



## Characteristics of patients with erectile dysfunction in a family physician-led erectile dysfunction clinic: Retrospective case series

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### Abstract

#### Objectives:

1. To examine the characteristics of patients with erectile dysfunction in a family physician led erectile dysfunction clinic;
2. To review association of chronic disease spectrum and erectile dysfunction;
3. To review initial treatment pattern and outcome.

**Design:** Retrospective case series review.

**Subjects:** All consecutive patients seen in a regional hospital family physician led erectile dysfunction clinic from April 2014 to March 2015.

#### Main outcome measures:

1. The severity of erectile dysfunction, based on International Index of Erectile Function (IIEF-5).
2. The associated chronic comorbidities of patients.
3. Treatment patterns and patient outcomes.

**Results:** One hundred and eighty three patients presented with erectile dysfunction (ED) with mean age 58.7 (range 23 to 82) years old were seen during the study period. One hundred and twenty seven patients (69.4%) had comorbidity of chronic diseases, including 50.8% had hypertension, 38.8% had diabetes mellitus and 33.9% had hyperlipidaemia. Their mean body mass index was 25.2 kg/m<sup>2</sup>, the mean blood pressure was 137.3/79.5 mm Hg (1 mm Hg = 0.133 kPa). According to IIEF-5 score, 50.3%, 30.6% and 18.6% had severe, moderate and mild erectile dysfunction respectively. The average duration of ED before seeking medical help was 3.9 years. Phosphodiesterase 5 (PDE5) inhibitors were prescribed to 119 patients (65%), and 57.1% of them achieved good response. Twenty nine patients (15.8%) were referred to other specialty for further management, including 27.6% had contraindication for PDE5 inhibitor.

**Conclusion:** High proportion of erectile dysfunction patients had comorbidity of chronic diseases. 57.1% of those patients receiving PDE5 inhibitors showed good response.

**Keywords:** Erectile dysfunction; chronic diseases; family physician

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### Introduction

Erectile dysfunction (ED) defines as the persistent inability to achieve or maintain penile erection sufficient for satisfactory sexual performance, and is a common worldwide clinical

problem [1]. The Massachusetts male ageing study estimated the ED prevalence to be 52% in men aged 40–70 years, rising to 70% in those over 70 years of age [2]. A Hong Kong population-based study showed the overall



prevalence of ED in Hong Kong was 36.7%, while 61.1% for age group 61 to 70 years [3]. It was commonly thought in the past that ED was mainly psychological or emotional related. Today, evidences have found that the majority of patients with ED have associated physical problems [4].

Findings from several cross-sectional and longitudinal studies have linked the development of erectile dysfunction to diabetes mellitus, hypertension, hyperlipidaemia, metabolic syndrome, depression, and lower urinary tract symptoms [2]. Meta-analysis provides strong evidence that erectile dysfunction is indeed significantly and independently associated with an increased risk of cardiovascular disease (CVD), coronary artery disease (CAD), stroke, and all-cause mortality [5].

Baldwin et al. [6] reported that 74% of men with ED failed to discuss the problem with their doctors because of embarrassment; 12% felt that ED was a natural part of ageing; 10% did not consider the problem worthy of attention. Metz and Seifert [7] showed that men believed that family physician was the most preferred professionals for consultations regarding their concerns on sexual issues, and 82% of men preferred their doctors to initiate the discussion.

Family physician led ED clinic, established in April 2014 is a collaborative clinic of Family Medicine and Urology Unit of Kwong Wah Hospital. This study aims to examine the characteristics of patients presented with erectile dysfunction in a family physician led erectile dysfunction clinic; to review chronic disease spectrum of patients with erectile dysfunction; and to review initial treatment pattern and outcomes.

## Methodology

This is a retrospective case series study. Refer to Fig. 1 for the study flow chart. All consecutive patients seen in a regional hospital (Kwong Wah Hospital) family physician led erectile dysfunction clinic from April 2014 to March 2015 were included for review. Those patients presented with non-erectile dysfunction symptoms, or incapable to give written consent were excluded.

