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ORIGINAL ARTICLE

Erectile Function

Resolution of erectile dysfunction after an andrological visit in a selected population of patients affected by psychogenic erectile dysfunction

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The aim of this study was to ascertain whether some patients with psychogenic erectile dysfunction (PED) who chose psychotherapy spontaneously improved their sexual function immediately after diagnosis. Two hundred eighty-five patients with PED were retrospectively studied. Complete resolution of PED was analyzed regarding age, primary or secondary PED, marital status, domestic status, prevailing attitude of the female partner to the dysfunction, duration of their partnership, social status, duration of PED, International Index of Erectile Function score, and prevailing attitude of the patient after a diagnosis of PED. The data were analyzed using *post-hoc* tests. PED was resolved in 32.3% of the patients immediately after diagnosis. These patients were older, more frequently affected by secondary ED, more frequently living with their partner, and more frequently resigned or happy with the diagnosis of PED than the patients who did not resolve their PED. A nonchalant or cooperative female attitude to PED improved the possibility of PED resolution. The other variables did not influence PED resolution. Our data showed that a clear-cut diagnosis of psychogenic erectile deficiency and some psychosocial factors were critical for the management of some patients with PED.

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INTRODUCTION

Psychogenic erectile dysfunction (PED) has been defined as the persistent inability (generated by psychological issues) of attaining and maintaining an erection which is sufficient to allow satisfactory sexual intercourse.¹ Treatment approaches to PED have included different types of psychological therapy and/or phosphodiesterase-5 inhibitor (PDE5i) administration.^{2,3} We noted that several patients with PED improved their sexual function without any treatment immediately after diagnosis. The only paper found regarding this topic was published by Vickers *et al.* in 1993 and only involved 18 PED patients.⁴ While our study involved 285 patients, the findings could be regarded as more significant.

MATERIALS AND METHODS

This was a retrospective study involving 3026 patients with erectile dysfunction (ED). It began on January 2, 2012 (when all ED patients began to routinely undergo dynamic duplex of the penile arteries in our department) and ended on December 30, 2014.

The followings were determined for each patient: anamnesis, objective examination, basal and dynamic duplex evaluation of the intracavernous alprostadil injection in cavernosal arteries of the penis (i.e., after a 10 injection), and measurement of the body mass index (BMI) (weight in kg height⁻² in m), blood pressure,

blood count, serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), blood sugar, total and fractionated cholesterol, triglycerides, electrophoretic analysis of plasma proteins, follicle-stimulating hormone (FSH), luteinizing hormone (LH), prolactin (PRL), total T (tT), bioavailable T (bT), albumin, sex hormone-binding globulin (SHBG), total prostate-specific antigen (PSA), free PSA (when PSA >4 ng ml⁻¹), fasting glucose and glycated hemoglobin, and urine analysis.¹ As it has been indicated, the normal peak systolic velocity (PSV) should be >35 cm s⁻¹.⁵

Each patient and his partner separately participated in three semistructured sexological interviews (SSIs), and the International Index of Erectile Function-15 (IIEF-15) questionnaire was administered⁶ in the course of each SSI. As a general rule, the author assured the patients and their partners that they were completely free to express their feelings/attitudes in the course of each session of SSI without any opinion/criticism/preconception from the part of the author.

The first SSI took place in the course of diagnostic procedure for PED. The aim of this SSI was to identify personality traits (i.e., difficulties in personal relationships, anxiety, depression, etc.) or stressful events (financial problems, couple crisis, etc.) capable of constituting risk factors for PED; the presence of coexisting sexual disorders (premature/prolonged ejaculation, dysmotphobias, etc.) and sexological history were also assessed.² Factors capable of increasing performance anxiety

related to PED (planning sexual intercourse, comfortable conditions for sexual intercourse, etc.)² were also investigated. The patient and partner attitudes/feelings with regard to undiagnosed ED were studied in the course of SSI. The attitudes/feelings were investigated using the Relationship Quality Interview (RQI), a semistructured, behaviorally anchored individual interview.⁷ At the end of SSI, the Author invited the patients and their partners to define their attitudes/feelings with regard to undiagnosed ED using one word.

