Penetration and maintenance of erection with vardenafil: a time-from-dosing analysis

Luc Valiquette, MD,[1] Francesco Montorsi, MD,[2] Wayne J. G. Hellstrom, MD,[3] Francois Giuliano, MD, PhD,[4] Martin Homering, MSPH,[5] Terry Taylor, MD,[6] Ian Eardley, MD[7] for the Vardenafil Study Group

[1]CHUM-Hôpital St-Luc, Montreal, Quebec, Canada
[2]Universita' Vita Salute San Raffaele, Milan, Italy
[3]Tulane University School of Medicine, New Orleans, LA, USA
[4]Centre Hospitalier Universitaire de Bicetre, AP-HP, Le Kremlin-Bicetre, France
[5]Bayer HealthCare AG, Wuppertal, Germany
[6]Bayer Healthcare Pharmaceuticals, West Haven, CT, USA
[7]St James' University Hospital, Leeds, UK

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Objective: *To assess success rates in ability to penetrate (Sexual Encounter Profile question 2 [SEP2]) and maintain erections to completion of intercourse (SEP3) from time of dosing to start of sexual activity in a retrospective analysis of two pivotal trials.*

Methods: *In two randomized, double-blind studies, men with ED for >6 months received vardenafil 5 mg, 10 mg, or 20 mg or placebo for 12-26 weeks. Patients were instructed to start sexual activity 1 hour after dosing. In this retrospective pooled analysis, patient diary questions through week 12 were analyzed, providing attempt data was recorded 0-12 hours post-dose. Mean per-patient SEP2 and SEP3 success rates (intent-to-treat population) were calculated by time between dosing and start of sexual activity, from 0-12 hours through week 12. Least-square means and nominal p-values for differences versus placebo were derived by analysis of covariance with terms for baseline, study and treatment.*

Results: *Most attempts at sexual intercourse occurred 30-90 minutes after dosing: 88%-93% of attempts occurred within 120 minutes. SEP2 success rates in patients choosing to attempt sexual activity in each interval from ≤15 minutes through the 4-8-hour interval were higher with vardenafil compared with placebo, while SEP3 success rates were greater with vardenafil for patients choosing to initiate sexual activity from ≤15 min through the 8-12-hour interval. The most commonly reported treatment-emergent adverse events in patients receiving vardenafil included headache (11%-22%), flushing (6%-13%), rhinitis (5%-13%), and dyspepsia (2%-7%).*

Conclusion: *In this retrospective analysis of two pivotal trials, vardenafil improved success rates compared with placebo in ED patients who attempted intercourse from as early as 15 minutes or less and through 4-8 hours after dosing in ability to penetrate (SEP2) and from as early as 15 minutes or less and through 8-12 hours after dosing in maintenance of erection (SEP3).*

Key Words: vardenafil, erectile dysfunction, onset, reliability

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Address correspondence to Dr. Luc Valiquette, Service d'urologie, CHUM-Hôpital St-Luc, 1058 rue St-Denis, Montreal, Quebec, H2X 3J4, Canada

Introduction

Two of the major attributes men seek in oral pharmacotherapy for erectile dysfunction (ED) are reliability, and rapid onset.[1] Being able to get an erection when it is needed and the ability to complete intercourse are aspects of sexuality that men without ED take for granted. The loss of this flexibility in the context of ED may have an effect on interpersonal relationships as couples attempt new methods for sustaining intimacy.[2] Early forms of treatment for ED, including vacuum constriction devices, intracavernosal injection therapy, and intraurethral therapy, while effective, often interfere with or prevent spontaneous sexual activity, and long-term compliance with these treatments is poor. The advent of phosphodiesterase type 5 (PDE-5) inhibitor therapy has allowed couples the flexibility to be able to engage in sexual activity on demand.[3-5] While most couples would initiate sexual activity within 1 hour after first thinking of intercourse whether or not the man has ED,[6] the pattern of PDE-5 inhibitor use may be dependent on many variables. It is therefore important to have a true appreciation for the attributes of PDE-5 inhibitor use and efficacy over the entire time period during which sexual activity would most likely occur.

Vardenafil, a potent, selective PDE-5 inhibitor, has been shown to be efficacious in the general population of men with ED,[7] and in those having comorbid conditions associated with more severe ED, including diabetes[8] and history of prostatectomy,[9] and also in patients previously unresponsive to sildenafil.[10] Vardenafil exhibits reliable efficacy, showing improvement in ED for up to 2 years of continuous use, with 92% of patients experiencing improvement of erections (General Assessment Questionnaire [GAQ]) with vardenafil 20 mg.[11] The purpose of this retrospective analysis of data pooled from two clinical studies was to determine whether in men with ED, who chose to attempt sexual intercourse 15 minutes or less and up to 12 hours after dosing with vardenafil, efficacy could be demonstrated at all time intervals within this period.

Methods

Study design

This was a retrospective analysis of two pivotal, randomized, double-blind, placebo-controlled, fixed-dose, parallel-group Phase III trials. The first study was conducted in 805 patients treated for up to 26 weeks at 60 centers in the United States and Canada,[7] of which the first 12 weeks are included in the current pooled analysis. The second study contributed 674 patients treated for up to 12 weeks at 47 centers in eight European countries (Great Britain, France, Denmark, Belgium, Italy, Sweden, Poland, and The Netherlands). In both studies, patients received placebo, vardenafil 5 mg, 10 mg, or 20 mg in a 1:1:1:1 ratio using blocks of treatment group allocations, stratified by study center. Following a 4-week untreated (including devices) baseline period, subjects were instructed to take study medication approximately 1 hour before intended sexual intercourse (no more than one dose per calendar day). Patients were informed that sexual stimulation was required for the treatment to be effective. Diary data through week 12 of both trials was included in the retrospective analysis.

