

Treatment Satisfaction of Peyronie's Disease Patients at a Teaching Hospital

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Abstract: Background: The penis can be affected by several pathologies, including Peyronie's Disease (PD), a condition characterized by structural alterations caused by disorders that occur during tunica albuginea healing. Several clinical treatment options exist for the management of this pathology, however the benefits of many have not been proven scientifically. The objective of this study was to investigate the management and follow-up of Peyronie's disease patients in order to identify the treatments provided and the respective degrees of patient satisfaction. Over 18-year-old male patients with early onset Peyronie's disease (less than three months) treated at an outpatient urological clinic between 2015 and 2020 were retrospectively studied. **Results:** The most commonly used treatment was the combination of pentoxifylline, vitamin E and colchicine (44%). There is evidence of a significant association between the type of clinical treatment used and the results of surgery. Although 37.2% of the patients had surgical complications, 32 of the 43 individuals who underwent the surgical procedure were satisfied with the results. **Conclusions:** Treatment satisfaction of Peyronie's disease patients was higher for those submitted to surgical treatment compared to clinical treatment.

Keywords: Peyronie's Disease, Erectile Dysfunction, Surgery, Penile Prosthesis

Introduction

Peyronie's disease (PD) is a condition in which scarring disorders of the tunica albuginea deform the penis, causing pain and, in some cases, erectile dysfunction (1). The etiology is believed to be the result of a combination of genetic predisposition and chronic local lesions, such as microtraumas caused during sexual intercourse. (2,3)

The clinical picture may manifest with penile curvature or shortening during erection and/or pain. These alterations can also lead to sexual dysfunction owing to the impossibility of penetration due to the angulation. (2) Therefore, the patient can suffer significant negative psychosocial impacts, concerning his own well-being and that of his partner. (1,4-6)

As for the management of the disease, it is noted that there is no clinical treatment indicated in the guidelines, despite the different therapies available, because their benefits have not been proven. (7-10) Options include oral vitamin E, colchicine, potassium para-aminobenzoate (Potaba), pentoxifylline, tamoxifen, L-arginine, L-carnitine, tadalafil, and other PDE-5 inhibitors. Injectable collagenase, calcium channel blockers, and corticosteroids are also used. (11) After 12 months of clinical treatment, surgical intervention can be considered bearing in mind the severity and psychosocial impact of the disease, the patient's preference, and the surgeon's experience. (11) The aim of both pharmacological and surgical approaches is to limit the progression of the disease and decrease plaque and penile curvature. (12)

Studies show positive results, mainly with regard to the reduction of depressive symptoms in patients, improvement in the relationship with their partner and improvement in sexual function. (13,14) Based on this scenario, the present study analyzed the management and follow-up of patients with PD in order to identify the treatments provided and respective degrees of satisfaction.

Patients and Method

Over 18-year-old, early onset, PD patients (less than three months) treated at an outpatient urological clinic between 2015 and 2020 were retrospectively studied. This research was approved by the institutional ethics committee (CAAE No.62495822.7.0000.5415).

Medical records were evaluated in order to understand the management and treatment of PD at the University Hospital.

After collection, the data were tabulated in Excel spreadsheets. Descriptive statistical analysis was performed based on calculations of measures of central tendency, dispersion and frequency counts. The chi-square test was used in the inferential statistical analysis in order to verify associations of different important variables in the outcome of PD. In all analyses, a p-value ≤ 0.05 was considered statistically significant. The Statistical Package for Social Sciences (SPSS, IBM, version 24.0) and GraphPad InStat 3.10 (2009) software were used.



Results

In total, 168 patients were enrolled. Regarding the clinical treatment (Figure 1), 74 patients took pentoxifylline associated with vitamin E and colchicine; 25 patients, pentoxifylline and vitamin E; 21 patients, tadalafil, pentoxifylline, vitamin E and colchicine; six patients, colchicine and vitamin E; six

patients, only pentoxifylline; four patients, tadalafil, pentoxifylline and vitamin E; four patients, tadalafil only; four patients, only vitamin E; two patients, pentoxifylline and tadalafil; one patient, colchicine and tadalafil; and one patient only colchicine. Twenty patients did not take medications.