The second round of SSIs took place when the patients and their partners returned to the outpatient clinic to undergo their first psychological interview, i.e., 1–2 weeks after the diagnosis of PED (see below). This round attempted to verify the PED resolution and the presence or the absence of ED, and collected the patient and partner attitudes regarding the diagnosis of PED. We collected the attitudes of the patients with regard to the diagnosis using RQI. The patients were invited to define their attitudes/feelings with regard to the diagnosis of PED using one word. The patients were invited to define their performance anxiety related to sexual intercourse as increased, diminished, or unchanged after the diagnosis of PED.

The third round of SSIs took place 10–12 weeks after the diagnosis of PED. Only patients who resolved their PED immediately after the diagnosis and their partners had third SSI session. This round of SSI was aimed at ascertaining whether erectile ability was still present.

Selection of the patients

The exclusion criteria were established a posteriori to obtain the population as homogeneous and as free as possible from any confounding data:

1. Absence of a stable heterosexual relationship (stable relationship >1 year) (275 cases)
2. Prostatic abnormalities at digital rectal examination and/or PSA >4 ng ml⁻¹ (50 cases)
3. Occasional finding of Peyronie's disease (210 cases)
4. Any previous treatment for ED (452 cases)
5. Peak systolic velocity (PSV) of the cavernosal arteries <35 cm s⁻¹ after intracavernosal injection of Alprostadil 10 µg (139 cases)
6. Any hormonal abnormality (69 cases)
7. Any risk factors for developing ED: diabetes, hypertension, obesity, smoking or alcohol habit, drug consumption, age >50 years, metabolic syndrome, and dyslipidemia associated (639 cases) or not (101 cases) with PSV of the cavernosal arteries <35 cm s⁻¹ after intracavernosal injection of Alprostadil 10 µg
8. Situational/occasional ED (i.e., ED present only in certain circumstances/cases) (473 cases)
9. Disagreement between male and female partners regarding the presence of ED (150 cases)
10. Patients with PED who chose PDE5i as a therapy (see Discussion section) (195 cases: 137 did not trust psychology as a therapy for ED; 58 stated that they had no time for psychotherapy)
11. Patients who refused the diagnosis of PED (35 cases)
12. Patients who dropped out for unknown reasons (118 cases)
13. Patients who began psychotherapy despite PED resolution after diagnosis (15 cases).

The diagnosis of PED was reached on the basis of clinical history, the first SSI, a negative objective examination, any hormonal abnormality, any risk factors for developing ED and a PSV of the cavernosal arteries <35 cm s⁻¹ after intracavernosal injection of Alprostadil 10 µg.^{1,2,5} The absence of any organic cause of ED and the diagnosis of PED were fully explained to the patients and their partners.

The patients were invited to choose between PDE5i administration, or a psychological interview and subsequent psychological therapy. The patients who chose psychotherapy were instructed to return to the outpatient clinic 1–2 weeks after the diagnosis to have their first psychological interview. This paper dealt with 285 PED patients who chose psychological therapy for their dysfunction: 104 were afraid of drugs, 133 expressed the will to resolve the psychological problem generating the PED, and 58 stated that their partner strongly disagreed with PDE5i administration. Complete resolution of ED was intended as intercourse defined by the patients and their partners as fully satisfactory and an IIEF-15 score >28.⁶

Main outcome measures and statistical analysis

This paper dealt with 92 PED patients who completely resolved their ED immediately after diagnosis, and 193 PED patients who did not resolve their ED. The mean time course for complete resolution ± standard deviation was 3 ± 2 days.

Complete resolution of the PED was analyzed as a function of the following variables: primary or secondary PED, marital status (married, widowed, divorced, or involved in a stable relationship), domestic status (living or not living with the partner), prevailing attitude of the female partner to ED (aggressiveness, resignation, frustration, nonchalance, and cooperation), duration of partnership with the present partner, social status (laborer, artisan, office worker, graduate, businessman, or university student), age (in years), duration of ED (in months), and IIEF score of 15 and prevailing attitude of the patients after the diagnosis of PED (happiness due to the absence of any physical alteration, anger/frustration due to likely personal “fragility” and/or presumptive long/complicated psychological therapy, resignation regarding an unwanted diagnosis, and fear of poorly controllable/uncontrollable disease [PED]). Patient and partner attitudes were identified with SSIs and were grouped a posteriori. This research paper used *post-hoc* tests, i.e., the Bonferroni correction of values of the Chi-square test and the analysis of variance.⁵

