

·Original Article·

Regaining of morning erection and sexual confidence in patients with erectile dysfunction

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Abstract

Aim: To investigate how erectile dysfunction (ED) medications affect morning erection in patients with ED and how they respond to the return of morning erection. **Methods:** This study was conducted in 120 patients who experienced successful intercourse with either tadalafil or sildenafil. Using a random face-to-face interview and a questionnaire (about the quality and number of days getting morning erection after using the two medications), the impact of the medications on the morning erections was investigated, and the participants were asked about their feelings on regaining morning erection. **Results:** Of the respondents, 81% (68% of those with sildenafil and 99% of those with tadalafil) experienced morning erections after taking an oral ED medication. The men who took tadalafil mainly for 2 days with one dose, while those who took sildenafil experienced morning erections mainly for 1 day. The major sentiment upon regaining a morning erection was, “having more confidence as a man” (74%). Among the 96 respondents who experienced morning erections with tadalafil, 52% preferred tadalafil over sildenafil, not only because of freedom from concerns about a specific time to have relations, but also regaining morning erection. **Conclusion:** Regaining a morning erection affects the recovery of confidence as a man and influences the preference for tadalafil over sildenafil. (*Asian J Androl* 2006 Nov; 8: 703–708)

Keywords: morning erection; sexual confidence; sildenafil; tadalafil; erectile dysfunction

1 Introduction

In the normal man, three to five erections occur nightly and account for up to 40% of total sleep time [1], with each erection lasting 25–35 min [2]. Nocturnal penile erection (NPE) is a naturally occurring, non-sexually stimulated phenomenon. The rigidity and duration of NPE are diminished with age, but the frequency does

not change [3].

Morning erection is the last erection of the 3–5 NPE, and men occasionally discover the erection when they are awake in the morning. In general, men believe that the morning erection is a parameter of normal sexual health [4], and those who are not confident about their potency are used to relying on the presence of a morning erection to confirm their potency. Men with poor morning erection can be anxious about their sexual health. Confidence is critical to initiation of a better sex cycle. For this reason, weakness of the morning erection might affect confidence and, thereby, exert a negative influence on a man's sexual life.

The purpose of the present study is to investigate

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Received 2005-12-25 Accepted 2006-06-16

Table 1. Number of days in which morning erection occurred, taking tadalafil (T) or sildenafil (S).

Age (years)	45–54		55–64		≥ 65		Total	
	T (n = 26)	S (n = 19)	T (n = 25)	S (n = 18)	T (n = 45)	S (n = 29)	T (n = 96)	S (n = 66)
Days	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
1	7 (27)	14 (74)	9 (36)	17 (94)	21 (47)	28 (97)	37 (39)	59 (89)
2	13 (50)	4 (21)	13 (52)	1 (6)	22 (49)	1 (3)	48 (50)	6 (9)
3	5 (19)	1 (5)	2 (8)	0 (0)	2 (4)	0 (0)	9 (9)	1 (2)
4	1 (4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)
10	0 (0)	0 (0)	1 (4)	0 (0)	0 (0)	0 (0)	1 (1)	0 (0)

how ED medications affect morning erection in patients with ED and how they feel upon regaining morning erection.

2 Materials and methods

The study, partially sponsored by Lilly Korea, was conducted using a face-to-face interview and a questionnaire on 120 patients who had recent or current experiences with tadalafil and sildenafil, using a constant dose of each drug for more than four times, in the Seoul and Gyeonggi region of Korea between April and May 2005. The patients were randomly selected, with a quota in each age group, from those who were visiting urologic clinics of general hospitals. The interviewer asked a series of questions from the questionnaire and filled it out as interviewees answered. Age distribution (mean age: 60.0 years) was 45–54 years in 30 interviewees, 55–64 years in 30 interviewees, and 65 years or older in 60 interviewees. All the respondents had successful intercourse by using either tadalafil or sildenafil.