Study population

Study participants were males, at least 18 years of age, in a stable, heterosexual relationship (>6 months) with a diagnosis of ED according to the National Institutes of Health (NIH) consensus statement (inability to achieve or maintain penile erection sufficient for satisfactory sexual performance). Patients must have made at least four attempts at sexual intercourse on four separate days during the untreated baseline period, and ≥50% of attempts during this period must have been unsuccessful. Unsuccessful was defined as answering "no" to at least one of the following questions: "Were you able to achieve at least some erection?"; "Were you able to insert your penis into your partner's vagina?"; "Did your erection last long enough for you to have successful intercourse?" These studies were conducted with Institutional Review Board/ Independent Ethics Committee approval and with signed, written, informed consent from all patients.

Exclusion criteria included penile anatomical abnormalities, primary hypoactive sexual desire, ED after spinal cord injury, radical prostatectomy, retinitis pigmentosa, and liver disease. Other exclusions included unstable angina pectoris; myocardial infarction, stroke, electrocardiographic ischemia, life-threatening arrhythmia within the prior 6 months; atrial tachyarrhythmia; or significant chronic hematological disease. Patients with significant peptic ulcer disease within a year of visit 1, resting or symptomatic postural hypotension or hypertension within 6 months of visit 1, uncontrolled diabetes mellitus (HbA_{1c} >12%), inadequately treated hypothyroidism or hyperthyroidism, or a history of malignancy within the past 5 years (other than squamous or basal cell skin cancer) were also excluded. History of severe migraine headaches within the past 6 months; prior unresponsiveness or adverse reaction to sildenafil (in the North American

study only); planned, current, or previous radiation therapy; or planned or current hormone therapy also precluded participation in the trials.

Prohibited concomitant medications included nitric oxide donors, anticoagulants, androgens, any investigational drug within 30 days of visit 1, sildenafil or any other ED therapy within 7 days of visit 1, oral ketoconazole, itraconazole, or ritonavir. Patients with abnormal laboratory measures for serum creatinine (>2.5 mg/dL) or total testosterone (below normal range) were excluded.

Efficacy variables

Efficacy is presented for intent-to-treat (ITT) patients who had at least one valid Sexual Encounter Profile (SEP) diary entry. A valid diary entry was one that provided: 1) the date of study drug consumption; 2) answers to the SEP reflecting a medicated attempt at intercourse, and; 3) no evidence for the sexual activity starting later than 12 hours after dosing. For vaginal penetration (SEP2), patients were asked, "Were you able to insert your penis into your partner's vagina?" For erection maintenance (SEP3), patients were asked, "Did your erection last long enough for you to have successful intercourse?" Patients recorded "yes" or "no" answers to these questions in patient diaries after every attempt at intercourse during the double-blind phase until week 12, and indicated the time that had elapsed since taking study medication and beginning sexual activity for each attempt. Diary success rates for the SEP2 and SEP3 questions were computed by time intervals between dosing and start of sexual activity.

Safety variables

Adverse events (AEs) and vital signs were monitored in all men receiving treatment. Patients were asked to report any AEs through the course of the studies, and for 7 days after the termination of the active treatment phase of the studies.

Statistical analysis

Each attempt at intercourse was categorized according to the time between intake of medication and the start of sexual activity. Intervals of 15 minutes were chosen for this analysis for the first 2 hours of dosing to allow for adequate discrimination of the early time-point data, since it was during this time that the majority of attempts were recorded. Wider intervals were selected for the later time points to balance the number of patients in each time interval. Mean per-patient success rates were calculated as a patient's total number of successes divided by the total number of responses in a given time interval and averaging these per-patient rates across patients (for each time interval). Mean per-patient success rates were analyzed with analysis of covariance (ANCOVA), with terms for baseline, study, and treatment. For each treatment group, the least-square (LS) means, and nominal two-sided p values from the comparison of each active dose group versus placebo were obtained. Separate analyses were conducted for each time interval.

Results

Patient disposition and demographics

This analysis includes a total of 1479 randomized patients. Of these, 1401 were valid for the safety analysis and 1385 patients were included in the ITT analysis of efficacy. The discontinuation rate over the 12-week treatment period among ITT patients for placebo, vardenafil 5 mg, 10 mg, and 20 mg was 29%, 18%, 13%, and 19%, respectively. Rates of discontinuation due to 'insufficient therapeutic effect' were 12%, 5%, 3%, and 4% with placebo and vardenafil 5 mg, 10 mg, and 20 mg, respectively. Discontinuation rates due to adverse events were 1%, 3%, 3%, and 6%, respectively, while 9%, 5%, 4%, and 4% of patients withdrew their consent with placebo and vardenafil 5 mg, 10 mg, and 20 mg, respectively.

The treatment groups were comparable with regard to age, medical history, etiology and severity of ED, and history of previous sildenafil use, Table 1. The majority of patients had moderate or severe ED (69%); the mean baseline International Index of Erectile Function, erectile function (IIEF-EF) domain score was 13. More than one half of the population had previously used sildenafil.

While no material differences between patient groups contributing to the various time intervals were noted with regard to age and the proportion of patients with diabetes, patients contributing attempts at the later time intervals (>4 hours) tended to have slightly higher EF domain scores at baseline particularly in the placebo group. Baseline EF domain scores for vardenafil were 12-14 and 14 for placebo in the ≥15 minute time interval compared with 13-15 for vardenafil and 18 for placebo in the 8- to 12-hour interval.

