<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Iron deficiency anemia group (N= 177)</th>
<th>β-Thalassemia trait group (N= 23)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years) Mean± S.D. Median (Range)</td>
<td>2.73 ± 2.53 1.7 (0.5 – 12)</td>
<td>7.87± 4.93 9 (3 – 16)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Gender</td>
<td>Female 62 (35%) Male 115 (65%)</td>
<td>13 (56.5%) 10 (43.5%)</td>
<td>0.045*</td>
</tr>
<tr>
<td>Weight (Kg) Mean± S.D. Median (Range)</td>
<td>12.47 ± 5.48 10.5 (6 – 34)</td>
<td>24.83 ± 10.52 29 (12 – 37)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

**Table (1):** Comparison between the study groups regarding age, gender, and weight.

P-value is calculated by Mann-Whitney U test
* P-value is calculated by Chi-Square test
P-value <0.05 is statistically significant
<table>
<thead>
<tr>
<th>laboratory investigation</th>
<th>Iron deficiency anemia group (N= 177)</th>
<th>Thalassemia trait group (N= 23)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCV (fl.) Mean± S.D. Median (Range)</td>
<td>63.24 ± 6.86 66.2 (48.7 – 80.5)</td>
<td>58.16 ± 2.87 57 (55 – 63.5)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>MCH (pg.) Mean± S.D. Median (Range)</td>
<td>20.61 ± 3.59 21 (13.5 – 27.5)</td>
<td>18.36 ± 0.77 18 (16.8 – 19.6)</td>
<td>0.002*</td>
</tr>
<tr>
<td>MCHC (g/dl) Mean± S.D. Median (Range)</td>
<td>31.83 ± 2.84 32.1 (20.4 – 36.4)</td>
<td>30.97 ± 0.79 31 (30 – 32)</td>
<td>0.005*</td>
</tr>
<tr>
<td>HCT (%) Mean± S.D. Median (Range)</td>
<td>29.64 ± 3.84 29.4 (22.9 – 38)</td>
<td>31.56 ± 0.48 31.7 (31 – 32.1)</td>
<td>0.004*</td>
</tr>
<tr>
<td>Hb (g/dl) Mean± S.D. Median (Range)</td>
<td>9.63 ± 0.85 9.5 (8.65 – 11.4)</td>
<td>9.67 ± 0.29 9.7 (9.2 – 10)</td>
<td>0.332</td>
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<tr>
<td>RDW (%) Mean± S.D. Median (Range)</td>
<td>20.05 ± 4.12 18.8 (13 – 28.1)</td>
<td>19.5 ± 3.42 17.5 (16.5 – 25.1)</td>
<td>0.431</td>
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<tr>
<td>RBCs count (millions/cmm) Mean± S.D. Median (Range)</td>
<td>4.62 ± 0.65 4.56 (3.37– 6.4)</td>
<td>5.37± 0.38 5.5 (4.63 – 5.79)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Serum iron (ug/dl) Mean± S.D. Median (Range)</td>
<td>39.05± 28.18 35 (8 – 118.7)</td>
<td>67.83 ± 29.85 48 (46 – 120)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Serum ferritin (ng/ml) Mean± S.D. Median (Range)</td>
<td>48.04 ± 66.48 20 (2.5 – 318.5)</td>
<td>29.41 ± 10.66 34.1 (10.52 – 40)</td>
<td>0.418</td>
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<tr>
<td>Total iron-binding capacity (ug/dl) Mean± S.D. Median (Range)</td>
<td>386.14± 67.76 399 (228.6– 530)</td>
<td>288.13 ± 24.96 300 (250 – 318)</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

Table (2): Comparison between the study groups regarding laboratory investigation.

P-value is calculated by Mann-Whitney U test.
*P-value <0.05 is statistically significant.
RBC, red blood cells; Hb, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red blood cell distribution width.
<table>
<thead>
<tr>
<th>Marker</th>
<th>Old published Cut off</th>
<th>IDA (n=17)</th>
<th>B-TT (n=23)</th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>YI (%)</th>
<th>PPV (%)</th>
<th>NPV (%)</th>
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<tr>
<td>Mentzer index (MI) IDA β-TT</td>
<td>&gt;13 &lt;13</td>
<td>10473</td>
<td>0 23</td>
<td>100.00</td>
<td>58.76</td>
<td>58.7</td>
<td>23.9</td>
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<td>Modified Mentzer index (MI) IDA β-TT</td>
<td>&gt;0 &lt;0</td>
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<td>0 23</td>
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<td>58.19</td>
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<td>14136</td>
<td>8 15</td>
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<td>79.66</td>
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<td>Shine and Lal index IDA β-TT</td>
<td>&gt;1530 &lt;1530</td>
<td>2175</td>
<td>0 23</td>
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<td>1.13</td>
<td>1.13</td>
<td>11.6</td>
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<td>4 19</td>
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<td>0 23</td>
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<td>Ricerca index IDA β-TT</td>
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<td>&gt;220</td>
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</tbody>
</table>
Table (3): sensitivity, specificity, negative predictive value, positive predictive value, and Youden’s index of the studied indices using the published cutoff point.

RBC, red blood cells; RDW, red blood cell distribution width; MCHD, mean cell Hb density; MDHL, mean density of Hb/liter of blood.
(cut-off values transformed into generally used units: Hb in g/dL; RBC in 1012/L; MCV in Fl; MCH in pg.; HCT in % MCHC in g/dL; RDW in %).

<table>
<thead>
<tr>
<th>RDW, IDA β-TT</th>
<th>&gt;13</th>
<th>168</th>
<th>23</th>
<th>0</th>
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<th>- 5.65</th>
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<td>RBCs count, IDA β-TT</td>
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<td>4</td>
<td>19</td>
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<td>71.19</td>
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