The evaluation of patients according to thyroid hormone status is shown in table 3. Among all 100 patients, 30 patients (30%) were hyperthyroidism and 70 patients (70%) were euthyroid. Out of the 30 hyperthyroidic patients, 14 patients (46%) underwent thyroidectomy with ligasure, and clamp and tie technique was performed to remaining 16 patients (53%).

Out of 70 euthyroidic patients, 31 patients (44.3%) were operated by use of ligasure and 39 patients (55.7%) underwent thyroidectomy with clamp and tie surgical technique. There was no significant difference due to age and gender, while there were significantly reduce in mean operative time, mean hospital stay and complications rate in group one in comparison with group two ($P < 0.05$), in hyperthyroidism patients the mean operative time in group one was 60 min. while in group two was 80 min. , the mean hospital stay was 1.2 day in group one while it was 2.2 days in group two and complications rate was 2.7% in group one while it was 5.8% in group two regarding the euthyroid state while it was 7% in group one and 31% in group two regarding hyperthyroid state. Hospital stay between ligasure group and clamp and tie group was significant ($P < 0.05$) as shown in table 3.

**Table 3. Demographic features of the patients according to thyroid hormone status**

| Feature | Hyperthyroid | | *P* value | Euthyroid | | *P* value |
|---|---|---|---|---|---|---|
| | Group I | Group II | | Group I | Group II | |
| **Number of patients** | 14 (46%) | 16 (54%) | - | 31 (44.3%) | 39 (55.7%) | - |
| **Mean age (years)** | 45 (24-61) | 48 (18-65) | 0.074 | 48 (18-65) | 49 (20-69) | 0.062 |
| **Female/male** | 11/3 | 12/4 | 0.460 | 32/4 | 30/4 | 0.920 |
| **Mean operative time (min.)** | 60 | 80 | 0.001 | 58 | 75 | 0.001 |
| **Mean hospital stay (days)** | 1.2 (1-3) | 2.2 (1-4) | - | 1.2 (1-3) | 2.2 (1-5) 2/34 | 0.001 |
| **Complication rates** | 1/14 (7%) | 5/16 (31%) | - | 1/36(2.7%) | (5.8%) | 0.002 |

Group I = Ligasure group, Group II = Clamp and tie technical group

The mean operating time for subtotal and near total thyroidectomy subgroups of ligasure group were significantly shorter when compared with that of clamp and tie group, 53.38 versus 65.8 minutes ($P = 0.005$) and 62.5 versus 84.89 minutes ($P = 0.001$) respectively as shown in table 4.

**Table 4. Duration of operations according to the extent of procedure**

| Surgical Procedure | Duration of operation (minutes) | | | | *P* value |
|---|---|---|---|---|---|
| | Ligasure group | | Clamp and tie group | | |
| | No. | Mean | No. | Mean | |
| **Subtotal thyroidectomy** | 30 (66%) | 53.38 min | 38 (69%) | 65.80 min | 0.005 |
| **Near total thyroidectomy** | 15 (22%) | 62.50 min | 17 (31%) | 84.89 min | 0.001 |

## Discussion

The ligasure technique enables surgeons to apply high current (4 A) and low voltage (200 V) to achieve simultaneous vessel sealing and division. The device acts through denaturation of the collagen and elastin in the vessel wall. The pressure applied by the scissors opposes the walls to allow the proteins to form a seal. Microscopically, it is possible to verify that internal elastic lamina is preserved and collagen bundles form across the previous lumen [(2)]. The device has received acceptance worldwide in several surgical fields. It is claimed to be safe and effective because it allows vessel sealing and division without dispersion of electric power and with a little or no production of heat.