Dynamics of medication use

Patients were instructed to initiate sexual activity approximately 1 hour after consumption of either the placebo or vardenafil tablets. The dynamics of study medication consumption over the first 12 weeks of double-blind treatment are summarized in Figure 1. The data presented here are based on SEP2 diary responses and similar data were also observed with

TABLE 1. **Demographic and ED characteristics of pooled safety population**

	Placebo	Vardenafil		
		5 mg	10 mg	20 mg
	(n=342)	(n=350)	(n=358)	(n=351)
Age at enrollment (mean y)	56	56	55	57
Weight (mean kg)	87	87	87	88
BMI (mean kg/m^2)	28	28	28	28
ED duration (mean y)	3.3	3.4	3.5	3.8
Race (%)				
Caucasian	84	83	85	87
Black	9	10	9	8
Asian	4	4	4	2
Hispanic	2	2	2	3
Native American	<1	<1	0	<1
Etiology (%)				
Organic	46	53	50	50
Psychogenic	16	12	14	13
Mixed	38	35	37	38
Severity (IIEF-EF score) (%)*				
Severe (≤10)	36	42	39	40
Moderate (11–16)	33	26	31	32
Mild-moderate (17–21)	22	25	22	18
Mild-normal (22–30)**	9	7	7	9
Previous Sildenafil use (%)	63	69	70	62
Medical history (%)				
Hypertension	28	35	32	34
Diabetes mellitus	21	19	19	23
Hyperlipidemia	19	19	24	25
Cardiovascular disease	7	4	8	6
Pulmonary disease	5	3	4	4

BMI, body mass index; ED, erectile dysfunction; IIEF-EF, International Index of Erectile Function, erectile function (domain score)

*Includes only patients in the intent-to-treat (ITT) population efficacy analyses. The % distribution of ITT patients excludes patients with missing EF domain data (e.g. 1 placebo patient, 4 vardenafil 5 mg, 2 vardenafil 10 mg, and 0 vardenafil 20 mg).

**Patients with baseline IIEF-EF score ≥26 (normal) represent less than 2% of all ITT patients with an investigator determined ED.

SEP3. The majority of men attempted intercourse on at least one occasion between 30 and 90 minutes after taking drug, Figure 1a, and 88%-93% of attempts occurred in the first 120 minutes. The overall number of patients providing valid diary entries was higher in the active treatment group, Figure 1a. The overall number of attempts was higher in the groups of patients who received active treatment relative to placebo, Figure 1b but the mean number of attempts at sexual activity per patient, Figure 1c was similar in patients receiving active treatment relative to placebo. These results suggest that the majority of men used the medication in compliance with the protocol instructions. However, a large number of men attempted sexual activity prior to the 45-minute time point or after the 75-minute time point.

Efficacy

SEP2 (Response to the question, "Were you able to insert your penis into your partner's vagina?"): Vardenafil numerically improved penetration success rates in each interval from ≤15 minutes through the 8- to