Short five questions International Index of Erectile Function (IIEF-5) was used to assess the severity of erectile dysfunction [8]. IIEF-5 is a brief, reliable, self-administered

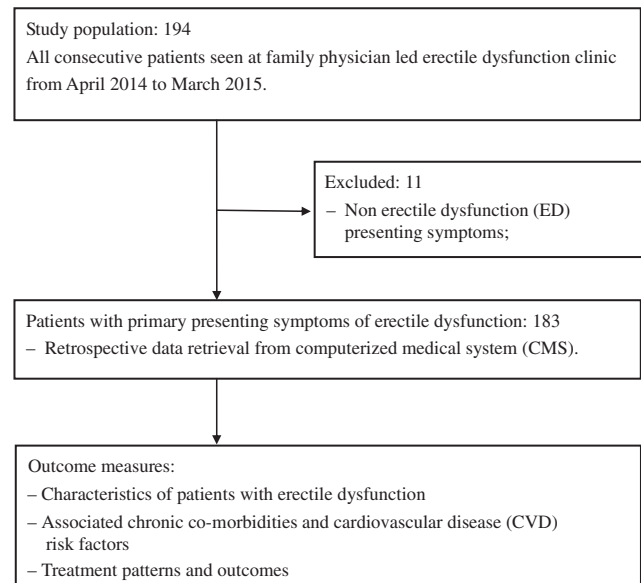


Fig. 1. Study flow chart.

measurement of erectile function that is cross-culturally valid and psychometrically sound, with satisfactory sensitivity and specificity for detection of erectile dysfunction [9]. At clinical workflow, patients were asked to complete the self-administered Chinese version IIEF-5 before consultation and then discussed with family physician during consultation. All clinical records were retrieved from Computerized Medical System for review, including patient demographics, associated chronic comorbidities and treatment spectrums.

All patients underwent detailed sexual and relevant medical, surgical and psychological history, followed by a focused physical examination. Relevant biochemical tests including fasting sugar, lipid profile, renal function and thyroid function were arranged for all, while the blood testosterone and prolactin level were reserved for indicated patients. Phosphodiesterase 5 (PDE5) inhibitors, including sildenafil (Viagra), tadalafil (Cialis), or vardenafil (Levitra) were prescribed to patients without any contraindications. Depending on clinical scenarios, patients were managed under family physician led erectile dysfunction clinic or referred to other specialty for further management. Associated chronic comorbidities and cardiovascular risk factors will be managed according to family medicine oriented management protocol of the department.



### Statistical analysis

Descriptive statistics including mean, standard deviation, frequency and percentage will be used to summarize the characteristics of the variables. Descriptive information for each of the explanatory variables will be derived. Bivariate association of the variables with severe ED is assessed using Chi-square test for categorical variable. A *P*-value of less than 0.05 is considered as significant. Data analysis will be performed with the Statistical Package for the Social Sciences (SPSS, version 21.0, SPSS Inc, United States).

### Research ethics

The study was approved by Hospital Authority Kowloon West Cluster Research Ethics Committee.

### Results

One hundred and eighty three patients with mean age 58.7 (range: 23 to 82) years old had primary presenting symptoms of erectile dysfunction during the study period were recruited for review. Patient demographics were described in Table 1. Sixty seven patients (36.6%) were active or ex-smoker. No patient reported current or past use of illicit drugs. One third of patients were retired, while 13.1% were aged more than 70 years old. Their mean body mass index was 25.2 kg/m<sup>2</sup>, the mean blood pressure was 137.3/79.5 mm Hg (1 mm Hg = 0.133 kPa).

Associated chronic diseases spectrum was summarized in Table 1. 69.4% of patients had morbidity of chronic diseases, while 50.8% had hypertension, 38.8% had diabetes mellitus and 33.9% had hyperlipidaemia. Around tenth of patients had cardiovascular diseases, including 4.4% had ischaemic heart disease. A small proportion of patients reported mental disorder, as 2.7% patients had depressive disorder while 2.2% had anxiety disorder. From Table 2, patients with associated chronic morbidities, including diabetes mellitus, hypertension, hyperlipidaemia or obesity are more likely to have severe ED. However, only patients with DM is statistical significantly associated with severe ED, with odd ratio 2.34 (95% CI 1.30–4.41, *P*=0.005).

The duration and severity of erectile dysfunction were described in Table 3. The mean IIEF-5 score was 10.5, while 50.3%, 30.6% and 18.6% were classified as severe, moderate

and mild erectile dysfunction respectively. The average duration of ED before seeking medical help was 3.9 years, while 10.4% presented less than 1 year and 8.2% had more than 10 years.

PDE5 inhibitors were prescribed to 119 patients (65%) (refer to Table 4) and 57.1% of them reported good response. Among PDE5 inhibitor users, 83.2% attempted one, 10.1% attempted 2 and 6.7% attempted 3 drugs respectively. 38 patients (31.9%) reported side effects after PDE5 inhibitor, the most common side effect was headache. However, no patient withdraw the medication due to side effects, and no patient report suffering from severe side effect or drug allergy. Twenty nine patients (15.8%) were referred to other specialty, i.e. Urology or Medical department for further management (refer to Table 5). Among them, 8 patients (27.6%) had contraindication for PDE5 inhibitor, 6 patients (20.7%) had premature ejaculation while 4 patients (13.8%) had penile deformity.

