

Relationship Between Hyperviscosity and Sex Hormone in Azoospermia and Oligozoospermia Patients Compares with The Control Group

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ABSTRACT

Background: Seminal fluid is important factor for successful fertility, Sperm dysfunction is the most common cause of male infertility.

Aim of study: To compare the sex hormone in patient with azoospermia, Oligozoospermia and Normospermia fertile men as a control To find out the causes of semen viscosity.

Patients and methods: Data analysis from azoospermia patient (n = 35) and Oligozoospermia (n = 35) and Normospermia fertile men as a control (n = 13).

Results: The results of this study revealed significant reduction ($p < 0.05$) semen was reduced in azoospermia infertile patient (mean \pm Std. Error 0.76 ± 0.21 also reduced in Oligozoospermia 0.71 ± 0.23 while showed no significant FSH & LH level between azoospermia & Oligozoospermia compare with Normospermia fertile men.

Conclusion: The viscosity in semen has a strong relationship with low sperm counts is an important factor with sex hormones therefore it is the cause affecting the motile spermatozoa.

Keywords: Azoospermia, FSH,LH, Hyperviscosity, Testosterone, Oligozoospermia

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INTRODUCTION

Infertility is a major health case globally which is defined as "the inability of an asexually active couple having unprotected sexual intercourse to achieve pregnancy within one year.¹ In spite of the fact that the definite reason for the decrease in semen quality is indistinct due to natural components, change in way of life, and neurotic conditions like testicular disease, cryptorchidism, varicoceles, and so forth demonstrate a solid connection.²

Azoospermia is characterized as the nonattendance of sperm in a discharge, It establishes to 5-20 % of all male barrenness cases.³ It can be ordered into nonobstructive azoospermia and obstructive azoospermia. The two cases can't be analyzed without careful intercession.⁴ Highlighted the level of azoospermia in Iraq which expanded from 8% to 26% of all male barrenness cases, There are numerous elements which lead to azoospermia one of them is pipe deterrent and brokenness of the pituitary organ and testicles malignancy.⁵ The viscosity of the semen sample can be estimated by gently aspirating it into a wide-bore plastic disposable pipette (± 1.5 mm diameter) and subsequently allowing it to drop by gravity.⁶

A normal sample leaves the pipette in small discrete drops, but if viscosity is abnormal (increased), the drop will form a thread more than 2 cm long.⁷ Alternatively, the viscosity can be evaluated by placing a glass rod into the sample and observing the length of the thread that forms upon withdrawal of the rod. The viscosity should also be recorded as abnormal when the thread exceeds 2 cm in length.⁸ The semen viscosity that depended on many rezones such as less of vitamin or less of drinking water.⁹ Viscous specimens are extremely difficult to manipulate in vitro and may not allow the proper separation and isolation of spermatozoa for assessment, sperm preparation or performance of ART procedures such as intrauterine insemination (IUI) and IVF.¹⁰ Semen liquefaction can be induced in vitro by addition of mucolytic agents, diluting by mixing with culture media or mechanical disruption of the mucous material.¹¹ Mucolytic agents such as a-chymotrypsin, a-amylase and dithiothreitol have been employed to improve semen liquefaction and viscosity difficulties.¹² In general, it has been shown the treatment of semen with achymotrypsin improves the in vitro fertilizing ability of high viscosity semen specimens. Studies have documented

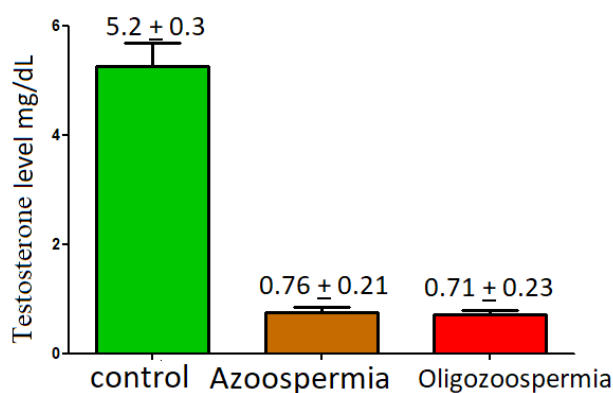


Figure 1: The comparison of testosterone concentration in the serum between control, Azoospermia and oligozoospermia