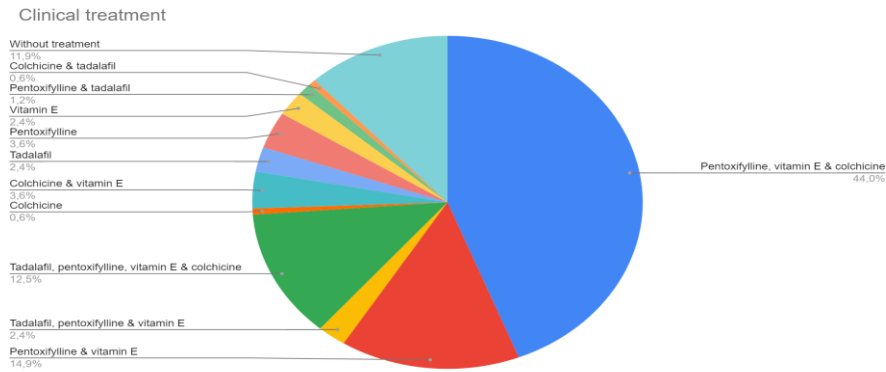


Figure 1: Clinical treatment of patients with Peyronie's disease

Regarding satisfaction with the clinical treatment used, 129 patients considered the therapy unsatisfactory; 22 considered it partially satisfactory and 17 considered it satisfactory.

Regarding the degree of satisfaction according to the type of clinical treatment (Table 1), the number of patients who considered the therapy unsatisfactory were grouped as follows: 56 patients used pentoxifylline associated with vitamin E and colchicine; 20 patients used pentoxifylline associated with vitamin E; and 19 patients did not receive medications. The number of patients who considered the therapy partially satisfactory according to the type of clinical treatment was distributed as follows: seven patients used pentoxifylline associated with vitamin E

and colchicine; six patients used tadalafil associated with pentoxifylline, vitamin E and colchicine; and four patients used pentoxifylline associated with vitamin E. The number of patients who considered the therapy satisfactory according to the type of clinical treatment was distributed as follows: 11 patients used pentoxifylline associated with vitamin E and colchicine; and two patients used tadalafil associated with pentoxifylline, vitamin E and colchicine.

Although the majority (129 patients) were dissatisfied with the clinical treatment, no statistical significance (p-value = 0.0742) was found, showing that there is no significant association between the type of clinical treatment used and the degree of patient satisfaction.

Table 1: Degree of satisfaction according to the type of clinical treatment

Clinical treatment	Dissatisfied	Partially satisfied	Satisfied	Total (treatment)
Pentoxifylline, vitamin E & colchicine	56 (33.3%)	7 (4.1%)	11 (6.5%)	74 (44%)
Pentoxifylline & vitamin E	20 (11.9%)	4 (2.3%)	1 (0.5%)	25 (14.8%)
Tadalafil, pentoxifylline & vitamin E	3 (1.7%)	0	1 (0.5%)	4 (2.3%)
Tadalafil, pentoxifylline, vitamin E & colchicine	13 (7.7%)	6 (3.5%)	2 (1.1%)	21 (12.5%)
Colchicine	0	0	1 (0.5%)	1 (0.5%)
Colchicine & vitamin E	4 (2.3%)	2 (1.1%)	0	6 (3.5%)
Tadalafil	2 (1.1%)	1 (0.5%)	1 (0.5%)	4 (2.3%)
Pentoxifylline	6 (3.5%)	0	0	6 (3.5%)
Vitamin E	4 (2.3%)	0	0	4 (2.3%)
Pentoxifylline & tadalafil	1 (0.5%)	1 (0.5%)	0	2 (1.1%)
Colchicine & tadalafil	1 (0.5%)	0	0	1 (0.5%)
Without treatment	19 (11.3%)	1 (0.5%)	0	20 (11.9%)
Total (satisfaction)	129 (76.8%)	22 (13.1%)	17 (10.1%)	168

The initial clinical treatment of the patients who did not undergo surgery was as follows: 60 patients took pentoxifylline associated with vitamin E and colchicine; 19 patients took pentoxifylline associated with vitamin E; 18 patients took tadalafil associated with pentoxifylline, vitamin E and colchicine; and nine patients took no medications (Table 2). The patients who underwent the surgical procedure were

distributed as follows: 14 patients took pentoxifylline associated with vitamin E and colchicine; 11 patients did not take medications; and six patients used pentoxifylline associated with vitamin E. Other findings are described in Table 2. Statistical significance (p -value = 0.0229) was found showing that there is an association between the type of initial clinical treatment and the result of surgery.