### Discussion

This review study reveals that ED patients have wide range of age, and majority of them have comorbidity of chronic diseases. More than half of those patients receiving PED5 inhibitors achieved good response.

Pleasure from sex or the enjoyment of having sex is an essential part in a person's physical, mental and spiritual well-being. The loss of sexual power is often considered by many people and even by some health professional as a natural aging process, hence, many sufferers are reluctant to discuss their problem with another person including their own partner, friends or doctors [10]. Change to the current situation of poor diagnosis and management of ED require change in both the attitude and belief system of both doctors and patients [10]. Chan et al. [11] study shows that sex is considered important by the Hong Kong elders and many of them are still sexually active. However, only 0.9% of study elderly had received sex knowledge from doctors. Our study shows that 13.1% of patients are aged more than 70 years old and 8.2% of patients have erectile dysfunction for more than 10 years before seeking medical help. Findings support that elders are keen in pursuing functioning sexual activity. On the other hand, 14.8% of ED patients are aged less than 50 years old, while the youngest patient is 23 years old. International Consultation Committee for Sexual Medicine on Definitions/Epidemiology/Risk factors for Sexual Dysfunction



Table 1. Patient demographics

	Frequency	Percentage, %	Mean	SD
Study population	183	–	–	–
Age distribution				
<40	8	4.4	–	–
40–49	19	10.4	–	–
50–59	69	37.7	–	–
60–69	63	34.4	–	–
70–79	22	12.0	–	–
≥80	2	1.1	–	–
Employment				
Employed (full time)	96	52.5	–	–
Employed (part time)	12	6.6	–	–
Unemployed	14	7.7	–	–
Retired	61	33.3	–	–
Smoking status				
Current smoker	29	15.8	–	–
Ex-smoker	38	20.8	–	–
Non smoker	116	63.4	–	–
Alcohol drinking				
Current	17	9.3	–	–
Ex-drinker	41	22.4	–	–
Non drinker	125	68.3	–	–
Use of illicit drugs				
Current user	0	0	–	–
Ex-user	0	0	–	–
Non user	183	100.0	–	–
Associated comorbidities				
Yes	127	69.4	–	–
No	56	30.6	–	–
Hypertension	93	50.8	–	–
Diabetes mellitus	71	38.8	–	–
Hyperlipidaemia	62	33.9	–	–
Stroke/CVA	7	3.8	–	–
Ischemic heart disease	8	4.4	–	–
Atrial fibrillation	5	2.7	–	–
Chronic kidney disease	9	4.9	–	–
Benign prostate hypertrophy	29	15.8	–	–
Depression	5	2.7	–	–
Anxiety	4	2.2	–	–
Body mass index (BMI), kg/m <sup>2</sup>	–	–	25.2	3.6
Obesity (BMI≥25 kg/m <sup>2</sup> )	99	54.1	–	–
Systolic BP, mm Hg	–	–	137.3	19.7
Diastolic BP, mm Hg	–	–	79.5	11.1
Fasting blood sugar, mmol/L	–	–	6.3	1.9
Total cholesterol, mmol/L	–	–	4.4	1.8

CVA, cerebrovascular accident; BP, blood pressure.



Table 2. Patient characteristics associated with severe erectile dysfunction (ED)

	Frequency	Severe ED	Severe ED, %	OR	P-value	95% CI
Study population	183	92	50.3	–	–	–
Age categories	–	–	–	–	–	–
<50	27	14	51.9	1	–	–
50–59	69	23	33.3	0.46	0.094	0.19–1.15
60–69	63	37	58.7	1.32	0.546	0.53–3.23
≥70	24	18	75.0	2.79	0.088	0.85–9.19
Smoking status	–	–	–	–	–	–
Non smoker	116	59	50.9	1	–	–
Ex-/current smoker	67	33	49.3	0.94	0.834	0.51–1.71
Chronic comorbidities	–	–	–	–	–	–
No	56	23	41.1	1	–	–
Yes	127	69	54.3	1.71	0.098	0.90–3.23
Diabetes mellitus	–	–	–	–	–	–
No	112	47	42.0	1	–	–
Yes	71	45	63.4	2.34	0.005	1.30–4.41
Hypertension	–	–	–	–	–	–
No	90	40	44.4	1	–	–
Yes	93	52	55.9	1.59	0.121	0.89–2.84
Hyperlipidaemia	–	–	–	–	–	–
No	121	57	47.1	1	–	–
Yes	62	35	56.5	1.46	0.231	0.79–2.70
Obesity, BMI≥25 kg/m <sup>2</sup>	–	–	–	–	–	–
No	84	36	42.9	1	–	–
Yes	99	56	56.6	1.74	0.065	0.97–3.12
BPH	–	–	–	–	–	–
No	154	79	51.3	1	–	–
Yes	29	13	44.8	0.78	0.523	0.35–1.71

ED, erectile dysfunction; BPH, benign prostate hypertrophy.

indicated that prevalence of ED ranged from 3% to 19% in men less than 50 years old [12]. Family physician should be more ready and proactive to discuss and manage sexual problems with their male patients, from young to elders.

