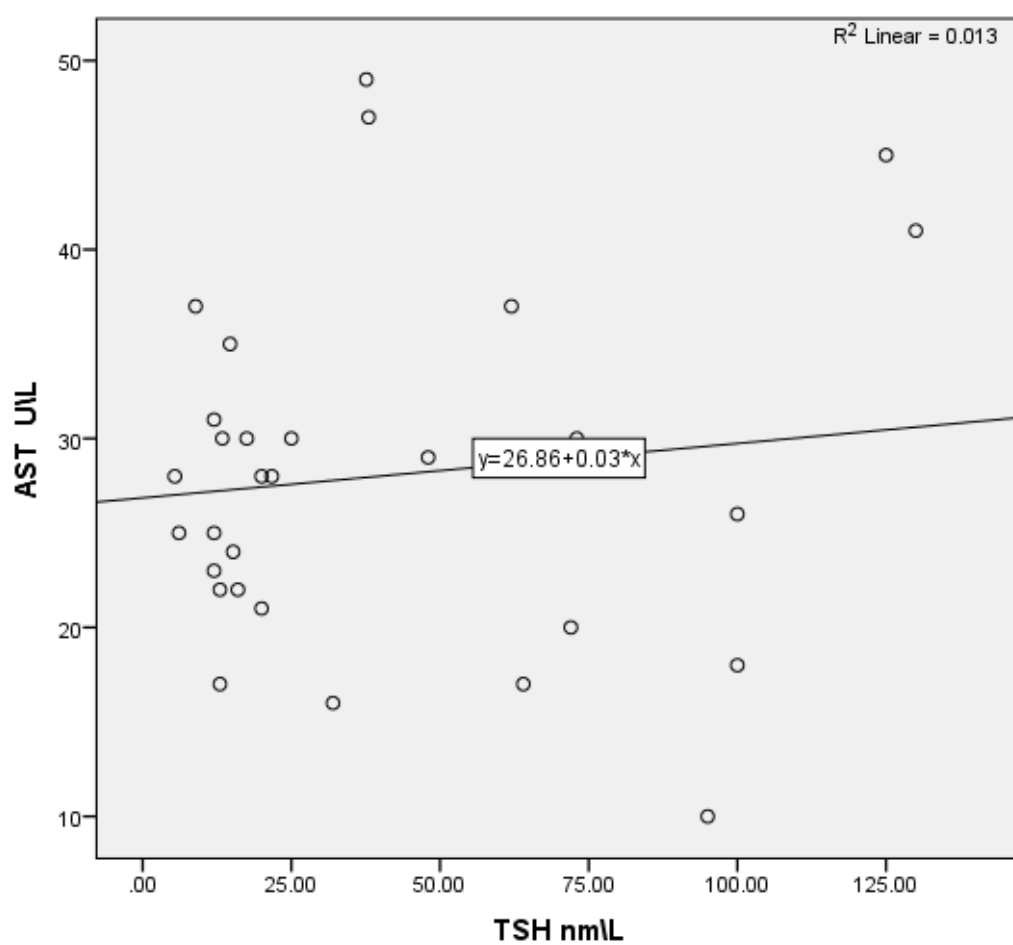


Figure 3.9: Correlation between AST activity level and TSH in hypothyroidism.
(P.value = 0.547, r=0.114)