Table 2: Patients who underwent surgery according to clinical treatment

Clinical treatment	No surgery	Surgery	Total
Pentoxifylline, vitamin E & colchicine	60 (35.7%)	14 (8.3%)	74 (44%)
Pentoxifylline & vitamin E	19 (11.3%)	6 (3.5%)	25 (14.8%)
Tadalafil, pentoxifylline e vitamin E	2 (1.1%)	2 (1.1%)	4 (2.3%)
Tadalafil, pentoxifylline, vitamin E & colchicine	18 (10.7%)	3 (1.7%)	21 (12.5%)
Colchicine	1 (0.5%)	0	1 (0.5%)
Colchicine & vitamin E	3 (1.7%)	3 (1.7%)	6 (3.5%)
Tadalafil	4 (2.3%)	0	4 (2.3%)
Pentoxifylline	4 (2.3%)	2 (1.1%)	6 (3.5%)
Vitamin E	4 (2.3%)	0	4 (2.3%)
Pentoxifylline & tadalafil	1 (0.5%)	1 (0.5%)	2 (1.1%)
Colchicine & tadalafil	0	1 (0.5%)	1 (0.5%)
Without treatment	9 (5.3%)	11 (6.5%)	20 (11.9%)
Total	125 (74.4%)	43 (25.5%)	168

Of the 168 patients seen during the period, 43 underwent surgery. On comparing the surgical technique used and the degree of satisfaction according (Table 3), 34 patients performed penile plication, seven placed a penile prosthesis and two were submitted to both procedures. Of the 43 patients, 37.2% had surgical complications. Two of the surgical patients considered the treatment unsatisfactory, nine considered it partially satisfactory and 32 considered

it satisfactory. Of the satisfied patients, 24 were submitted to plication; six to penile prosthesis placements and two to both procedures. Despite the majority being satisfied with the surgery, no statistical significance was identified (p -value = 1.0000), showing that there is no association between the surgical technique chosen and the degree of patient satisfaction.

Table 3: Degree of satisfaction with the surgery according to the surgical technique used

Surgical Treatment	Dissatisfied	Partially satisfied	Satisfied	Total
Penile plication	2 (4.6%)	8 (18.6%)	24 (55.8%)	34 (79%)
Penile prosthesis	0	1 (2.2%)	6 (13.9%)	7 (16.2%)
penile plication + prosthesis	0	0	2 (4.6%)	2 (4.6%)
Total	2 (4.6%)	9 (20.9%)	32 (74.4%)	43

Regarding satisfaction with the surgery according to the age group of the 43 patients (Table 4), 12 patients between 60 and 64 years old were satisfied. Although the age group with the greatest satisfaction with the surgery was between 60 and 64 years, there was no

statistical significance (p -value = 0.3467), showing that there is no relationship between patient age and degree of satisfaction with the surgical procedure performed.

Table 4: Degree of satisfaction with the surgery according to age when performing the procedure

Age at surgery	Satisfied	Partially Satisfied	Dissatisfied	Total
Up to 39 years	2 (4.6%)	1 (2.2%)	1 (2.2%)	4 (9.3%)
40-49 years	2 (4.6%)	0	0	2 (4.6%)
50-59 years	4 (9.3%)	3 (6.9%)	1 (2.2%)	8 (18.6%)
60-64 years	12 (27.9%)	2 (4.6%)	0	14 (32.5%)
65-69 years	7 (16.2%)	3 (6.9%)	0	10 (23.2%)
70-75 years	5 (2.9%)	0	0	5 (2.9%)
Total	32 (74.4%)	9 (20.9%)	2 (4.6%)	43

Discussion

The search for therapeutic options for PD patients is fundamental, because in the face of the disease, the lives of patients can be impaired in physical, psychological and interpersonal spheres. (11) Therapy

can be pharmacological or surgical with the objective being to limit the progression of the disease and reduce plaque and penile curvature. (14)

Clinical treatment is still the first option, due to its low cost, convenience and limited side effects (14). Among the oral medications, the most used in the treatment of PD is pentoxifylline with collagenases being an injectable alternative (15). In the present study, pentoxifylline associated with vitamin E and colchicine was the most prescribed treatment in 44% of all patients; 75.67% of these patients reported dissatisfaction with the therapy. This dissatisfaction increases to 76.8% of all men who used medications regardless of the drug choice.