Men with ED need to seek medical advice not only for the sexual problem itself, but also because of its close association with other medical conditions like diabetes and cardiovascular risk factors. It is well known that ED is associated with numerous risk factors for cerebrovascular disease or coronary artery disease including diabetes, hypertension, lipid abnormalities, obesity and smoking etc [13]. Our study reported high

proportion, i.e. 69.4% of ED patients have associated chronic diseases and risk factors. Chronic diseases are obviously positively associated with severe ED, although only diabetes mellitus meets statistical significance in this study. While lifestyle modification is the mainstay intervention for chronic diseases, Gupta et al. [14] suggest that adoption of lifestyle modification and cardiovascular risk factor reduction can provide incremental benefits on erectile function regardless of PDE5 inhibitor.

Oral PDE5 inhibitors are broadly acceptable as the first-line treatment for most patients, unless there are contraindications. Three available PDE5 inhibitors are prescribed by the



Table 3. Duration and severity of erectile dysfunction

	Frequency	Percentage, %	Mean	SD
Study population	183	–	–	–
Duration of ED, year	–	–	3.9	3.4
≤1 year	19	10.4	–	–
>1 to 3 years	78	42.6	–	–
>3 to 5 years	33	18.0	–	–
>5 to 10 years	38	20.8	–	–
>10 years	15	8.2	–	–
Severity of ED				
IIEF-5 score: average (SD)			10.5	4.7
Severe	92	50.3	–	–
Moderate	56	30.6	–	–
Mild	34	18.6	–	–
Normal	1	0.5	–	–

Table 4. Summary of PDE5 usage

	Frequency	Percentage, %
Study population	183	–
Introduction of PDE5	119	65.0
One PDE5	99	83.2
Two PDE5	12	10.1
Three PDE5	8	6.7
Satisfactory response		
Yes	68	57.1
Reported side effects	38	31.9
Headache	13	34.2
Facial flushing	9	23.7
Dizziness/Hypotension	5	13.2
Nasal blockage	4	10.5
Gastrointestinal upset/Dyspepsia	3	7.9
Alteration in color vision	2	5.3
Others/Nonspecific	2	5.3
Drug withdraw due to side effect	0	0
Reported severe side effect	0	0
Reported drug allergy	0	0

PDE5, Phosphodiesterase 5.

family physician to 65.0% of study population, while 57.1% of those receiving the PDE5 inhibitor achieve good response. Most of them (83.2%) had just tried one PDE5 inhibitor, although 6.7% had tried all three agents. Common side effects,

Table 5. Summary of patients referred to other specialty

	Frequency	Percentage, %
Patients	29	–
Reasons of referral		
Contraindication to PDE5	8	27.6*
Premature ejaculation	6	20.7*
Penile deformity	4	13.8*
Painful erection	2	6.9*
For second line treatment	2	6.9*
Endocrine problem	2	6.9*
Hypotension	1	3.4*
Neurological problem	1	3.4*
Others (unspecified)	3	10.3*

\*The total percentage is 99.9% due to round up figures.

such as headache, flushing are reported by 31.9% of patients who are taking PDE5 inhibitors. None of them reports severe side effect or drug allergy. However, it is not uncommon for ED patients have comorbidity of cardiovascular complications or have contraindication for PDE5 inhibitor. Our study reveals that 4.4% (8/183) patients has contraindication for PDE5 inhibitor. Family physician should aware of these before prescription of PDE5 inhibitor to their patients.

Family physician is the first contact of health care for all patients, and has recognized to take active role in management of ED, including identification, assessment, treatment and



follow up [4]. Family physician are judged among ED patients to be the most appropriate person to help their predicament and the doctors to take the lead [15]. This review study of family physician led erectile dysfunction clinic provide information to support family physician in providing continuous holistic care for their patients with erectile dysfunction.

### Limitation

Patient population involves only one regional primary clinic and this is a case series, thus limiting the validity and generalizability of our results.

### Conclusion

Patients with erectile dysfunction seen in a family physician led erectile dysfunction clinic have high proportion of associated chronic diseases and cardiovascular risk factors. Among those patients receiving oral PDE5 inhibitors, 57.1% shows good response, but mild side effects are quite common.

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### Conflict of interest

The authors declare no conflict of interest.

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