

IJBHS 2006029/3102

Semen Parameters of Infertile Out Patients Attending Murtala Muhammed Specialist Hospital, Kano, Nigeria

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(Received August 16, 2006)

ABSTRACT: Semen analysis is a valuable diagnostic tool in the assessment of male infertility potential. Possible changes were determined in semen quality of some Kano infertile males, over a period of two years (2003 – 2005). Retrospective analysis of semen volume, liquefaction time, pH and sperm concentration was carried out for 120 males from infertile couples (from January 2003 to December, 2005) in which 40 (33.33%) showed a zoospermia (A), 40 (33.33%) had oligozoospermia (B), 10 (8.33%) were asthenozoospermic (C) and 30 (25.00%) were found to be normozoospermic. The linear regression analysis shows a decrease in semen volume in groups A and B; mean semen volume (ml) for the four respective studies groups being 1.5 ± 0.4 , 1.7 ± 2 , 2.5 ± 0 . The mean liquefaction time (min) was 37.5 ± 0.7 , 28.7 ± 3.7 , 18.5 ± 0.7 and 18.6 ± 3.6 in groups A, B, C and D respectively, showing linear increase in groups A and B. pH did not vary much amongst groups and ranged from 7.0 to 8.5. Mean sperm concentration was 0.0, 6.7 ± 1.7 , 45.3 ± 8.8 and 86.8 ± 7.5 million/ml in groups A, B, C and D respectively. The study provides valuable semen parameters in the assessment of male infertility potential in Kano. There is need for measuring hormonal profile in the evaluation of male fertility in future study.

Keywords: Azoospermia, Oligozoospermia, Asthenozoospermia, Infertile, Males, Kano.

Introduction

Fertility is an important factor in the maintenance of successful marriages. It is a worldwide problem, which has received considerable attention in recent years. In oriental culture and social set up, men hardly agree for fertility evaluation, especially in countries where illiteracy and poverty are more prevalent. About 10 – 15% couples, globally have difficulty in initial as well as subsequent conception, with the major cause being associated with the male partnet (Evers – Johannes, 2002; Sertic *et al.*, 2002).

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Male infertility can be assessed through spermiogram and hormonal profile (Guyton, 1981). Absence of spermatozoa in the semen ejaculate is called “azoospermia” count less than 20 million/ml “oligozoospermia” and density of 20 million/ml but motility of less than 50% is called “asthenospermia” (Amelar, 1966). Male infertility is associated with a reduction in the quality of sperm (Mann and Lutwat – Mann, 1981). Decrease in sperm density, eventually leading to azoospermia, has been found to be associated with low testosterone level (Merino and Carranza – Lira, 1995). The aim of this study therefore is to determine the valuable parameters in the assessment of males infertility in Kano.

Materials and Methods

Subjects

A total of 120 subjects were included in the study. These were male out patients attending Murtala Muhammad Specialist Hospital, Kano, Nigeria. subjects were categorized as normozoospermic, azoospermic, oligozoospermic and asthenozoospermic on the basis of their sermiogram. The study was conducted for a period of tow years (2003 – 2005).

Semen Analysis

Semen from the subjects were obtained and analysed according to WHO recommended procedure (WHO, 1987). For each sample, the colour and consistency of semen were visually ascertained and liquefaction time was recorded. Semen volume was measured using a graduated glass pipette. The pH was determined with the used of strip (MN – Machenry Nagel, FRG). After liquefaction, the semen sample was thoroughly mixed with the glass rod and thin drop spread on a glass slide by placing a cover slip on it. Sperm motility was assessed by microscopic appraisal of 100 spermatozoa from different fields. These were classified as actively motile, sluggishly motile and immotile. Total sperm count in million/ml was obtained by diluting 1:19 of the semen sample with sodium bicarbonate – formalin diluting fluid in improved Neubauer haemocytometer (WHO, 1999).

Statistical Analysis

Data were analysed statistically by application of student’s t – test as described by Steel and Torrie (1960).

Results and Discussion

The results of the study are given in Table 1. Of the 120 males from infertile couples studied, 40 (33.33%) showed a zoospermia (A), 40 (33.33%) had oligozoospermia (B), 10 (8.33%) were asthenozoospermic (C) and 30 (25.00%) were found to be normozoospermic. The ratio between the normal and abnormal subjects evaluated on the basis of spermiogram quality was 1:5.9, which correlates with previous studies [Check *et al.*, 1995 (reported 1:60); Subhan *et al.*, 1995a (reported 1:5.8) 1995b (reported 1:6.1), 2000 (reported 1:6)].

The linear regression analysis shows a decrease in semen volume in groups A and B; mean semen volume (ml) and the mean liquefaction time (min) for the four respective studied groups showed linear increase in groups A and B. These findings correlate with other findings of Merino and Carranza – Lira (1995).

There was no marked difference in the pH amongst the four groups which ranged from 7.0 – 8.5. This is also similar to what was observed by Merino and Carranza – Lira (1995).

Table 1: Seminal Profiles of the Studied Subjects (mean $\pm$ SE)

Group (n)	Condition	Ejaculate volume (ml)	Liquefaction time (min)	pH	Sperm Concentration	Sperm Motility (%)		
						Active	Sluggish	Immotile
A (40)	Azoospermic	1.5 $\pm$ 0.4	37.5 $\pm$ 0.70	7.8 $\pm$ 0.10	Nil	Nil	Nil	Nil
B (40)	Oligo zoospermic	1.7 $\pm$ 0.2	28.7 $\pm$ 0.10	7.3 $\pm$ 0.10	6.7 $\pm$ 1.7	15.0 $\pm$ 6.0	30.0 $\pm$ 4.5	55.0 $\pm$ 6.5
C (10)	Asthenozoospermic	2.5 $\pm$ 0.1	18.5 $\pm$ 0.07	8.0 $\pm$ 0.07	35.3 $\pm$ 88	20.1 $\pm$ 5.1	18.4 $\pm$ 5.0	16.6 $\pm$ 8.2
D (30)	Normozoospermic	2.4 $\pm$ 0.2	18.6 $\pm$ 3.60	8.0 $\pm$ 0.08	86.8 $\pm$ 7.5	66.8 $\pm$ 2.3	14.5 $\pm$ 2.1	17.7 $\pm$ 1.7

Conclusions and Recommendations

On the basis of the present data, it is concluded that semen analysis is a valuable diagnostic tool in the assessment of male fertility potential and may, therefore, be used with advantage of spermatogenic dysfunction in Kano. There is need for measuring hormonal profile in the evaluation of male fertility in future study.

ACKNOWLEDGEMENT: The authors are thankful to the Staffs of Microbiology Unit, Pathology Department, Murtala Muhammed Specialist Hospital for their cooperation during the course of the study.

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