RESULTS

Table 1 presents the distribution of patients between the patients who resolved their ED completely after the diagnosis of PED and those who did not as regards the above mentioned variables. The patients who resolved their ED immediately after diagnosis were older, more frequently affected by secondary ED, more frequently living with their partner, and more frequently resigned or happy with the diagnosis of PED than the patients who did not resolve their PED after diagnosis. A nonchalant or cooperative female attitude to PED was more frequent in those couples who resolved PED immediately after diagnosis than in couples who did not resolve the PED. On the other hand, no difference occurred between patients who resolved and patients who did not resolve their PED after diagnosis in terms of marital status ($P = 0.320$), IIEF-15 score ($P = 0.239$), duration of PED ($P = 0.135$), duration of partnership ($P = 0.342$), and social status ($P = 0.311$).

DISCUSSION AND CONCLUSIONS

Approximately 1/3 of the patients with PED who chose to be treated with psychotherapy completely resolved their ED after diagnosis. Resolution was related to patient and partner attitudes and cohabitation. As a result of SSIs, the following data were collected. The patients who did not live with their partners stated that their sexual intercourse needed to be programmed in terms of when, where, and how long and that they felt the planning produced anxiety. This was not the case when the couples cohabited. The patients stated that the nonchalant and cooperative attitude of their partners reduced their performance anxiety whereas

Table 1: Clinical and demographic differences between the patients who completely resolved their PED immediately after diagnosis and patients who needed additional therapy: Age, primary or secondary PED, marital status, domestic status, social status, age, duration of ED and IIEF-15 score, prominent feeling after the diagnosis of PED, prevailing attitude of the female partner to PED, and duration of partnership with the present partner

Characteristics	92 (32.3%) patients who completely resolved their PED immediately after diagnosis	193 (67.7%) patients who did not resolve their PED immediately after diagnosis	P
Age (in years, mean±s.d.)	42.1±6.3	30.7±9.1	<0.01
Type of PED (%)			
Primary	18 (19.6)	91 (47.2)	<0.01
Secondary	74 (80.4)	102 (52.8)	
IIEF-15 score (mean±s.d.)	22.3±3.8	20.6±2.2	NS
Duration of PED in months (mean±s.d.)	10.3±9.2	12.2±9.0	NS
Domestic status (%)			
Living with partner	77 (83.7)	112 (58.0)	<0.01
Not living with partner	15 (16.3)	81 (42.0)	
Marital status (%)			
Married	37 (40.2)	75 (38.9)	NS
Previously widowed	4 (4.3)	8 (4.1)	
Involved in a stable relationship	20 (27.7)	50 (25.9)	
Previously divorced	31 (33.7)	60 (31.1)	
Social status (%)			
Laborer	8 (8.7)	18 (9.3)	NS
Artisan	20 (21.7)	44 (22.8)	
Office worker	35 (38.0)	73 (37.8)	
Graduate	22 (23.9)	46 (23.8)	
Businessman	3 (3.2)	4 (2.1)	
University student	4 (4.3)	8 (4.1)	
Prevailing attitude after the diagnosis of PED (%)			
Happiness due to the absence of any physical alteration	58 (62.0)	21 (10.9)	<0.01
Anger/frustration due to likely personal "fragility" and/or presumptive long/complicated psychological therapy	4 (4.3)	66 (34.2)	
Resignation regarding an unwanted diagnosis	23 (25.0)	30 (15.5)	
Fear of a poorly controllable/uncontrollable disease (PED)	8 (8.7)	75 (38.9)	
Duration of partnership with the present partner (in years, mean±s.d.)	10.2±5.0	8.0±4.3	NS
Attitude of the female partner to PED (%)			
Aggressiveness	2 (2.2)	56 (29.0)	<0.01
Resignation	3 (3.3)	50 (25.9)	
Frustration	3 (3.3)	54 (28)	
Cooperation	21 (22.8)	12 (6.2)	
Nonchalance	63 (64.5)	20 (10.4)	

IIEF-15: International Index of Erectile Function-15; ED: erectile dysfunction; PED: psychogenic erectile dysfunction; PDE5: phosphodiesterase-5; s.d.: standard deviation; NS: not significant; vs: versus

frustration, resignation, and aggressiveness of their partners increased their performance anxiety. In addition, the patients who were happy or resigned after the diagnosis of PED stated that their anxiety was reduced after this diagnosis whereas the patients who were angry, frustrated, or fearful after the diagnosis stated that their performance anxiety increased after the diagnosis of PED. It should be postulated that conditions and/or feelings capable of reducing the anxiety might be associated with PED resolution.