that semen hyperviscosity (SHV) occurs in 12–29% of ejaculates.¹³

MATERIALS AND METHODS

Semen and serum specimens were collected from azoospermia (n = 35) and Oligozoospermia (n = 35) infertile patients in addition to control group (n = 13) (Fertile Normozoospermia) that attended to fertility center. The average age of infertile patients was (30.21 ± 42) years, the samples were collected are 123 and sample which tested are 88 samples.

A biochemical test was performed on (88) samples had been measured FSH, LH and testosterone Levels by immunological method enzyme-linked-immuno-sorbent-assay (ELISA) by using ELISA reader (Huma Germany origin). All specimens and reagents must be allowed to come to room temperature before use. All reagents must be mixed softly without foaming. Once the procedure has started, all steps must be completed without interruption, and biochemical tests were conducted in the laboratories of Biology Department/Faculty of Sciences/ University of Kufa. The ELISA kits used in this study was (FSH) (ab108641), (LH) (ab178658) and testosterone (ab108666) abcam Company USA in Origin.

RESULTS

The result showed a significant testosterone level in semen was reduced in azoospermia infertile patient (mean ± Std. Error 0.76 ± 0.21 also reduced in Oligozoospermia 0.71 ± 0.23 while showed no significant FSH and LH level between azoospermia & Oligozoospermia compare with Normospermia fertile men

DISCUSSION

The present study show testosterone level was critical abatement in azoospermia, oligozoospermia contrast and Normospermia rich men might be because of increment proof that sperm rot can antagonistically influence spermatogenesis.¹⁴ The present examination additionally demonstrate that cytokine level a negative relationship was found between cytokine level, with sperms fixation; sperm motility and sperm normal morphology in idiopathic and unexplained fruitless men, these outcome

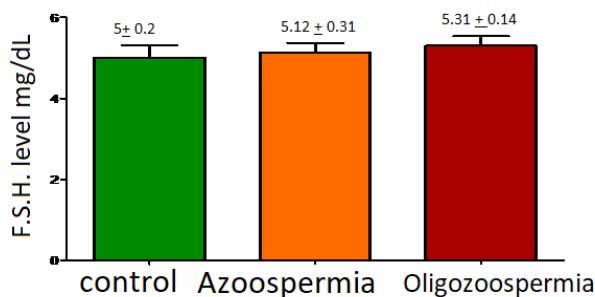


Figure 2: The comparison of F.S.H concentration in the serum between control, Azoospermia and oligozoospermia

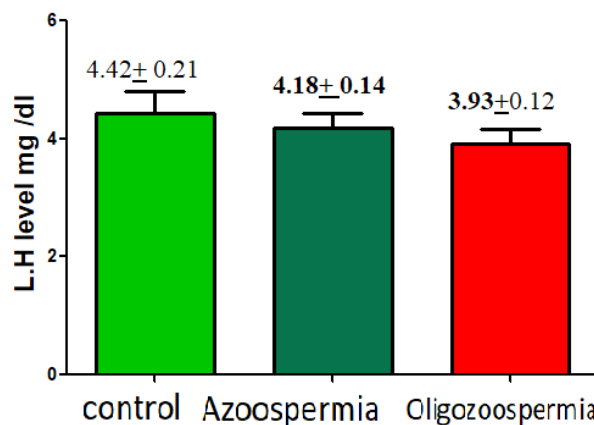


Figure 3: The comparison of L.H concentration in the serum between control, Azoospermia and oligozoospermia

concur with concentrate that show negative connection was found between cytokine level, with sperms count, Sperm motility and sperm normal morphology.¹⁵ The cytokine level that impact by going with spermatogenesis cause by increment free radicals.¹⁶

CONCLUSIONS

The viscosity in semen has a strong relationship with low sperm counts is an important factor with sex hormones therefore it is the cause affecting the motile spermatozoa.

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