International Journal of Pharmaceutical and Bio-Medical Science

ISSN(print): 2767-827X, ISSN(online): 2767-830X

Volume 04 Issue 07 July 2024

Page No: 648-653

DOI: https://doi.org/10.47191/ijpbms/v4-i7-10, Impact Factor: 7.792

The Relationship between the Sexual Abstinence Period and Semen Parameters in Oligozoospermic and Asthenozoospermic Infertile Men

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ABSTRACT

The present study aimed to evaluate the correlation between sexual abstinence period and semen parameters in oligozoospermic and asthenozoospermic infertile men. this study was carried out in laboratories of fertility center in Alsader hospital in province of Najef, and in laboratories of faculty of science, Kufa university in Iraq. oligozoospermic and asthenozoospermic groups were selected in this study .semen analysis was conducted for two both groups according to WHO guidelines, and the correlation between semen parameters and abstinence period were studied.

Our study involved a study of the correlation between the abstinence period and sperm parameters in both two group, oligozoospermia and asthenozoospermia. In the correlation between sperm parameters and abstinence period, the oligozoospermia group showed no significant differences ($p>0.05$) .While the asthenozoospermia group revealed nonsignificant diffrences in the correlation between abstinence period and sperm concentration and progressive motility percent and it revealed to find a significant correlation ($r=0.20;p=0.047$) between abstinence period and normal sperm morphology percent**.** abstinence period has not any effect on sperm parameters in oligozoospermia but there is positive correlation between sexual abstinence period and normal sperm morphology in asthenozoospermia. Study of corelation between abstinence period and ROS and DNA fragmentation for oligo and astheno spermia groups.

KEYWORDS: sexual abstinence period, semen parameters, oligozoospermic, asthenozoospermic infertile, men, sex.

ARTICLE DETAILS

Published On:
30 July 2024

Available on:
https://ijpbms.com/

1. INTRODUCTION

Normozoospermia relates to the amount, motility, and shape of sperm. Total number (or concentration, based on the stated outcome) of spermatozoa, as well as percentages of progressively motile (PR) and morphologically normal spermatozoa, at or above the lowest reference limits (1).

Oligozoospermia is defined as a decrease in sperm count of less than 15x10.6 per 1 milliliter of ejaculate 2. Oligozoospermia is one of the worst idiopathic forms of male infertility 3. Oligozoospermia is caused by a number of reasons, including aberrant hormonal swings, pituitary gland dysfunction, and sperm production dysfunction 4 .Total of spermatozoa below the lower reference limit (or concentration, depending on outcome stated) 1.

A low sperm count (oligozoospermia) is frequently accompanied by poor motility and morphology, which reflects qualitative and quantitative abnormalities in spermatogenesis 5. Azoospermia, which is characterized by the absence of sperm in ejaculated, is the most severe form of male-factor infertility. It affects around 5% of males and accounts for 30% of male-factor infertility cases 6.. There are numerous causes of azoospermia, including duct obstruction, pituitary gland malfunction, and testicular malignancy 7. Asthenozoospermia, a condition characterized by low sperm motility, is regarded as one of the primary contributors to male infertility 8. Asthenozoospermia is characterized by overall motility 40% and progressive motility 32% in a sperm sample 1. Below the lower reference limit, the proportion of morphologically normal spermatozoa 1. A typical sperm has a well-defined oval head with an acrosomal cap occupying a major portion of the sperm head region. The sperm's midsection is a cylinder with well-defined boundaries, and its tail is straight and cylindrical 9. The present study aimed to evaluate the correlation between sexual abstinence period and

semen parameters in oligozoospermic and asthenozoospermic infertile men.

2. MATERIALS AND METHODS

2.1 Population and study design:

The semen samples were collected from infertile patients who attended fertility center in alsader hospital to obtained on treatment. The age of the patients ranged from 18 to 46 and the marriage period ranged from 1 to 10 years. each men was asked to deliever a semen sample ,and sexual abstinence period was recorded.semen samples were collected in sterile containers by masturbation.then they were placed in incubator for liquefaction time become complete .semen analysis was done and semen parameters were recoded .oligozoospermia and asthenozoospermia were determined according to WHO guidelines and exclusion criteria were included azoospermia, and normozoospermia.

2.2 Semen analysis:

Infertile men were instructed to provide sperm samples via masterbation and a sexual abstinence period ranging from 2 to 7 days. The semen samples were collected in a clean container and placed in an incubator for 1 hour to complete liquefaction. Semen samples were mixed gently and well, then semen parameters were examined. Semen volume was recorded by a graduated cylinder .sperm concentration was estimated by the Makler chamber ,progressive motility was estimated by wet preparation and recorded under a light microscope (40x),sperm morphology was estimated by the eosin staining.