The questionnaire contained 17 questions, including number of days getting morning erection after taking oral phosphodiesterase type 5 (PDE5) inhibitors and its quality, their feeling on regaining a morning erection, its significance for maintaining confidence, and its impact attributable to the medication (see Appendix).

A two-way analysis of variance (ANOVA) was used to seek statistical differences among the groups. The two factors in the two-way ANOVA test were age of patient (45–54, 55–64, and over 65 years) and drug used (sildenafil or tadalafil).

3 Results

Of the respondents, 81% (n = 97) experienced mor-

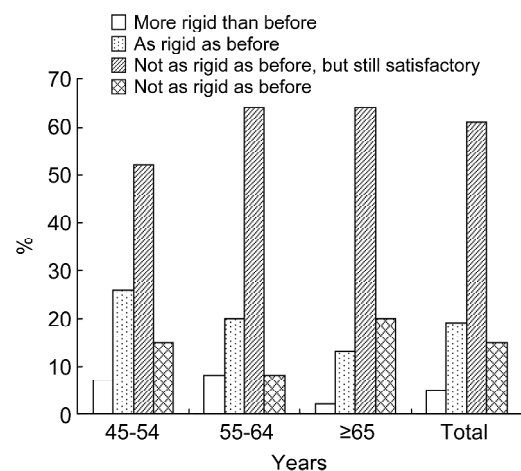


Figure 1. Satisfaction rate with hardness of the morning erection (n = 97).

ning erections after taking an oral ED medication. Among them, 99% (n = 96) experienced morning erection with tadalafil, which was significantly higher than 68% (n = 66) with sildenafil (P < 0.0001). The response rate with tadalafil versus sildenafil, based on age, was 87% vs. 63% in the 45–54 years group, 83% vs. 60% in the 55–64 years group, and 75% vs. 48% in the 65 years or older group. There was a significant difference between sildenafil and tadalafil group in experiencing morning erection, regardless of age (P < 0.0001).

The respondents who used one dose of tadalafil experienced morning erections mainly for 2 days (50%), whereas those who used one dose of sildenafil mainly for 1 day (89%) (Table 1). Of the respondents, 85% (n = 97), regardless of age, who regained morning erections, were satisfied with the rigidity, compared with those they experienced when they were younger (Figure 1).

Table 2. Sentiments upon regaining a morning erection.

Age (years)	First mention				Second mention			
	Total	45–54	55–64	≥ 65	Total	45–54	55–64	≥ 65
Number of respondents	97	27	25	45	9	27	25	45
Question	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Like being reborn	15 (15)	4 (15)	3 (12)	8 (18)	10 (10)	0 (0)	2 (8)	8 (18)
More confidence as a man	50 (52)	17 (63)	12 (48)	21(47)	21 (22)	3 (11)	5 (20)	13 (29)
More positive in every matter	6 (6)	0 (0)	4 (16)	2 (4)	13 (13)	8 (30)	4 (16)	1 (2)
Less dispirited/dejected	7 (7)	1 (4)	2 (8)	4 (9)	11 (11)	3 (11)	1 (4)	7 (16)
More intimate with partner	4 (4)	0 (0)	2 (8)	2 (4)	9 (9)	2 (7)	4 (16)	3 (7)
Like being healthier	12 (12)	5 (19)	2 (8)	5 (11)	17 (18)	5 (19)	5 (20)	7 (16)
Happy	3 (3)	0 (0)	0 (0)	3 (7)	11 (11)	3 (11)	4 (16)	4 (9)

Among 96 respondents who experienced a morning erection with tadalafil, 52% (58% in the 45–54 year old age group, 64% in the 55–64 year old age group and 42% in the 65 year old or older age group) preferred tadalafil to sildenafil, not only because of successful intercourse, but also as a result of regaining a morning erection. The major sentiment (in first or second choice) for regaining a morning erection, was “having more confidence as a man” (74%), followed by “feeling healthier” (30%) and “feeling like being reborn or rejuvenated” (25%) (Table 2).

