SEMEN ANALYSIS TO DETERMINE THE MALE FACTOR INFERTILITY. A LOCAL EXPERIENCE

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ABSTRACT:
The incidence of male factor infertility is increasing day by day and therefore the evaluation of male factor should be performed early. Semen Analysis is the most important investigation to confirm male factor infertility. The study was conducted at Baqai institute of reproduction And Developmental Sciences (BIRDS) from June 2003 till June 2006. 711 semen samples were analyzed according to WHO criteria. Semen samples were collected from those male partners who were attending out patient of BIRDS for their infertility work up. 309 (42.4%) semen samples were found abnormal. Out of these Azoospermia, was found significantly high i.e 65%.

Key words: Male factor infertility, Semen Analysis, Azoospermia.

INTRODUCTION
Reproductive difficulties encountered by couples are receiving increasing attention both in the news, media and in public discussion. In the last decade, investigations have found significant pathology related to the male alone, in approximately one third of infertility cases¹. Because the male factor is so prominent, ideally the initial screening evaluation of the male should be performed early in the infertility investigations.

A carefully performed semen analysis provides important information concerning the male reproductive hormonal cycle, spermatogenesis and patency of the reproductive tract.

The standard technique of analysis allows variations of up to 20% among various laboratories. Besides laboratory error there are variations in sperm density, motility and morphology among multiple samples from a given man. Abstinence interval gives a large source of variability. Interpretation of semen analysis must take into consideration the variations between samples that exist in individuals. The number of specimens, to judge whether the quality of semen is good or poor, is a minimum of three samples, over a period of 2 months, with a consistent period of abstinence (48 to 72 hours), because transient semen abnormalities may be induced by recent infections, trauma, environmental stress or medications.

The objective of this study was to find out the male factor infertility on the basis of interpretation of semen parameters.

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PATIENTS AND METHODS:
This study was carried out at Baqai institute of reproduction and developmental sciences (BIRDS). Semen samples were obtained from male partners of different age groups, visiting out patient of BIRDS for their fertility consultation. The study covered a period of three years from June 2003 till June 2006. The samples were collected by masturbation in sterile container. All semen samples were analyzed according to WHO criteria. Semen specimens should be regarded as abnormal if the following values with these different characteristic persist; volume, less than 2.0ml, sperm concentration, less than 20 x 10^6 per ml; total sperm number of fewer than 40 million, sperm motility of less than 50% of cells with forward progression and quality graded below 2 (scale 0 to 4); and sperm morphology of less than 30% normal forms. The terms oligospermia, asthenospermia and teratozoospermia refer to individual semen samples, with abnormalities in sperm numbers, motility or morphology.

Presence of occasional clumps of agglutinated sperm are not infrequent in semen samples, but increased clumping suggest an inflammatory or immunologic process. Leukocyte count greater than 1 million per ml. is considered abnormal in a semen analysis.

RESULTS AND DISCUSSION:
711 semen samples were analyzed during these three year.

402 (56.5%) samples were found normal. 309 (42.4%) samples had abnormalities. 201 (65%) males presented with azoospermia, which is a significant figure. Other parameters are presented in table 1.

Table No.1
(Number - 711)

<table>
<thead>
<tr>
<th>Observation</th>
<th>No.</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>402</td>
<td>56.5</td>
</tr>
<tr>
<td>Abnormal</td>
<td>309</td>
<td>42.4</td>
</tr>
<tr>
<td>Number 309</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Azoospermia</td>
<td>201</td>
<td>65.0</td>
</tr>
<tr>
<td>Oligospermia</td>
<td>74</td>
<td>23.9</td>
</tr>
<tr>
<td>Asthenospermia</td>
<td>39</td>
<td>12.6</td>
</tr>
<tr>
<td>Teratozoospermia</td>
<td>36</td>
<td>11.6</td>
</tr>
<tr>
<td>Samples with multiple abnormal Parameters and infections</td>
<td>20</td>
<td>6.4</td>
</tr>
</tbody>
</table>
The absence of abnormal findings does not necessarily imply that the male is fertile. Azoospermia represents an absolute barrier to pregnancy. At the other end of the spectrum men with large number of motile sperm with normal morphology will probably be fertile.

A number of clinical approaches have been used to identify the minimum standard for fertile men. Although widely used threshold for normal semen measurements have been published by the World Health Organization, these norms for sperm concentration, motility and morphology fail to meet rigorous clinical, technical and statistical standards.

The (WHO) cut off point for sperm concentration is based upon a comparison of 1000 semen from fertile and 1000 semen from infertile men.

The cut off point for motility has no statistical basis in comparison with fertile and infertile men, and no specific cut off point for morphology is provided because of a paucity of data. Semen specimen from a large sample of fertile and infertile men, using contemporary methods of semen analysis were used to estimate threshold values for sperm concentration, motility and morphology.

This suggests that there is a broad overlap in the values of these semen. Measurements in fertile and infertile samples, two cutoff values were determined so as to define a 'gray zone' or intermediate range between fertile and sub fertile cutoffs.

It should be emphasized that the 'strict' method of morphology assessment must be used.

These thresholds can be used in clinical practice, as a screen for further evaluation of male infertility, or for counseling as, to the likelihood that the male partner is contributing significantly to infertility.

In current practice, the semen parameters are considered individually and are used to assign patients to clinical categories. In BIRDS, the following categories are used: (1) semen quality within normal limit, suggests that there is no evidence for male infertility, (2) marginal semen qualities, suggests that infertility is possible; and (3) abnormal semen quality, indicates that infertility is likely. Because of the multiplicity of semen parameter and normal variability in semen quality, it is not always possible to objectively assign a given patient to a clinical category. In general, when one or more semen parameters consistently fall within an abnormal or marginal range of values (e.g., marginal sperm concentration), the patient is assigned to the corresponding clinical category, that reflects the poorest semen parameters recorded.

More recent data in fertile men in Europe and the United States show marked differences in sperm concentration between different countries and different regions of the same country.

CONCLUSION:

Conventional semen analysis is an indirect assessment of male fertility potential. Despite its limitations, it is simple and inexpensive screening test. Abnormal semen analysis is relatively a non specific clinical sign of disordered spermatogenesis. However a single semen analysis is seldom adequate for even the most general assessment of a male's fertility status and multiple evaluations are always required to establish quantitative parameters of semen quality.

REFERENCES: