8. LDL

Table No. 60 Statistical analysis of LDL

<table>
<thead>
<tr>
<th>LDL</th>
<th>Mean</th>
<th>t-Value</th>
<th>P-Value</th>
<th>% Effect</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group A</td>
<td>92.1</td>
<td>86.1</td>
<td>11.937</td>
<td>0.000</td>
<td>6.4 Significant</td>
</tr>
<tr>
<td>Group B</td>
<td>100.0</td>
<td>95.9</td>
<td>8.747</td>
<td>0.000</td>
<td>4.0 Significant</td>
</tr>
<tr>
<td>Group C</td>
<td>113.8</td>
<td>112.9</td>
<td>1.316</td>
<td>0.198</td>
<td>0.8 Not Significant</td>
</tr>
</tbody>
</table>

Since the observations are quantitative, we have used paired t-test to test the efficacy in Group A, Group B and Group C. From above table we can observe that P-Values for Group A and Group B was less than 0.05. While P-Value for Group C was greater than 0.05. Hence we conclude that effect observed was significant in Group A and Group B. While Effect observed in Group C was not significant. Effect observed in Group A was 6.4%, in Group B was 4% and in Group C was 0.8%.

Graph No. 50 Statistical analysis of LDL

Test for reduced LDL:

There are three variables related reduced LDL, as

X: LDL reduced by treatment A,

Y: LDL reduced by treatment B and

Z: LDL reduced by treatment C.
Hypothesis 1: Test normality of three variables:

For testing normality we use Shapiro-Wilk normality test.

For X: Test statistic W = 0.9852, p-value = 0.9408 > 0.05. Therefore normality hold.

For Y: Test statistic W = 0.9529, p-value = 0.2017 > 0.05. Therefore normality hold.

For Z: Test statistic W = 0.5133, p-value = 7.428e-09 < 0.05. Therefore normality does not hold.

Result shows variable C is not normal.

Hypothesis 2: To test whether average LDL reduced by using treatment A, average LDL reduced by using treatment B and average LDL reduced by using treatment C are same or not.

Since normality does not holds for all three variables X, Y and Z. To test this hypothesis we use non-parametric test.

Therefore for testing this hypothesis we use Kruskal Wallis one way ANOVA test, under this test instead of average we use median. The result of this test is as below:

Kruskal-Wallis chi-squared = 42.8826, df = 2, p-value = 4.877e-10

Conclusion: since p-value = 4.877e-10 < 0.05, median reduced LDL by treatment A, B and C are different.

Hypothesis 3: To test

H0: Median reduced LDL by treatment A and B are equal against
H1: Median reduced LDL by treatment A > median reduced LDL by treatment B.

[we use median since normality does not hold]

For testing this hypothesis we use median test. The result of this test is as below:

Chi Sq statistic = 4.28571

p-value = 0.03843

Conclusion: since p-value = 0.03843 < 0.05, median reduced LDL by treatment A > treatment B.

Hypothesis 4: To test
H0: Median reduced LDL by treatment A and C are equal against
H1: Median reduced LDL by treatment A > median reduced LDL by treatment C.

[we use median since normality does not hold]

For testing this hypothesis we use median test. The result of this test is as below:

Chi Sq statistic = 38.4

p-value = 5.8e-10

Conclusion: since p-value = 5.8e-10 < 0.05,

**Median reduced LDL by treatment A > treatment C.**

Among treatment A, treatment B and treatment C, median reduced LDL by treatment A > than that of treatment B and treatment C.

**Graph No. 51 Mean reduction in LDL**
<table>
<thead>
<tr>
<th>Treatment</th>
<th>Average LDL Before</th>
<th>Average LDL After</th>
<th>Average LDL Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>92.06</td>
<td>86.13</td>
<td>5.92</td>
</tr>
<tr>
<td>B</td>
<td>113.76</td>
<td>99.97</td>
<td>4.03</td>
</tr>
<tr>
<td>C</td>
<td>112.86</td>
<td>95.93</td>
<td>0.90</td>
</tr>
</tbody>
</table>