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Biochemical Analysis of Patients Having Oligospermia and Azoospermia

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The study was conducted to analyzed plasma/serum of azo-ospermic, oligospermic and asthenospermic men for metabolic, renal and hepatic functions to observe the relationship between fertile and infertile states. Simple and valid tests such as biochemical analysis for sugar (metabolic test), urea and creatinine (renal function test) and serum glutamate pyruvate transaminase (SGPT) and serum bilirubin (hepatic function test) were performed employing commercially available reagents (kits) and spectrophotometer. Four groups of patients, including an azoospermic, oligospermic, asthenospermic and normospermic group, were examined for the said purpose. The results suggested that there was no remarkable difference in various physiological functions between the fertile and infertile states.

Key words: Fertile/infertile men, physiological functions, biochemical analysis

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Introduction

Infertility is a problem faced by many couples throughout the world, however, it is of great importance in the male dominated society of the Third World Countries. Though, there is a population explosion, yet significant number of population is desperately trying to conceive but remains neglected (Tietze *et al.*, 1950 and Seibel, 1990). In another report (Guyton, 1991) it is stated that male fertility is assessed through spermogram and hormonal profile. According to Amelor (1966) the absence of spermatozoa in the semen ejaculate is called azo-spermia, density of less than 20 million ml^{-1} spermatozoa is called oligospermic and density of 20 million ml^{-1} but motility of less than 60% is called asthenospermia. Decrease in sperm density, eventually leading to azo-spermia, has been found by several authors which is associated with raised follicle stimulating hormone (FSH), luteinizing hormone (LH) and normal or low testosterone level (Subhan *et al.*, 1995; 1995a; Marino *et al.*, 1995).

In this investigation routine biochemical examination of carbohydrate metabolism, renal and hepatic profiles of azoospermic, oligospermic and asthenospermic groups were designed to establish the preliminary data for the above mentioned three states of infertility, in order to examine the relationship between fertility and physiological functions of the body.

Materials and Methods

Classification of patients: A total of 150 subjects including 30 control subjects, were included in this investigation. On the basis of their spermograms the subjects were categorized as azo-spermic group (50 subjects), oligospermic group (50 subjects), asthenospermic group (20 subjects) and a control group (30 subjects).

Biochemical analysis: Biochemical analysis of sugar (metabolic), Urea, Creatinine (renal function tests) and Serum glutamate pyruvate transaminase (SGPT), Serum bilirubin (Sbr) (hepatic function tests) were performed according to the recent World Health Organization (WHO) standard (Seibel, 1990), employing commercially available reagents (kits) and spectrophotometer.

Results

It can be observed that there is no significant difference between the various groups examined in this work because the results of all the parameters obtained from them are lying within the normal limits. The results of biochemical parameters are presented in Table 1.

Table 1: Results of various Biochemical parameters

Assays	Patients			
	Azoospermia	Oligospermia	Asthenospermia	Control
Glucose	96.4 ± 1.3	93.9 ± 1.3	95.5 ± 1.3	95.0 ± 1.3
Urea	25.2 ± 1.1	29.5 ± 1.1	27.5 ± 1.1	27.0 ± 1.1
Creatinine	0.80 ± 0.01	0.70 ± 0.01	1.0 ± 0.01	0.75 ± 0.01
SGPT*	32.5 ± 1.5	31.5 ± 1.5	30.5 ± 1.5	29.0 ± 1.5
Sbr**	0.80 ± 0.05	0.85 ± 0.05	0.82 ± 0.05	0.80 ± 0.05

* Serum glutamate pyruvate transaminase

** Serum bilirubin

Discussion

It is commonly believed that a couple who does not procreate after one year of marriage is termed as infertile and is suspected of some diseases related with muscularity proposed by the American Fertility Society (Tietze *et al.*, 1950). Almost normal results were obtained from a study of 250 patients (Tahir *et al.*, 1997) who were examined for their renal, cardiac and hepatic functions. Our findings also suggests that normal values for all the four groups comprising of 150 patients sample.

Hence it could be concluded that the social beliefs of the types as mentioned above have no scientific ground, as all the groups tested in this investigation had normal results obtained from the biochemical examination and they were performing normal physiological activities when compared to control group. Thus infertility or subfertility does not affects other physiological functions of the body.

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