2.3 Makler counting chamber method(31,32).

A drop from a well-mixed specimen of semen was placed on the chamber and covered. The microscope with a x20 objective and x10 eyepiece was used. Counting sperm heads contained within a strip of 10 squares, a number describing sperm concentration in millions per milliliter was obtained.

2.4 Assessment of sperm mophology

For the determination of sperm morphology, a smear of semen is prepared on a glass slide, air-dried, and stained with eosin/nigrosin. The slide is mounted with a coverslip and examined using a light microscope. Approximately, 200 spermatozoa per replicate are examined for normal and abnormal forms (. World Health Organization. WHO laboratory manual for the examination and processing of human semen; 2010).

Data of the present study was analyzed by using SPSS Statistics Version 23.0 (IBM SPSS Statistics for Windows, Version 23.0. IBM Corp). Comparison of differences between continuous variables was done by using the Paired t-Test when compared two means and One Way ANOVA test to compare three variables; Multiple Pairwise Comparisons were performed by using least significant differences (L.S.D). Chi squared test was performed to analyze categorized data; Pearson's correlation analysis was used to determine the relationship between variables. P values ≤ 0.05 and ≤ 0.01 considered as Significant and highly significant.

3. RESULTS

Our study involved a study of sperm parameters between oligozoospermia and asthenozoospermia.the results of this study showed a significant increase ($p< 0.05$) in sperm concentration in the asthenozoospermia group compared to the oligozoospermia while the results showed a significant decrease ($p>0.05$) in progressive motility and normal sperm morphology percent in asthenozoospermia group compared to oligozoospermia group**.**(Table 1).

Our study involved a study of the correlation between the abstinence period and sperm parameters in both two group,oligozoospermia and asthenozoospermia. In the correlation between sperm parameters and abstinence period, the oligozoospermia group showed no significant differences ($p>0.05$) (Figures 1,2,3).

While the asthenozoospermia group revealed nonsignificant diffrences in the correlation between abstinence period and sperm concentration and progressive motility percent and it revealed to find a significant correlation ($r=0.20;p=0.047$) between abstinence period and normal sperm morphology percent**.(**Figures 4,5,6).

Sperm parameters	Oligozoospermia n=100	Asthenozoospermia n=100	P value
Sperm concentration million /ml	8.65±3.96	30.88±18.35	0.000**
Progressive motility percent %	46.77±8.47	15.14±8.15	0.000**
Normal sperm morphology percent %	51.40±6.97	44.39±7.95	0.000**

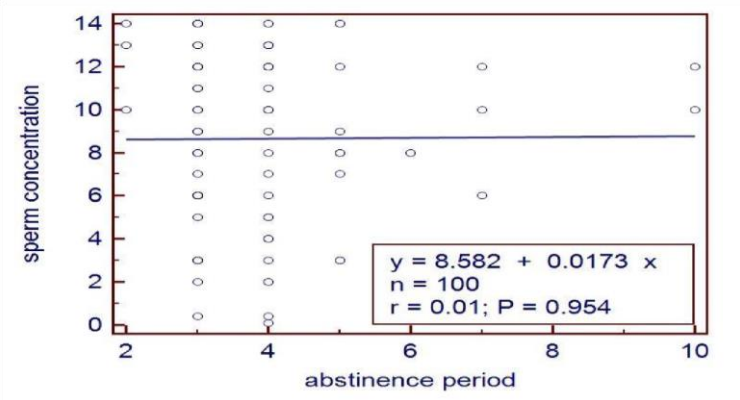

Figure 1 - Correlation between abstinence period and sperm concentration in oligozoospermic samples.