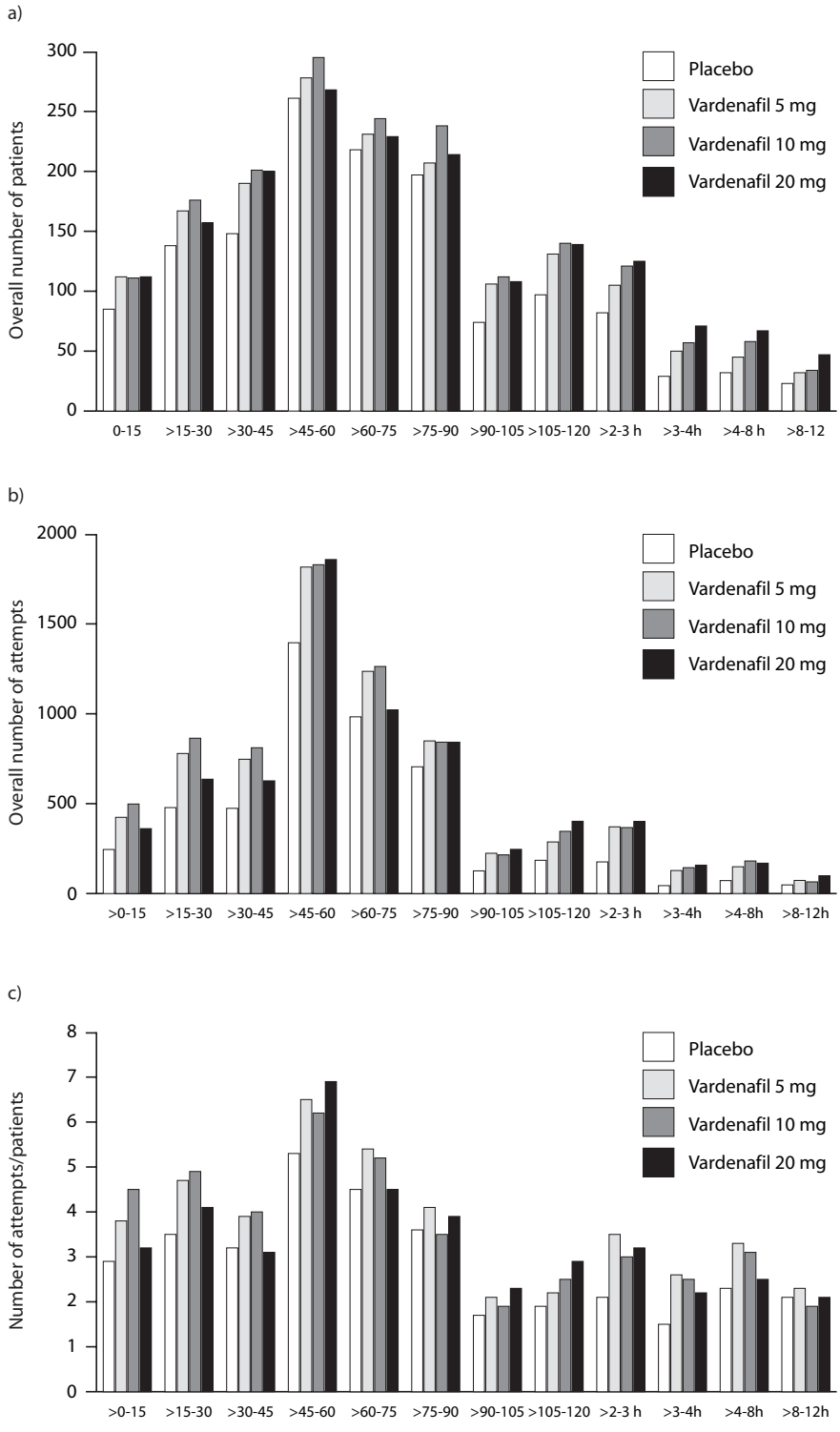


Figure 1a,b,c. Dynamics of double-blind medication use through week 12 in patients responding to SEP3. 1a: Overall number of patients with at least one diary attempt at intercourse (reporting "Yes" on at least one occasion) for each time interval; 1b: Total number of SEP3 attempts for each time interval; 1c: Total number of SEP3 attempts/patient for each time interval. Data are derived from the intent-to-treat population.

12-hour interval relative to placebo, for men who chose to make attempts during those time intervals. During the ≤15-minute time interval, mean per patient success rates were significantly higher for vardenafil patients - 67%, 79% and 75% for those receiving 5 mg, 10 mg, and 20 mg vardenafil, respectively, compared with 57% in patients receiving placebo ($p<0.05$). SEP2 success rates were consistent over the time period measured from ≤15 minutes to up to 12 hours after taking study medication, ranging from 75% to 94% at the 20 mg dose, compared to 40%-85% in patients receiving placebo. In patients receiving placebo, there was a tendency for higher SEP2 success rates at later time points. Mean per patient SEP2 success rates for patients receiving vardenafil were significantly greater for all doses and time intervals from ≤15 minutes through the 4- to 8-hour time interval, but was not significant at 8-12 hours due to the high placebo rate in this time interval, Figure 2.

SEP3 ("Did your erection last long enough for you to have successful intercourse?"): For men who chose to make attempts in each time interval from ≤15 minutes through the 8- to 12-hour interval vardenafil improved SEP3 success rates relative to placebo. During the ≤15 minute time interval, mean per patient SEP3 success rates were 52%, 64% and 62% for patients receiving vardenafil 5 mg, 10 mg, and 20 mg, respectively, versus 33% in patients receiving placebo. All improvements were significantly greater with vardenafil compared with placebo. SEP3 success rates were consistent over the time period measured from ≤15 minutes to up to 12 hours after taking study medication, ranging from 62% to 86% at the 20 mg dose, compared to 27%-53% in patients receiving placebo. In patients receiving placebo, there was a trend for higher SEP3 success rates at later time points, Figure 3.

Safety

Treatment-emergent AEs until week 12 (European pivotal study) and 26 (North American pivotal study) that occurred in ≥5% of patients included headache, (5%, 11%, 15%, and 22%), flushing (1%, 6%, 11%, and 13%), rhinitis (3%, 5%, 10%, and 13%), and dyspepsia (1%, 2%, 4%, and 7%) for placebo, 5 mg, 10 mg, and 20 mg vardenafil, respectively. These AEs were mild to moderate in severity and resolved during the period of study. Rates of AEs leading to discontinuation of study medications were also low (2.0%, 2.3%, 2.5% and 6.6% for placebo, vardenafil 5 mg, 10 mg and 20 mg, respectively).

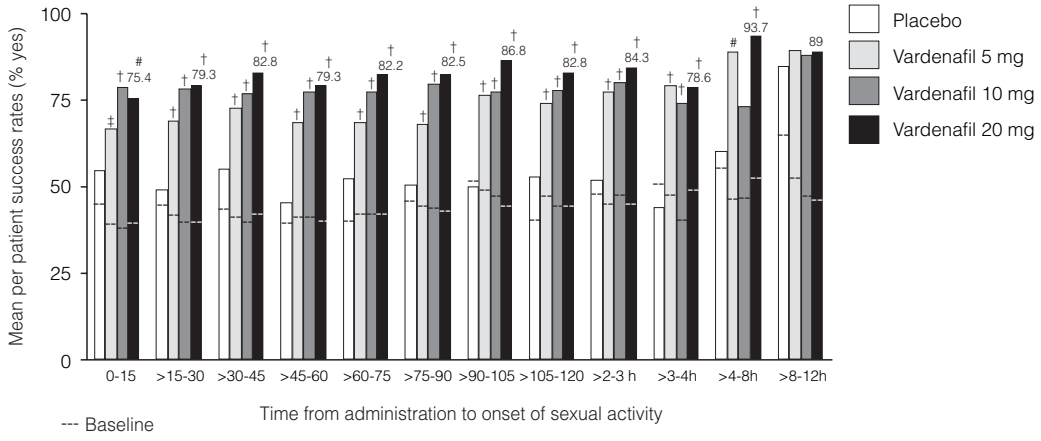
The overall incidence of serious AEs was 5.3% for placebo, 2.9% for 5 mg vardenafil, 3.1% for 10 mg vardenafil, and 3.7% for 20 mg vardenafil. There was no evidence of a relationship between any serious AEs and dose. The most frequent serious AEs included hernia (placebo: n=3, vardenafil: 5 mg n=0, 10 mg n=1, 20 mg n=2), accidental injury (placebo: n=2, vardenafil: 5 mg n=0, 10 mg n=2, 20 mg n=0), chest pain (placebo: n=2, vardenafil: 5 mg n=0, 10 mg n=1, 20 mg n=0), cholelithiasis (placebo: n=0, vardenafil: 5 mg n=1, 10 mg n=1, 20 mg n=0), and hyperglycemia (placebo: n=2, vardenafil: 5 mg n=1, 10 mg n=1, 20 mg n=0).