In response to a 7-point scale question (Q12) where 1 point means “definitely disagreed”, 7 means “definitely agreed” and point ≥ 5 was regarded as agreement to the question, 83% of 120 patients agreed to the question “Morning erection brings joy and energy into life”, 83% agreed to the question “It affects my choice of ED medication whether a drug gives a morning erection or not”, and 77% agreed to the question “Getting a morning erection is as important as having a successful intercourse to recover confidence”.

4 Discussion

Compared with sildenafil, tadalafil has an extended terminal half-life, 17.5 h [5] vs. 3.5 h [6], suggesting a lengthened period of responsiveness. Based on the pharmacokinetics, tadalafil has a period of responsiveness of up to 36 h [7], whereas sildenafil was still able to produce/enhance an erection in response to sexual stimulation at 4–5 h after dose administration [8]. In the present study, there was a significant difference between sildenafil and tadalafil in patients experiencing a morning erection, regardless of age. However, 68% of the patients re-

ported morning erections after taking sildenafil. Considering the short action duration, sildenafil would not be very effective in producing morning erection after being taken the previous night. However, clinical efficacy of sildenafil might be observed for upwards of two to three half-lives [9], and patients who have successful intercourse with sildenafil might get back morning erection through sildenafil-induced upregulated activation of endothelial nitric oxide synthase [10].

The two PDE5 inhibitors have been reported to be similarly efficacious and well tolerated [11, 12]. The different pharmacokinetic profiles result in unique attributes for the particular drugs and might translate into the reasons for treatment preference. In previous studies comparing patient preference for two ED medications, the majority of the patients who preferred tadalafil for the treatment of ED pointed out freedom from time concerns because of the long-acting characteristics of the drug as the first reason for the preference [13, 14].

When patients with ED have a spontaneous, strong morning erection after taking an ED medication and feel that their sexual function is regained, they might have much more confidence as a men. Using the Psychological and Interpersonal Relationship Scale [15], which was developed to evaluate outcomes associated with ED and its treatment, Dean *et al.* [16] report that the sexual self-confidence domain score of tadalafil (2.91) is significantly superior to that of sildenafil (2.75). In the drug attribute study by Dean *et al.* [14], an erection the next morning was a much more frequently-selected drug attribute of tadalafil (30.1%) over sildenafil (8.2%). In conjunction with the two reports, we assumed an association between sexual self-confidence and morning erection. In the present study, respondents who used

tadalafil experienced more morning erections and more days of morning erections occurring than those who used sildenafil, regardless of age. A major sentiment upon regaining a morning erection was having much confidence as a man, which was also attributed to the preference for tadalafil over sildenafil, in addition to the freedom from time concerns about efficacy.

In conclusion, tadalafil users experienced more morning erections and more days of morning erections than sildenafil users, regardless of age. Regaining a morning erection affected the recovery of confidence as a man and influenced the preference for tadalafil over sildenafil.

Acknowledgment

This paper was sponsored by Lilly Korea.

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Appendix
Questionnaire
Screening

Question	Answer	Code	Route
S1 May I have your age please? [Interviewer: record actual age and circle an appropriate age bracket] _____ years old	Less than 44 years old	1	Terminate
	45-54 years old	2	
	55-64 years old	3	Check quota
	65 years old +	4	
S2 Do you currently take oral medication(s) for erectile dysfunction under a doctor's prescription?	Yes	1	Continue
	No	2	Terminate
S3 What are the name(s) of the medication you currently take more than 4 times?	Cialis	1	Terminate if code 1 is not answered
	Viagra	2	
	Levitra	3	
	Other _____	4	
S4 Before the one you are currently taking, if any, what oral ED medication(s) have you recently taken more than 4 times?	Viagra	1	Continue
	Levitra	2	Terminate if code 1 is not answered
	Other _____	3	
	None	4	
S5 Have you currently failed to perform sex after taking Cialis or Viagra?	Yes	1	Terminate if code 1 is selected
	No	2	Continue