The use of phosphodiesterase type 5 inhibitors (PDE5s) and selective estrogen receptor modulators (SERMs) in these patients is known, but their effectiveness in reversing fibrosis is questionable. (16) Therefore, it is suggested that these drugs should be used only in the initial phase of the disease. (16) In this study, 5 mg of tadalafil was used daily.

Surgical treatment was performed only in the chronic phase of the disease, when the deformity was consolidated. The decision for surgery must be made by the patient together with the physician, always after discussing the pros and cons of each intervention including the psychosocial impact of the disease, the patient's preference and the surgeon's experience. The discussion of the expectations and possible results of the treatment are essential to improve the postoperative satisfaction rate. (17,18) In the current study, 25.6% of patients underwent surgery, with plication being used in 79.1% of these cases. Of the 43 surgical patients, 74.4% were satisfied with the result achieved. Some studies have already tried to compare the surgery modalities, but without success, since the best technique in each case depends on the surgeon's experience, demographic data, expectations and the risks of the surgery. (18)

Age is a risk factor for the degree of penile deformity. (19) Fortunately, surgical treatment has proven to be safe even for men of advanced ages and it is associated with good results. (20) In this study, no significant association was found between the degree of satisfaction and age group.

This research has limitations such as its retrospective approach and reduced sample size. In addition, there was also difficulty in assessing the degree of satisfaction after treatment and there were no records of the objective evaluation of penile curvature in the medical records, despite requests during the consultation for patients to photograph the erect penis. There is still a need for new research on drugs that reverse fibrosis, aiming to improve self-esteem and sexual relationships of patients suffering from this disease.

Conclusion

The satisfaction of Peyronie's disease patients treated at a university hospital was higher in those submitted to surgical treatment compared to those on clinical treatment.

