Global Journal of Anesthesia & Pain Medicine

DOI: 10.32474/GJAPM.2019.02.000132

ISSN: 2644-1403

Research Article

Exploring the Potential Detrimental Effects on Semen Parameters: A Challenging Modality of Treatment of Erectile Dysfunction in Infertile Men

Ayse Veyhurda Dikmen[1]* and Metin Tas[2]

[1]*Ankara, Turkey*

[2]*Ankara Lokman Hekim Hospital, Urology Clinic, Turkey*

***Corresponding author:** Ayse Veyhurda Dikmen, Urologist, Ankara, Turkey

Received: September 23, 2019 **Published:** October 03, 2019

Abstract

Background: In this era of innovation and technology, the major expectations about male healthcare are getting rid of erectile dysfunction without any adverse effects as well as providing the best rates of fertility dedicatedly ever after.

Objective: To investigate the effectiveness of magnesium sulphate in treatment of postoperative agitation following functional endoscopic sinus surgery.

Design, setting and participants: In this study, a total of 2200 men with borderline erectile dysfunction and infertility and aged between 35-58, had 6 months of duration of treatment with 5mg daily tadalafil. The pretreatment and posttreatment semen parameters of the patients were evaluated retrospectively.

Outcome measurements and statistical analysis: The evaluated semen parameters were pH, concentration, volume and motility rates before and after the treatment with 5mg daily tadalafil. There was no statistically significant difference between the groups in terms of mean concentration of the semen in the pretreatment and posttreatment measurements.

Results and limitations: There was no statistically significant difference between groups in terms of volume of the seminal fluid. In terms of non-progressive motility, the pretreatment and posttreatment.

Conclusion: As a conclusion, it is obvious that the treatment of borderline erectile dysfunction with daily 5mg tadalafil does not cause potential detrimental effects on parameters of seminal fluid. 5mg daily tadalafil does not destruct the rates of progressive motility, in fact.

Patient Summary: Before this retrospective analysis, it was not the expected finding that the progressive motility of the seminal samples would show improvement but owing to this incidental finding, it is a promising expectation that in the future, 5mg daily tadalafil will take its place in treatment modalities of infertility next to the classical agents.

Keywords: Tadalafil; Semen; Sperm

Introduction

In this era of innovation and technology, the major expectations about male healthcare are getting rid of erectile dysfunction without any adverse effects as well as providing the best rates of fertility dedicatedly ever after. Certain urology clinics have been dealing with the potential detrimental effects of different series of medication for erectile dysfunction on male fertility. It has been a well-known myth of the treatment modalities for premature ejaculation. However, so far, it has not yet been fully evaluated whether the established modalities of treatment of erectile dysfunction cause prominent detrimental effects on male fertility. In this retrospective study, the aim is to obviate whether the treatment with daily 5mg tadalafil causes adverse effects on semen parameters in men with both infertility problems and erectile dysfunction or not. In recent years, this issue has attracted the very best attention of the clinicians while treating erectile dysfunction and/or infertility problems of men of different ages. Tan et al. have evaluated and performed a systematic review and meta-analysis to determine the effect of phosphodiesterase-5 (PDE5) inhibitors on sperm parameters [1].

They have concluded that acute administration of PDE5 inhibitors had no effect on semen volume and sperm concentration [1]. And the last but not the least, they have declared that the percentage of motile spermatozoa, the percentage of total progressive motility and rapid progressive motility were increased after oral PDE5 inhibitors treatment [1]. Not surprisingly, these significant changes have been shown only in infertile men but not in normal patients. After dealing with this issue during our systematic review of the literature, we have decided to obviate the utmost importance of the final situation in infertile men with borderline erectile dysfunction, having used daily tadalafil.

Methods

In this study, a total of 2200 men with borderline erectile dysfunction and infertility and aged between 35-58, had 6 months of duration of treatment with 5mg daily tadalafil and underwent a mode of evaluation for the potential changes of the medication on semen parameters. The pretreatment and posttreatment semen parameters of the patients were evaluated retrospectively. 48 patients who left the medication for erectile dysfunction during follow-up were excluded. The success of the treatment in terms of erectile function was evaluated with International Index of Erectile Function (IIEF) and the semen parameters were evaluated according to Kruger. The period of sexual abstinence was 3 days for all the patients during the pretreatment and posttreatment evaluation of seminal fluid. In the literature, there have been very few studies evaluating the real- time effect of administration of tadalafil in terms of histopathologic and ultrastructural changes. Eid et al. have evaluated the effect of chronic daily administration of different doses of tadalafil, equivalent to human doses of 5, 10, and 20mg daily, on the structure of the seminiferous tubules and on spermatogenesis in wistar rats [2]. This has been an illuminating step for our retrospective study whether daily tadalafil has the potential to cause any detrimental effects on sperm parameters or not. Likewise, Corvasce et al. have examined the expected findings during their study whether once-a-day Tadalafil administration improves the spermogram parameters in fertile patients or not [3]. They have evaluated twenty-seven men, between 19 and 35 years, regardless of their fertility status, suffering from psychogenic ED [3]. Similar to our study, the examination of the seminal fluid was performed twice before administration of Tadalafil and twice after three months of continuous daily administration of Tadalafil 5mg[3]. Augmenting our courage to design such type of study, Yang et al. have one of the milestones of studies in this area of evaluation, declaring the effect of acute tadalafil on sperm motility and acrosome reaction with in vitro and in vivo studies [4]. They have supported that, during *in vivo* part, oral administration of tadalafil (20mg) or sildenafil (100mg) was given [4]. Considering both *in vitro* and *in vivo* results, they have declared that acute on-demand administration of tadalafil would have no adverse effect on semen parameters [4]. After all these reviews, we have managed to evaluate retrospectively, the obvious results of the patients, attending our clinic in 4 years time and decided to announce our hope-giving findings immediately.