Discussion

The results of this retrospective analysis of data pooled from two pivotal trials for vardenafil demonstrate that, when couples chose to initiate sexual activity as early as 15 minutes or less and up to 8-12 hours post-dosing, success rates for both vaginal penetration (SEP2) and maintenance of erection for completion of intercourse (SEP3) were higher for vardenafil-treated patients than for those receiving placebo. Patients were instructed to initiate sexual activity approximately 1 hour after administration of study medication and it should be noted that 88%-93% of all attempts occurred in the first 120 minutes with markedly fewer attempts after 120 minutes through the 8- to 12-hour time point. Treatment differences were noted even for the first 15 minute window using both the vardenafil 10 mg and 20 mg doses, with SEP2 and SEP3 success rates of up to 79% and 64% for 10 mg and 75% and 62% for 20 mg, showing a rapid response to vardenafil in those men who chose to make attempts during the early time points. SEP2 success rates of ~80% were observed in the vardenafil 20 mg group during the 30- to 90-minute interval, and these success rates tended to slightly increase at later time intervals. SEP2 success rates with vardenafil 20 mg were significantly greater than placebo through to the 4- to 8-hour time interval, but not at 8-12 hours, due to the high placebo response rate in this time interval. Similarly, SEP3 success rates of 62-70% were seen in the vardenafil 20 mg group during the 30- to 90-minute interval, and these tended to increase over time. In men choosing to make attempts at each time interval, improved SEP3 success rates were observed for the entire dose period from ≤15 minutes and for up to 8-12 hours, reaching 80% at the 8- to 12-hour interval. Collectively, these data demonstrate that, in this self-selected population, vardenafil exhibited efficacy irrespective of time from consumption to initiation of sexual activity, allowing ED patients to engage in sexual activity on demand.

Other aspects of this analysis deserve further

A. Overall mean per-patient SEP2 success rate



B. Patient number per treatment group at each time interval

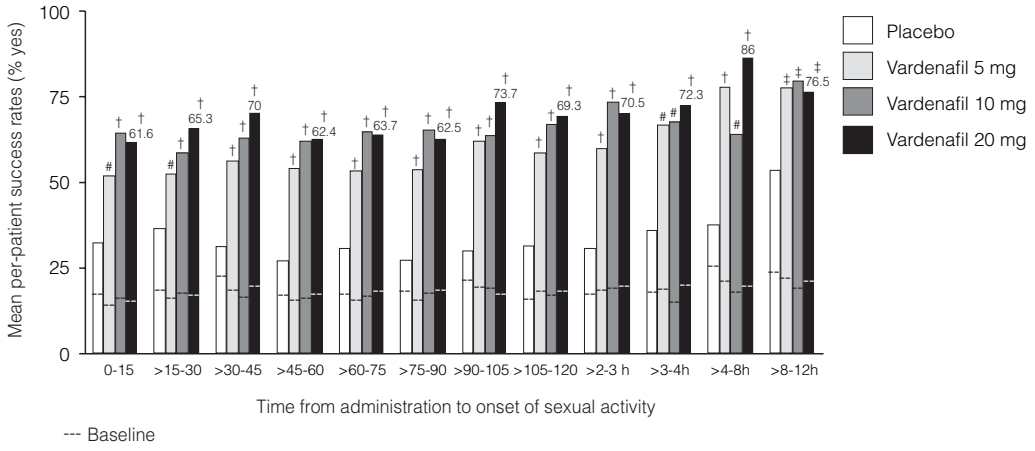
Time interval	≤15 mins	>15-30 mins	>30-45 mins	>45-60 mins	>60-75 mins	>75-90 mins	>90-105 mins	>105-120 mins	>2-3 hours	>3-4 hours	>4-8 hours	>8-12 hours
Placebo	85	139	146	259	215	194	73	98	82	29	32	23
Vardenafil 5 mg	113	166	188	277	230	207	105	131	105	49	46	32
Vardenafil 10 mg	110	176	200	294	243	237	113	139	121	57	57	34
Vardenafil 20 mg	110	156	198	266	229	213	108	139	125	71	67	46

C. Number of attempts per treatment group at each time interval

Time interval	≤15 mins	>15-30 mins	>30-45 mins	>45-60 mins	>60-75 mins	>75-90 mins	>90-105 mins	>105-120 mins	>2-3 hours	>3-4 hours	>4-8 hours	>8-12 hours
Placebo	244	477	475	1401	988	706	126	187	175	44	72	48
Vardenafil 5 mg	422	776	745	1819	1237	851	224	289	373	128	150	73
Vardenafil 10 mg	499	867	814	1830	1275	845	216	347	367	145	181	65
Vardenafil 20 mg	360	636	627	1858	1023	842	246	402	401	159	169	99