References

- Ziegelmann MJ, Bajic P, Levine LA. Peyronie's disease: Contemporary evaluation and management. *Int J Urol.* 2020 Jun;27(6):504-516. <https://doi.org/10.1111/iju.14230>
- Bella AJ, Perelman MA, Brant WO, Lue TF. Peyronie's disease (CME). *J Sex Med.* 2007 Nov;4(6):1527-38.
- Miner MM, Seftel AD. Peyronie's disease: epidemiology, diagnosis, and management. *Curr Med Res Opin.* 2014 Jan;30(1):113-20. Epub 2013 Sep 30. doi: 10.1185/03007995.2013.842544
- Davis SN, Ferrar S, Sadikaj G, Gerard M, Binik YM, Carrier S. Female Partners of Men With Peyronie's Disease Have Impaired Sexual Function, Satisfaction, and Mood, While Degree of Sexual Interference Is Associated With Worse Outcomes. *J Sex Med.* 2016 Jul;13(7):1095-103. <https://doi.org/10.1016/j.jsxm.2016.04.074>
- Nelson CJ, Diblasio C, Kendirci M, Hellstrom W, Guhring P, Mulhall JP. The chronology of depression and distress in men with Peyronie's disease. *J Sex Med.* 2008 Aug;5(8):1985-90. <https://doi.org/10.1111/j.1743-6109.2008.00895.x>
- Kern T, Ye N, Abdelsayed GA. Peyronie's Disease: What About the Female Sexual Partner? *Sex Med Rev.* 2021 Apr;9(2):230-235. <https://doi.org/10.1016/j.sxmr.2020.11.002>
- Tsambarlis P, Levine LA. Nonsurgical management of Peyronie's disease. *Nat Rev Urol.* 2019 Mar;16(3):172-186. <https://doi.org/10.1038/s41585-018-0117-7>
- Chung E, Ralph D, Kadioglu A, Garaffa G, Shamsodini A, Bivalacqua T, et al. Evidence-based management guidelines on Peyronie's disease. *J Sex Med.* 2016 Jun;13(6):905-923. <https://doi.org/10.1016/j.jsxm.2016.04.062>
- Hatzimouratidis K, Eardley I, Giuliano F, Hatzichristou D, Moncada I, Salonia A, et al; European Association of Urology. EAU guidelines on penile curvature. *Eur Urol.* 2012 Sep;62(3):543-52. <https://doi.org/10.1016/j.eururo.2012.05.040>
- Nehra A, Alterowitz R, Culkun DJ, Faraday MM, Hakim LS, Heidelbaugh JJ, et al. American Urological Association Education and Research, Inc., Peyronie's Disease: AUA Guideline. *J Urol.* 2015 Sep;194(3):745-53. <https://doi.org/10.1016/j.juro.2015.05.098>
- Porst H, Burri A; European Society for Sexual Medicine (ESSM) Educational Committee. Current Strategies in the Management of Peyronie's Disease (PD)-Results of a Survey of 401 Sexual Medicine Experts Across Europe. *J Sex Med.* 2019 Jun;16(6):901-908. <https://doi.org/10.1016/j.jsxm.2019.03.044>
- Ibrahim A, Gazzard L, Alharbi M, Rompré-Brodeur A, Aube M, Carrier S. Evaluation of Oral Pentoxifylline, Colchicine, and Penile Traction for the Management of Peyronie's Disease. *Sex Med.* 2019 Dec;7(4):459-463. <https://doi.org/10.1016/j.esxm.2019.07.003>
- Khera M, Bella A, Karpman E, Brant W, Christine B, Kansas B, et al. Penile Prosthesis Implantation in Patients With Peyronie's Disease: Results of the PROPPER Study Demonstrates a Decrease in Patient-Reported Depression. *J Sex Med.* 2018 May;15(5):786-788. <https://doi.org/10.1016/j.jsxm.2018.02.024>
- Parikh NN, Heslop DL, Bajic P, Bole R, Farrell MR, Levine LA, et al. A Review of Treatment-Related Outcomes in Female Partners of Men With Peyronie's Disease-An Opportunity for Improved Assessment. *Sex Med Rev.* 2020 Oct;8(4):548-560. <https://doi.org/10.1016/j.sxmr.2020.04.003>
- Loftus CJ, Rajanahally S, Holt SK, Raheem OA, Ostrowski KA, Walsh TJ. Treatment Trends and Cost Associated With

- Peyronie's Disease. *Sex Med.* 2020 Dec;8(4):673-678. <https://doi.org/10.1016/j.esxm.2020.08.003>
16. Ilg MM, Stafford SJ, Mateus M, Bustin SA, Carpenter MJ, Muneer A, et al. Phosphodiesterase Type 5 Inhibitors and Selective Estrogen Receptor Modulators Can Prevent But Not Reverse Myofibroblast Transformation in Peyronie's Disease. *J Sex Med.* 2020 Oct;17(10):1848-1864. <https://doi.org/10.1016/j.jsxm.2020.06.022>
 17. Osmonov D, Ragheb A, Ward S, Blecher G, Falcone M, Soave A, et al. ESSM Position Statement on Surgical Treatment of Peyronie's Disease. *Sex Med.* 2022 Feb;10(1):100459. <https://doi.org/10.1016/j.esxm.2021.100459>
 18. Chung E, Wang R, Ralph D, Levine L, Brock G. A Worldwide Survey on Peyronie's Disease Surgical Practice Patterns Among Surgeons. *J Sex Med* 2018 Mar; 15 (4): 568-575. <https://doi.org/10.1016/j.jsxm.2018.01.025>
 19. Kadioglu A, Sanli O, Akman T, Canguven O, Aydin M, Akbulut F, et al. Factors affecting the degree of penile deformity in Peyronie disease: an analysis of 1001 patients. *J Androl.* 2011 Sep-Oct;32(5):502-8. <https://doi.org/10.2164/jandrol.110.011031>
 20. Abdelsayed, G. A., Setia, S. A., & Levine, L. A. (2019). The Surgical Treatment of Peyronie's Disease in the Older Man: Patient Characteristics and Surgical Outcomes in Men 65 and Older. *The Journal of Sexual Medicine.* <https://doi.org/10.1016/j.jsxm.2019.07.030>