Results

Pretreatment mean score of IIEF was 37.3±1.3 and posttreatment mean score was 58.1±1.2. The evaluated semen parameters were pH, concentration, volume and motility rates before and after the treatment with 5mg daily tadalafil. The mean pretreatment value of seminal pH was 7.53±0.09 and that of posttreatment period was 7.51±0.08 without any statistically significant difference between the two groups of results in terms of pH. The mean concentration of the semen in the pretreatment and posttreatment measurements were 17.08±5.52 millions/ml and 18.01±5.11 millions/ml, respectively, with no statistically significant difference between the groups. The mean volume of the seminal samples were 2.95±0.89 and 3.11±0.81ml, respectively. There was no statistically significant difference between groups in terms of volume of the seminal fluid. In terms of non-progressive motility, the pretreatment and posttreatment mean values were 55.32±8.70% and 49.55±8.70%, respectively and the difference between the groups was statistically significant. The pretreatment and posttreatment rates of progressive motility were 21.55±4.70% and 24.1±3.32%, respectively. The difference between two groups was found to be statistically significant. The statistical analysis was carried on via SPSS v.22 and for comparison of numerical variables one-way ANOVA was used and for the evaluation of increase in variables regression analysis was done.

Conclusion

In a sudy by La Vignera et al. ultrasound evaluation of seminal vesicles and diabetic neuropathy was examined after prolonged treatment with a selective phosphodiesterase-5 inhibitor [5]. They have planned their study with 20 infertile patients with symptomatic diabetic neuropathy and erectile dysfunction and divided into two groups of daily administration of 5mg tadalafil for 3 months and administration of placebo5. They have determined a significant improvement of the total sperm count, progressive motility, seminal levels of fructose, leucocytes and ejaculate volume and their promising results suggest that infertile diabetic patients with diabetic neuropathy and erectile dysfunction have got an improvement of ultrasound features suggestive of diabetic neuropathy after daily treatment with low doses of tadalafil5.

Likewise, Tan et al. have declared that oral phosphodiesterase-5 inhibitors treatment could modestly increase the sperm motility and morphology in infertile men after promising results of their study [1]. Eid et al. were one of the dedicated performers of the studies of this type and they have concluded that chronic daily oral administration of tadalafil to male albino rats demonstrates a dose-dependent alteration to testicular histology and semen parameters [2]. Also, they have kept the door open through future studies, expected to illuminate the influence of these changes on the actual fertility of these animals [2]. Corvasce et al. have declared that tadalafil administration improves the quality of sperm cells and seminal fluid in terms of motility, percentage of nemasperms and volume of seminal fluid [3]. After all their valuable efforts, they have concluded that a great number of miles have been got in terms of

the safety of the once-daily treatment with tadalafil 5mg and the positive effects on spermatogenesis and yet so much work has to be done [3].

As a conclusion, it is obvious that the treatment of borderline erectile dysfunction with daily 5mg tadalafil does not cause potential detrimental effects on parameters of seminal fluid. 5mg daily tadalafil does not destruct the rates of progressive motility, in fact. Even the posttreatment values of progressive motility can gain acceleration, most probably due to increment of blood supply to male genitalia owing to therapeutic threshold blood concentrations of 5mg daily tadalafil. Before this retrospective analysis, it was not the expected finding that the progressive motility of the seminal samples would show improvement but owing to this incidental finding, it is a promising expectation that in the future, 5mg daily tadalafil will take its place in treatment modalities of infertility next to the classical agents. We believe that our promising results of this issue will have attracted the attention of many clinicians and will illuminate the road to better practice of science.

References

1. Tan P, Liu L, Wei S, Tang Z, Yang L, et al. (2017) The Effect of Oral Phosphodiesterase-5 Inhibitors on Sperm Parameters: A Meta-analysis and Systematic Review. Urology 105: 54-61.
2. Eid AA, Badr El Dine FM, Nabil IM (2016) Histopathologic and Ultrastructural Changes in Seminiferous Tubules of Adult Male Albino Rats Following Daily Administration of Different Doses of Tadalafil. Urology 90: 89-96.
3. Corvasce A, Albino G, Leonetti T, Buonomo AF, Marucco ECArch Ital Urol Androl (2015) Once-a-day Tadalafil administration improves the spermogram parameters in fertile patients. 87(3): 210-213.
4. Yang Y, Ma Y, Yang H, Jin Y, Hu K et al. (2014) Effect of acute tadalafil on sperm motility and acrosome reaction: in vitro and in vivo studies. Andrologia 46(4): 417-422.
5. La Vignera S, Condorelli RA, Vicari E, Lotti F, Favilla V, et al. (2013) Seminal vesicles and diabetic neuropathy: ultrasound evaluation after prolonged treatment with a selective phosphodiesterase-5 inhibitor. Andrology 1(2): 245-250.

DOI: 10.32474/GJAPM.2019.02.000132