Patients who resolved their PED immediately after diagnosis were older and more frequently affected by secondary PED than those who did not resolve their PED; the reasons are still unknown. The duration of PED, partnership, marital status, the IIEF-15 score, and the social status of the patients did not play a role in PED resolution. The reasons are unknown in this case as well. It is likely that a prospective study might be useful in resolving these obscure points, at least in part.

Our data confirmed the results of the paper published by Vickers *et al.* in 1993 in which 18 patients with psychogenic ED were examined. Of 14 patients with secondary psychogenic ED, 10 (71%) experienced

remission after the diagnosis of psychogenic ED. Three patients noted spontaneous remission during the initial evaluation and another three experienced remissions within 3 months of completion of the evaluation and reassurance that they had normal erectile capacity.⁴

This paper only dealt with patients who agreed to treat their PED psychologically since it is difficult to check PDE5i assumption after a medical prescription. In any case, the retrospective analysis of the files of the patients affected by PED revealed that 25/195 patients who chose to use PDE5i stated that they had their PED improved immediately after diagnosis in the absence of the use of any of the drugs prescribed. Despite the fact that these data cannot be used for this study, they corroborate the hypothesis that a diagnosis of PED might improve sexual potency "*per se.*" We established the exclusion criteria a posteriori to be able to study patients independently of any risk factor for organic ED and/or of any organic cause of ED to avoid any confounding data.

We also agree that duplex dynamic examination of the penile arteries in young patients with no risk factor for ED might be dangerous

due to the possibility of prolonged erections and/or priapism;^{1,5} however, there has been a great deal of speculation that vascular ED in young men may be due to subclinical perineal trauma in the absence of any risk factors.⁸ In addition, several Italian medical internet sites (www.medicitalia.it and www.dica33.it) have strongly popularized penile dynamic duplex examination; thus, a number of patients insisted on undergoing dynamic duplex of the penile arteries, even though they were informed about the absence of any risk factor for arterial disease and that penile dynamic duplex might cause priapism or prolonged erection.^{1,5} Thus, it was felt that a medical visit and diagnosis would not be fully believable for any patient regarding the absence of any vascular problem without a dynamic duplex examination of the penis and its arteries.

Regression is common among subjects with self-reported ED (regarding 25% of cases) over a period of several years.⁹ Martin *et al.*¹¹ described the incidence of spontaneous remission and biopsychosocial predictors of ED and low sexual desire (SD) in 827 patients with 35–80 years of age at baseline who were examined clinically 5 years apart. ED remission was more frequent in the absence of risk factors for organic ED and in the presence of factors recognized as capable of lowering anxiety, such as living with their partner, thus confirming our data.

The main bias of this study is that the hypothesis that the spontaneous remission of PED which occurred in this study might have occurred even in the absence of a diagnosis of PED, as was the case in the patients studied by Travison *et al.*¹⁰ and Martin *et al.*¹⁰ However, the patients studied by Travison *et al.* and Martin *et al.* had ED remission over a period of several years while our patients had PED remission immediately after diagnosis, mainly when reassuring factors or attitudes were present. These data have allowed us to hypothesize that a diagnosis of PED played some roles in PED remission.

This was a retrospective study; thus, it was difficult to try to obtain a reliable control population. In fact, the patients' curiosity and their right to be informed regarding their diagnosis made it impossible to obtain a suitable control population, namely patients affected by PED undergoing the investigations and assessments as listed in the Materials and Methods section of this manuscript but receiving no explanation of the diagnosis. In any case, we believe that this potential bias does not substantially modify the take-home message of this paper. In fact, our data strongly indicated that the role of the physician in patient

management is critical for the achievement of sexual health; this fact is especially important in an era, such as this one, where the Internet and the industrial pressure to sell PDE5i tend to relegate physicians to a secondary role.

AUTHOR CONTRIBUTIONS

GC is the sole author of this manuscript: he visited all the patients, reviewed their files, performed statistical analysis, and wrote and reviewed the paper.

COMPETING INTERESTS

The author declares no competing interests.

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