Questions

Question	Answer	Code	Route
Q1 Do you think the freedom to choose the right moment is important?	Very important	1	Q2
	Important	2	
	Neither both	3	
	Not important	4	
	Not important at all	5	
Q2 Do you think long duration of efficacy is benefit for choosing the right moment?	Definitely agree	1	Q3
	Agree	2	
	Neither both	3	
	Disagree	4	
	Definitely disagree	5	
Q3 When did you make attempts to have sex after taking Cialis? [SHOWCARD] [Circle all time brackets the respondent made attempts]	1-4 h after dosing	1	Q4
	4-12 h after dosing	2	
	12-24 h after dosing	3	
	24-36 h after dosing	4	
	36 h-after dosing	5	
Q4 After taking Cialis, what was the maximum hours you were able to get erection, including morning erection? [SHOWCARD]	48 h-after dosing	1	Q5
	36-48 h after dosing	2	
	12-36 h after dosing	3	
	4-12 h after dosing	4	
	1-4 h after dosin	5	
Q5 Do you think having a morning erection would get you back a confidence as a man?	Yes	1	Q6
	No	2	
Q6 Have you experienced a morning erection after taking an oral ED medication?	Yes	1	Q6a
	No	2	Q7

To be continued

Morning erection and sexual confidence in ED patients

Question		Answer				Code	Route	
[Interviewer: ask for each medication a respondent takes]								
Q6a	With which medication(s) have you experienced a morning erection?							
Q6b	For how many days do you usually get a morning erection with one dose?							
		Q6a. Morning erection		Q6b. Number of days getting a morning erection				
		Yes	No					
	Cialis	1	2	_____ day(s)				
	Viagra	1	2	_____ day(s)				
	Other ()	1	2	_____ day(s)				
Q7	How would you describe the hardness of the morning erection after taking ED medication, compared to that you used to get when you were young? [SHOWCARD]	Harder than before		1	Q8			
		As hard as before		2				
		Not as hard as before, but still satisfactory		3				
		Not as hard as before		4				
Q8	Have you talked with others about that you had gotten your morning erection after taking ED medication?	Yes		1	Q8a			
		No		2	Q9			
Q8a	With whom did you talk about it?	Friends or colleagues		1	Q9			
		Doctor		2				
		Spouse		3				
		Others ()		4				
Q9	[Ask only for those who have experienced morning erection with Cialis (Q7)] Thinking about the ED medication(s) you have had before, do you think you have experienced more morning erections with Cialis than other medication(s)?	Yes		1	Q10			
		No		2				
Q10	Do you prefer Cialis because Cialis produces more morning erection than other drugs?	Yes		1	Q11			
		No		2				
Q11	How would you describe your feelings after getting a morning erection? (choose 2 from the list) 1) First mention: _____ 2) Second mention: _____	Feel like being reborn (rejuvenated)		1	Q12			
		Have more confidence as a man		2				
		Became more active and positive in every matter		3				
		Less dispirited and dejected		4				
		Became more intimate with my wife or partner		5				
		Feel like healthier		6				
		Happy		7				
		Other ()						
Q12	[All respondents] [SHOWCARD] For the statements I will read out to you, please tell me to what extent you would agree or disagree with the statements. Please use a 7-point scale, where 1 means 'you definitely disagree' and 7 means 'you definitely agree'.							
		Definitely disagree				Definitely agree		
	a. Morning erection brings joy & energy into life.	1	2	3	4	5	6	7
	b. Whether or not it gives a morning erection affects my choice of ED medications.	1	2	3	4	5	6	7
	c. Getting a morning erection is as important as having a successful intercourse to recover confidence.	1	2	3	4	5	6	7