Objective: The purpose of this study was to assess whether women with endometriosis, idiopathic infertility, and tubal ligation have different levels of reactive oxygen species (ROS), total antioxidant capacity (TAC), and ROS-TAC score in their peritoneal fluid, and to assess whether the ROS-TAC score is a better predictor of endometriosis and successful pregnancy than the ROS and TAC scores alone. Design: Prospective controlled study Materials and Methods: Peritoneal fluid from 108 women: 60 with endometriosis (group I), 38 with tubal ligation/reanastomosis (group II) and 10 with idiopathic infertility (group III) was obtained. ROS was measured by enhanced chemiluminescence assay using luminol as the probe. TAC was measured using the colorimetric assay (Randox Laboratories, Crumlin, UK). ROS-TAC score is calculated by principal components analysis and a score <30 is indicative of high oxidative stress (Sharma et al., 1999). We compared the ability to predict endometriosis and pregnancy by each ROS and TAC versus the ROS-TAC score using DeLong non-parametric method of comparing 2 dependent ROC curves. Results: Groups I and II had significantly higher ROS values than group III (p=0.0005). Conversely, the ROS-TAC score was significantly higher in-group III compared with groups I and II (p=0.003). Peritoneal fluid TAC levels were comparable in all 3 groups. The area under the curve (AUC) was calculated for each measure to assess its predictive value. The ROS-TAC score (AUC=0.71, 95% CI= 0.60, 0.81) was no better at predicting endometriosis diagnosis than either the TAC (AUC=0.73, 95% CI= 0.63, 0.82) or ROS (AUC=0.73, 95% CI= 0.63, 0.83) levels alone. Of the 54 endometriosis patients attempting to conceive, the 11 who were successful had significantly lower levels of log ROS values (P=0.001), higher levels of TAC (P=0.02), and higher ROS-TAC scores (P=0.002) than endometriosis patients who did not get pregnant. Both pregnant and non-pregnant patients were comparable regarding the age, BMI and gravidity.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Diagnosis</th>
<th>n</th>
<th>p25</th>
<th>median</th>
<th>p75</th>
<th>P-value*</th>
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</thead>
<tbody>
<tr>
<td>Log ROS+1</td>
<td>Endometriosis</td>
<td>60</td>
<td>3.4</td>
<td>5.4</td>
<td>7.3</td>
<td>0.005a</td>
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<tr>
<td>“</td>
<td>Idiopathic</td>
<td>10</td>
<td>4.7</td>
<td>5.1</td>
<td>6.0</td>
<td></td>
</tr>
</tbody>
</table>
Tubal ligation 38 3.3 4.2 5.2

TAC  Endometriosis 60 333.9 465.5 591.9 0.52
“ Idiopathic 10 336.1 369.3 497.0
“ Tubal ligation 38 294.5 467.2 682.7

ROS-TAC score  Endometriosis 60 31.2 41.5 53.1 0.003b
“ Idiopathic 10 38.1 40.0 45.5
“ Tubal ligation 38 46.7 47.8 50.9

*Kruskal-Wallis test followed by Dunn’s multiple comparison procedure when significant

aEndometriosis and tubal ligation significantly different from each other
bEndometriosis and idiopathic significantly different from tubal ligation

Conclusion: Women with endometriosis and idiopathic infertility have significantly lower ROS-TAC scores or higher levels of oxidative stress than a control group of women who underwent tubal ligation/reanastomosis. The high levels of ROS and low levels of TAC could be expressed by the combined ROS-TAC score. Endometriosis patients with lower peritoneal fluid ROS and higher TAC levels are more likely to conceive than others. Support: None

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I Agree : True

Status: Complete