RELATIONSHIP BETWEEN SEXUAL ABSTINENCE PERIOD AND OXIDATIVE STRESS IN INFERTILE MEN

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Objective: It is established that the period of sexual abstinence may influence semen quality. Therefore, it is important to determine the optimum period of sexual abstinence that may result in the best semen quality. Reactive oxygen species play a significant role in the pathophysiology of male infertility. Superoxide dismutase (SOD) and catalase are important antioxidant enzymes that can quench excess free radicals such as: superoxide anion and hydrogen peroxide respectively. The objective of our study was to evaluate and compare the seminal antioxidant enzymatic activity (SOD and catalase levels) among fertile and infertile men at different abstinence intervals. Design: Prospective study at a tertiary care institution Materials and Methods: Ten fertile donors and 112 infertile patients were included in the study. The period of sexual abstinence ranged from 2 to 5 days and patients were divided into 4 groups accordingly: 2 days of sexual abstinence (n = 18), 3 days (n = 42), 4 days (n = 34) and 5 days (n = 18). The levels of SOD and catalase for each patient represent the average of 3 readings. Superoxide dismutase and catalase levels were determined with a spectrophotometer. The activity of the SOD was based on the adrenochrome concentration, resulting from the adrenaline oxidation by the radical superoxide. Catalase activity was determined by the velocity of hydrogen peroxide consume. 1 Unit of SOD was defined as the volume (µL) of the enzyme able to inhibit 50% of the reaction resulting in adrenochrome and results were expressed in USOD/g. 1 Unit of catalase means µmols H₂O₂ mg prot.⁻¹min.⁻¹ and results were expressed by UCAT/mg. We used ANOVA and Spearman correlation test for statistical analysis. Results: Significantly lower levels of SOD (14.67 ± 12.27 and 38.03 ± 21.65) and catalase (14.87 ± 16.95 and 34.03 ± 20.65) were seen in infertile patients compared to fertile donors (P < 0.0001). A significant correlation between catalase and SOD was observed (r = 0.461, P = 0.0001). SOD (r = 0.03; p = 0.81) and catalase (r = 0.21; p = 0.64) levels were not correlated with the abstinence time in a group of fertile men. In infertile men, SOD levels were not correlated with the abstinence days (r = 0.32, p =
However, catalase levels ($r = 0.413$, $p = 0.02$) did correlate with the abstinence in infertile men (Table 1).

<table>
<thead>
<tr>
<th>Antioxidants levels (Infertile)</th>
<th>2 days</th>
<th>3 days</th>
<th>4 days</th>
<th>5 days</th>
<th>r</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOD</td>
<td>$11.56 \pm 7.2$</td>
<td>$14.12 \pm 6.5$</td>
<td>$13.87 \pm 7.15$</td>
<td>$15.17 \pm 6.95$</td>
<td>$0.32$</td>
<td>$0.07$</td>
</tr>
<tr>
<td>CAT</td>
<td>$13.87 \pm 12.9$</td>
<td>$14.37 \pm 11.5$</td>
<td>$15.7 \pm 8.9$</td>
<td>$16.8 \pm 9.5$</td>
<td>$0.413$</td>
<td>$0.02$</td>
</tr>
</tbody>
</table>

Conclusion: Infertile men have lower antioxidant levels compared to normal fertile men. Increase in the duration of abstinence might reduce the seminal oxidative stress in infertile men. Our data suggests that the abstinence interval may be increased (up to 5 days) in patients seeking treatment for infertility. Support: None

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