Figure 2a,b,c. Mean per patient SEP2 success rates in patients receiving double-blind medication use through week 12. 1a: Mean per patient success rates for positive responses to SEP2 ("Were you able to insert your penis into your partner's vagina?"), analyzed by analysis of covariance (data expressed as least-square mean, $^{\dagger}p \leq 0.0001$, $^{\#}p < 0.0004$, $^{\ddagger}p < 0.05$ vs placebo). Total number of patients in analysis: placebo, n=323; vardenafil 5 mg, n=341, vardenafil 10 mg, n=346; vardenafil 20 mg, n=338. Numerical values for the 20 mg dose of vardenafil are displayed. Data are derived from the intent-to-treat population, dotted lines indicate baseline success rates. 1b: The overall number of patients for each time interval for this analysis. 1c: The overall number of attempts per treatment group at each time interval.

A. Overall mean per-patient SEP3 success rate



B. Patient number per treatment group at each time interval

Time interval	≤15 mins	>15-30 mins	>30-45 mins	>45-60 mins	>60-75 mins	>75-90 mins	>90-105 mins	>105-120 mins	>2-3 hours	>3-4 hours	>4-8 hours	>8-12 hours
Placebo	85	138	145	258	214	194	73	97	82	29	32	23
Vardenafil 5 mg	112	166	187	276	229	206	105	131	104	49	45	32
Vardenafil 10 mg	110	175	200	294	243	237	112	139	121	57	57	34
Vardenafil 20 mg	112	156	198	266	228	213	108	139	125	71	67	46

C. Number of attempts per treatment group at each time interval

Time interval	≤15 mins	>15-30 mins	>30-45 mins	>45-60 mins	>60-75 mins	>75-90 mins	>90-105 mins	>105-120 mins	>2-3 hours	>3-4 hours	>4-8 hours	>8-12 hours
Placebo	245	478	474	1395	983	705	126	185	176	44	72	48
Vardenafil 5 mg	424	779	747	1816	1236	849	224	287	371	128	149	73
Vardenafil 10 mg	498	864	811	1829	1263	842	215	346	367	144	181	65
Vardenafil 20 mg	361	636	627	1858	1021	842	246	402	401	158	169	99

Figure 3a,b,c. Mean per patient SEP3 success rates in patients receiving double-blind medication use through week 12. 1a: Mean per patient success rates for positive responses to SEP3, analyzed by analysis of covariance (data expressed as least-square mean, $^{\dagger}p \leq 0.0001$, $^{\#}p < 0.005$, $^{\ddagger}p < 0.05$ vs placebo). Total number of patients in analysis: placebo, n=322; vardenafil 5 mg, n=340, vardenafil 10 mg, n=346; vardenafil 20 mg, n=338. Numerical values for the 20 mg dose of vardenafil are displayed on the figure. Data are derived from the intent-to-treat population, dotted lines indicate baseline success rates. 1b: The overall number of patients for each time interval for this analysis. 1c: The overall number of attempts per treatment group at each time interval.

mention. First, this was a retrospective analysis, which focused on the observational character of patients who were instructed to initiate sexual activity approximately 1 hour after dosing. However, it is clear from this analysis that patients will deviate from these instructions at their own discretion. Thus, in this retrospective analysis, patients were not randomized into time intervals but rather, patients self-selected the intervals at which initiation of sexual activity occurred after administration of the study drug. In this regard, it must be stressed that each time point represents a unique patient subgroup. The number of patients making attempts at the later time intervals was markedly less than at earlier time intervals, and so results from the later intervals should be interpreted with caution. Also, the data show that there is a general trend for patients, especially those receiving placebo, to experience higher SEP2 and SEP3 success rates if initiation of sexual activity occurred at later time intervals. While the cause of this observation is unclear, it is noted that these patient groups tend to show higher mean EF domain scores at baseline and also higher baseline SEP2 and SEP3 success rates than patient groups at other time intervals as shown in Figures 2 and 3. It is possible that the results may reflect the experience of patients who have milder ED. It should be noted that these studies were not designed to assess the duration of effect of vardenafil. Findings from this analysis, however, indicate the utility of characterizing the duration of efficacy of vardenafil in prospectively designed studies. Finally, this analysis focused on eventual SEP2 and SEP3 responses, as a function of the time from drug administration to onset of sexual activity. As such, this study is not equivalent to an onset trial, in which patients are specifically instructed to measure, for example, the time from drug administration to an erection sufficient for penetration leading to completion of intercourse. Collectively, the results of this analysis provide corroborative evidence for the rapid onset of action of vardenafil relative to placebo observed in a prospectively designed onset-of-action study. In that study, relative to placebo, onset of action of vardenafil leading to intercourse completion was recognized as early as 10 minutes after ingestion (21% vardenafil versus 14% placebo, p=0.025).[12] The results of the current analysis confirm these findings and suggest that vardenafil may be useful for men who desire a rapid onset of action in an ED therapy.