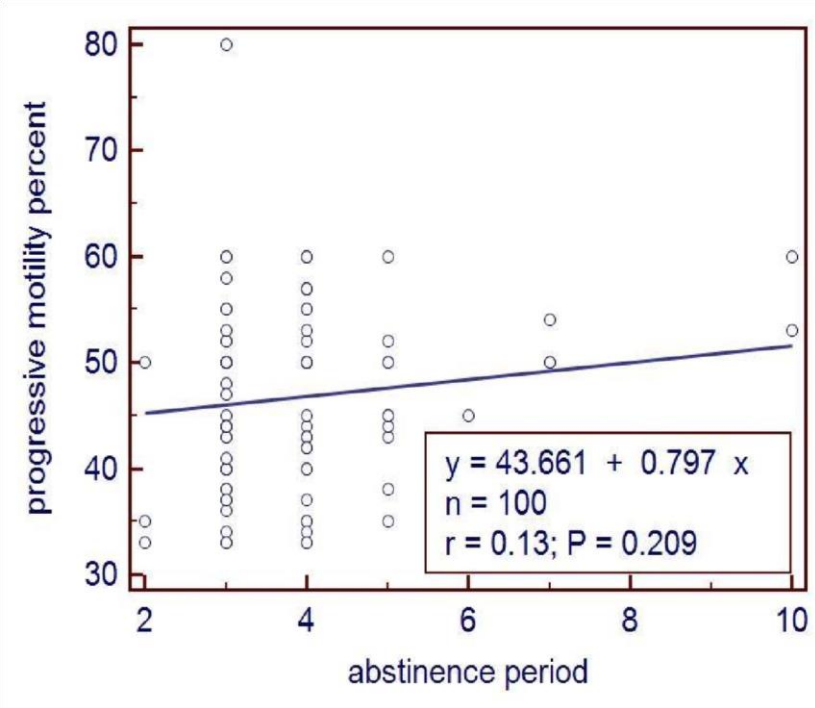

Figure 2 - correlation between abstinence period and progressive motility percent in oligozoospermic samples

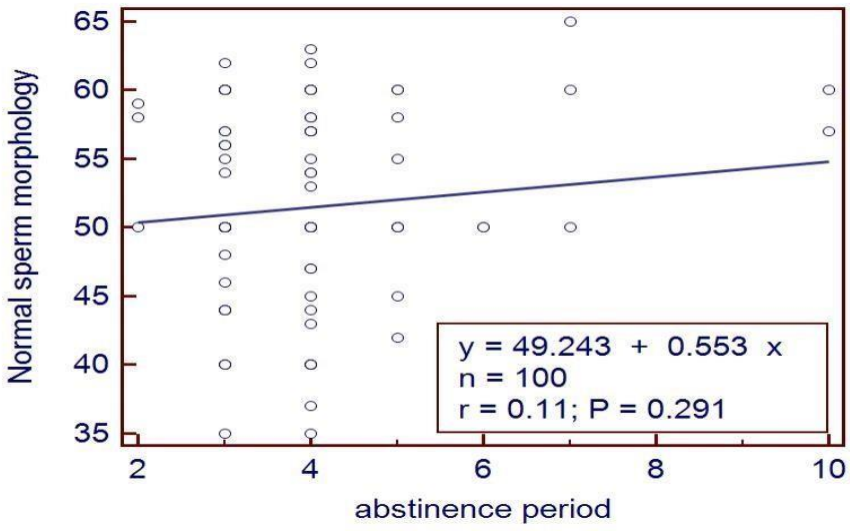

Figure 3 - correlation between abstinence period and Normal sperm morphology percent in oligozoospermic samples.

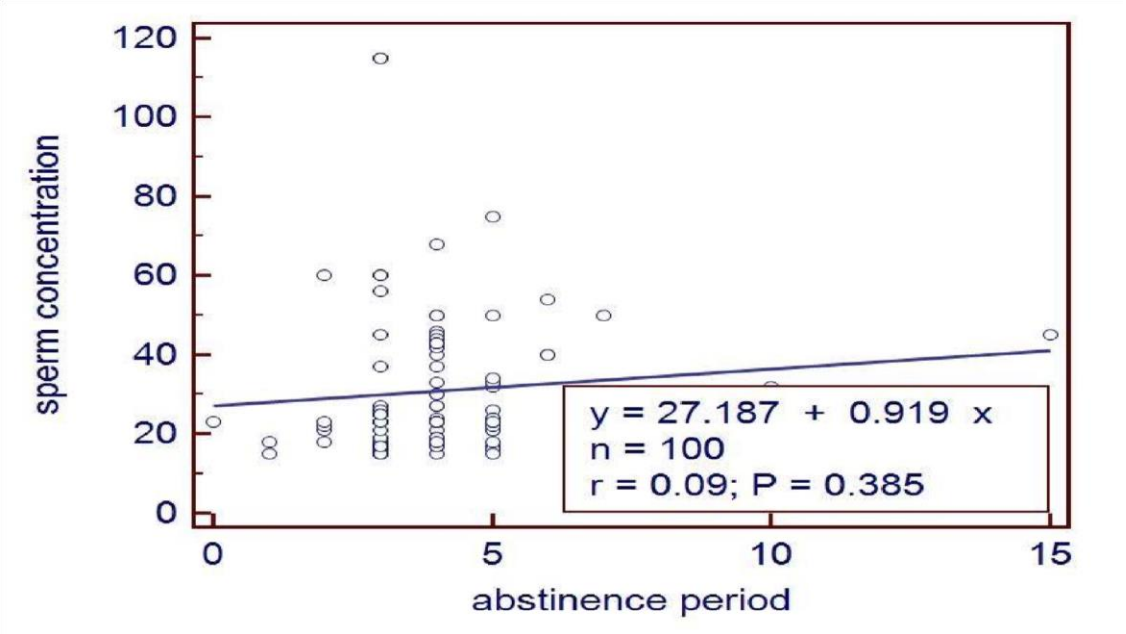

Figure 1 - correlation between abstinence period and sperm concentration in asthenozoospermic samples

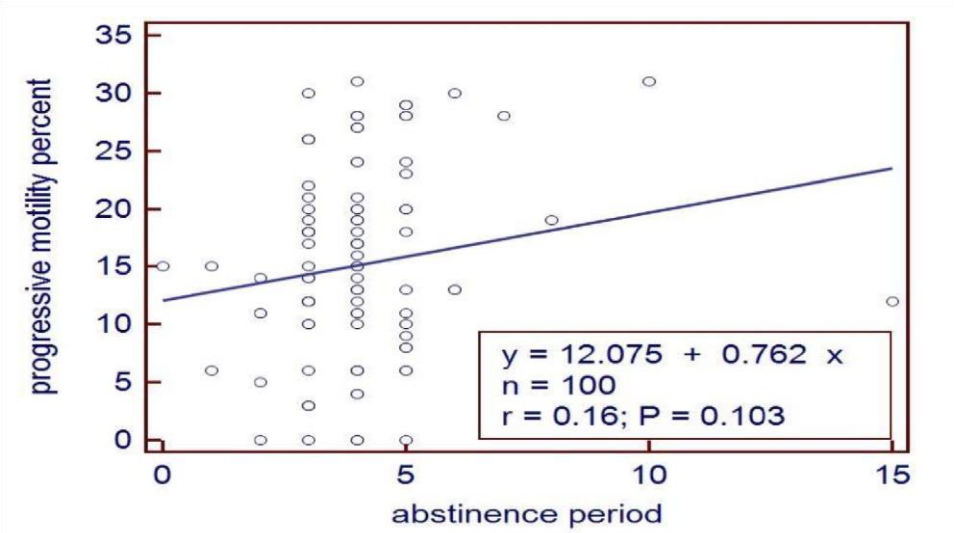

Figure 2 - correlation between abstinence period and progressive motility percent in asthenozoospermic samples

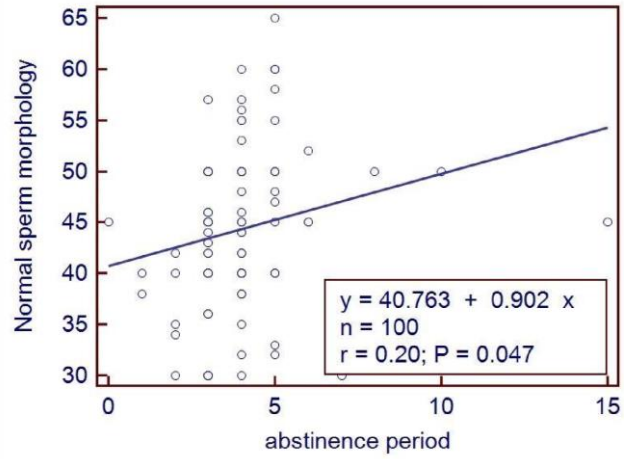

Figure 3 - correlation between abstinence period and Normal sperm morphology percent in asthenozoospermic samples.

4. DISCUSSION

Low sperm motility, referred to as asthenozoospermia, can occur as an isolated abnormality or, more commonly, in conjunction with abnormal morphology (teratozoospermia) or low sperm concentration (oligozoospermia), collectively known as oligo-asthenoteratozoospermia (OAT). 33. Asthenozoospermia is defined as less than 40% total sperm motility or less than 32% rapid progressive motility, according to the WHO laboratory manual for the examination and processing of human semen. 1.

Oligozoospermia refers specifically to the condition in which sperm concentration below the lower reference limit of 15 million sperm/mL of ejaculate. Oligozoospermia can be further classified as mild (between 10 and 15 million sperm/mL), moderate oligozoospermia (between 5 and 10 million sperm/mL), and severe oligozoospermia (less than 5 million sperm/mL) 34.The results of current study showed decrease in sperm concentration in oligozoospermia compared to asthenozoospermia.

The decrease in sperm concentration in the oligozoospermia group compared to the asthenozoospermia group may be due to the effect of spermatogenesis in the testicle due to hormonal imbalance or varicocele, or any damage to the testicle that causes the cessation of sperm production, while the problem of asthenozoospermia is mainly due to the process of storing sperm in the epididymis or The presence of inflammation, increased free radicals, and decreased antioxidants lead to decrease in sperm motility.

Hussein , 2018 mentioned that Oligospermia is a defect in sperm production and may be due to surgically correctable causes like varicocele, exposure to thermal or chemical environmental factors suppressing spermatogenesis, hormonal factors, intrinsic testicular defect or idiopathic.35. 36. normal sperm morphology and progressive motility were had significant increase in oligozoospermia copmpared to asthenozoospermia .this is result may be due to the oligozoospermia in our study has decrease in sperm count and normal values in other parameters .

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