In this analysis, more than half of the patients had previous experience of using sildenafil. It could be hypothesized that these men may have more success with vardenafil compared with men who had no experience of using a PDE-5 inhibitor before. However, in another retrospective analysis of the same data set used in the current study, SEP2 and SEP3 success rates with vardenafil were similar irrespective of prior sildenafil use.[13] Similar results were obtained in a retrospective analysis of a 2-year study.[14]

The use of oral PDE-5 inhibitors has become the treatment of choice for most men with ED because of the ease of use and generally high efficacy of these agents, especially as compared to other treatment options for this clinical entity.[3-5] The three PDE-5 inhibitors currently available for the treatment of ED are efficacious and generally well tolerated by men with ED.[7,15,16] However, other attributes of oral ED therapy are also important in selecting and continuing PDE-5 inhibitor therapy. As revealed in the Men's Attitudes toward Life Events and Sexuality (MALES) study, the two most important attributes men seek in ED therapy relating to efficacy are reliability (47%) and rapid onset (i.e. flexibility) (16%).[1] In the Canadian Sexual Satisfaction Survey, 1000 men with ED were asked to rate preferred characteristics of an ideal oral ED mediation.[17] Almost half of the men (49%) cited onset of action within 25 minutes and 58% rated lack of food interactions as important, while the ability of the drug to last 24 or 48 hours was ranked lower.

Conclusion

ED may lead to impairment of patients' confidence and self-esteem, and contribute to a significant reduction in patients' quality of life.[2] An important component of a couple's intimate relationship is the ability to participate in sexual activity on demand, which may be significantly impaired as a consequence of ED. Results of this retrospective analysis demonstrate that vardenafil allowed for successful penetration and completion of sexual activity irrespective of the time when men chose to initiate sexual activity after administration of the study drug, with treatment differences over placebo noted as early as 15 minutes and up to 4-8 hours for penetration and up to 8-12 hours for maintenance of erection. □

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The North American Vardenafil Study Group:

Randall P. Abele, MD	Edmonton Prostate Centre, Edmonton, Alberta
Gerald L. Andriole, MD	Washington University School of Medicine, St Louis, MO
Stephen M. Auerbach, MD	California Professional Research, Newport Beach, CA
Jack Barkin, MD	Toronto, Ontario
Winston Barzell, MD	Urology Treatment Center, Sarasota, FL
Donald Bergner, MD	Tampa Bay Medical Research, Inc., Clearwater, FL
Richard Casey, MD	Male Health Centres, Oakville, Ontario
Stacy Childs, MD	Wyoming Research Foundation, Cheyenne, WY
Selwyn Cohen, MD	Clinical Research Consultants, Inc., Trumbull, CT
David O. Cook, MD	Piedmont Medical Research Associates Inc., Winston-Salem, NC
Jeoffrey Deeths, MD	Nebraska Clinical Research Center, Omaha, NE
Craig F. Donatucci, MD	Duke University Medical Center, Durham, NC
Mostafa M. Elhilali, MD	Royal Victoria Hospital, Montreal, Quebec
Pamela I. Ellsworth, MD	Dartmouth Hitchock Medical Center, Lebanon, NH
Howard B. Epstein, MD	Jacksonville Health Science Center, Jacksonville, FL
Robert A. Feldman, MD	Urology Specialists, PC, CT Clinical Research Center, Waterbury, CT
Louis Fields, MD	Thornhill, Ontario
Roger Fincher, MD	Spokane, WA
William Fitch, III, MD	Urology Consultants, PA, San Antonio, TX
Jenelle E. Foote, MD	Midtown Urology, Atlanta, GA
Jeffrey Frankel, MD	Seattle, WA
Harold A. Fuselier, MD	Ochsner Foundation Hospital, Ochsner Clinic, New Orleans, LA
Larry I. Gilderman, DO	University Clinical Research Associates, Inc., Pembroke Pines, FL
Marc Gittelman, MD	South Florida Medical Research, Aventura, FL
Evan Goldfischer, MD	Hudson Valley Urology Center, Poughkeepsie, NY
James E. Gottesman, MD	Seattle Urological Associates, Seattle, WA
Fred Govier, MD	Virginia Mason Medical Center, Department of Urology, Seattle, WA
Michael Greenspan, MD	Hamilton & District Urology Association, Hamilton, Ontario
Wayne J. Hellstrom, MD	Tulane University Medical Center, New Orleans, LA

Charles B. Herring, MD	New Hanover Medical Research Associates, Wilmington, NC
Gary S. Karlin, MD	Lawrenceville Urology, Lawrenceville, NJ
Joel M. Kaufman, MD	Urology Research Options, Aurora, CO
Robert J. Krane, MD	Massachusetts General Hospital, Department of Urology, Boston, MA
John N. Krieger, MD	A Puget Sound Health Care System, Section of Urology, Seattle, WA
Alan Lau, MD	University of Illinois at Chicago, Chicago, IL
William A. Leitner, MD	Urology Centers of Alabama, PC, Birmingham, AL
Joel Lilly, MD	Seattle Urological Associates, Seattle, WA
Jack Lubensky, MD	Radiant Research, Inc., Center for Clinical Research, Austin, TX
Nizamuddin Maruf, MD	MidAtlantic Clinical Research Center, Rockville, MD
Keith Matthews, MD	Uromed, Montreal, Quebec
Kevin T. McVary, MD	Northwestern Center for Clinical Research, Chicago, IL
Andrew McCullough, MD	New York University Medical Center, Urology Research, New York, NY
Arnold Melman, MD	Montefiore Medical Center, Department of Urology, Bronx
William B. Monnig, MD	The Urology Group, Cincinnati, OH
Craig Niederberger, MD	University of Illinois at Chicago, Chicago, IL
Harin Padma-Nathan, MD	The Male Clinic, Beverly Hills, CA
Allan B. Patrick, MD	Fredericton, N.B.
Jon Lee Peterson, MD	Health Advance n Touch Research, Houston, TX
Peter J. Pommerville, MD	Victoria, B.C.
V. Gary Price, MD	North Texas Clinical Research, Fort Worth, TX
George Raad, MD	Metrolina Medical Research Associates, Charlotte, NC
Paul R. Sieber, MD	Urological Associates of Lancaster, Lancaster, PA
Alan W. Skolnick, MD	Health Advance Touch Research, Houston, TX
Christopher P. Steidle, MD	Northeast Indiana Research, Fort Wayne, IN
Cecile Storrie, MD	MDS Harris, Inc, Dallas, TX
David Talley, MD	Urology San Antonio Research, PA, San Antonio, TX
Joseph J. Tepas, MD	University of Florida, Jacksonville Health Science Center, Jacksonville, FL
Timothy S. Truitt, MD	Health Advance Institute, Melbourne, FL
Luc Valiquette, MD	Hopital St Luc, Montreal, Quebec
Alexander Vukasin, MD	Urology Group of Princeton, PA, Princeton, NJ
Mitchell Wiatrak, MD	Midwest Research Specialists, Milwaukee, WI
John Williams, MD	University of Florida, Jacksonville Health Science Center, Jacksonville, FL
Rafael Wurzel, MD	Grove Hill Medical Center, New Britain, CT
Joseph Zadra, MD	Barrie, Ontario

The EU Vardenafil Study Group:

Belgium:	
Dr. Roger De Bruyne	Ziekenhuis Henri Serruys, Oostende
Dr. Georges Declercq	Algemeen Ziekenhuis, Antwerpen
Professor Dirk Vanderscheuren	UZ Gasthuisberg, Leuven
Dr. Francis Duyck	Heilig Hart Ziekenhuis
Dr. Benny Verheyden	University Hospital, Antwerp
Dr. Eric Wespes	Hopital Civil – Jumet Hopital, Jumet
Denmark:	
Dr. Thomas Gerstenberg	Kirurgisk afdeling Urologi, Herlev
Overlæge Peter Lyngdorf	Klinik for Seksuelle Dysfunktioner, Gentofte
France:	
Docteur Francois Giuliano	Centre Hospitalier Universitaire Service d'urologie, Le Kremlin-Bicentre
Docteur Jacques Buvat Cetparp	Lille Centre d'Etude et de Traitement de la pathologie de l'appareil reproducteur et de la psychosomatique. Résidence de l'Ile au Bois Le Grand Hunier, Lille
Docteur Beatrice Cuzin	Hôpital Edouard Herriot, Lyon
Professeur Albert Leriche	Hôpital Henry Gabrielle, Saint Genis Laval Cedex Hôpital, Saint Genis Laval
Docteur Pierre Bondil	Centre Hospitalier, Chambéry
Professeur Pierre Costa	Hopital Gaston Doumergue, Nimes
Docteur Thierry Lebret	Centre Médico-Chirurgical Foch, Suresnes
Docteur Emmanuel Blanc	Hopital Bichat, ParisGroupe Hospitalier Bichat, Paris
Docteur Olivier Lan	Clinique Saint Gérard – Capentras
Docteur Robert Porto	Cabinet Médical – Rodocanachi, Marseille

United Kingdom:	
Mr. Ian Eardley	Leeds General Infirmary, Leeds
Mr. Kanaiyalal Desai	Walsgrave Hospital, Coventry
Dr. Wilbert Dinsmore	Royal Victoria Hospital, Belfast Northern Ireland
Dr. Phillip Kell	Hospital of St John and St Elizabeth, London
Mr. Roger Kirby	St George's Hospital, London
Mr. M. Speakman	Taunton and Somerset Hospital, Taunton
Mr. David Ralph	Hospital of St John and St Elizabeth, London
Dr. Geoffrey Hackett	The Clinic, Lichfield
Italy:	
Prof. Francesco Montorsi	Osp.San Raffaele, Milan
Prof. Vincenzo Mirone	Urologia/Bari/Selvaggi Ospedale, Bari
Prof. Francesco Paolo Selvaggi	Urologia/Bari/Selvaggi Ospedale, Bari
Prof. Giorgio Carmignani	Clin. Urologica Discat, Genova
Prof Francesco Francesca	Ospedale Santa Chiara, Pisa
Prof. Fabrizio Menchini Fabris	Università di Pisa, Pisa
Prof. Enrico Pisani	Ospedale Policlinico, Milan
Prof. Guglielmo Breda	Ospedale. Nuov, Bassano del Grappa
Prof. Emanuele Belgrano	Ospedale di Cattinara, Trieste
Dr Gaetano Frajese	Medicina interna/Fatebenefratelli/Roma/Frajese, Rome
Prof. Arcangelo Pagliarulo	Azienda Osp.Policlinico Consorziale, Bari
Prof. Vincenzo Mirone	Policlinico Federico II°, Napoli
Prof. Vincenzo Gentile	Dip. Umberto Bracci Università degli Studi "La Sapienza" Viale del Policlinico, Roma
Prof. Vincenzo Bonifacio	Viale Policlinico, Rome
Netherlands:	
Dr. R.F. Kropman	Ziekenhuis LeijenburgAfd. Urologie, Ch Den Haag
Dr. E.J.H. Meuleman	Universitair Medisch Ziekenhuis, Nijmegen
Dr. H. Asscheman	Academisch Ziekenhuis Vrije, Amsterdam
Poland:	
Mr. Prof. Kazimierz Krajka	Akademia Medyczna, Gdansk
Dr. Andrzej Borkowski	Warsaw School of Medicine, Warsaw
Sweden:	
Dr. Christer Dahlstrand	Sahlgrenska Urologsektionen, Göteborg
Dr. Peter Ekman	Karolinska sjukhuset Urologkliniken, Stockholm
Dr Björn Lundquist	Lund

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