RESEARCH ARTICLE

Characteristics of Erectile Dysfunction Patients in the Andrology Unit of Dr. Soetomo Hospital, Surabaya, Indonesia

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Abstract

Erectile dysfunction (ED) is a common problem in the medical field. In contrast to worldwide data, the prevalence of ED and its risk facftors in Indonesia is still unknown. The objective of this study was to determined the characteristics of male erectile dysfunction patients in the andrology unit of Dr. Soetomo hospital, Surabaya, Indonesia. A descriptive cross-sectional design was implemented in this study. There were 83 male patients at URJ Andrology RSUD dr. Soetomo Surabaya. The highest prevalence of erectile dysfunction patients in the age group was age 41-50 years old (22.9%). The degree of IIEF-5 was the most in severe degree (39.8%), while the EHS score was the most in score 2 (38.6%). The highest internal risk factors were vasculogenic (90.4%), the external risk factors was the lifesyle factor (56.6%). In Surabaya, Indonesia, the incidence of erectile dysfunction has increased in the 40 year age group with severe degree, which mostly caused by vascular disorder combined with lifestyle factors. Multidisciplinary treatment and healthy life are needed for erectile dysfunction management to improve the quality of life.

Keywords: *Erectile dysfunction, Patient characteristic, Surabaya, Indonesia.*

Introduction

Erectile dysfunction (ED) is one of the most frequent sexual disorder in men. ED is the inability to achieve or maintain an erectile function sufficiently for a satisfied sexual activity. The prevalence of ED is 20-40% in men aged 60-69 years worldwide. In contrast, the prevalence of ED in Indonesia is not yet known precisely [1]. ED is a medical condition that can interfere with various aspects of a patient's life, including quality of life and interpersonal relationships [2, 3].

Unfortunately, due to the unpropriate stigma, men with ED are rarely find medical help. Furthermore, ED is also rarely studied and the relationship of risk factors has not been much investigated. Therefore this tudy was designed to explore the characteristic and to determine the risk factors of ED patients in Andrology unit in educational hospital, Dr.Soetomo Hospital, Surabaya, Indonesia.

Methods

A descriptive cross-sectional design was implemented in this study. The study was conducted at Andrology Unit of Dr. Soetomo Hospital, Surabaya, Indonesia. The sample criteria were male patients with erectile dysfunction who had been diagnosed by andrologist at Andrology Unit of Dr. Soetomo Hospital, Surabaya, Indonesia.

Data were collected as secondary data derived from medical record. The obtained data were then analyzed with univariate analysis techniques.

This technique was used to determine the frequency distribution of the studied variables, then presented in the form of frequency distribution tables and narration.

Result

Table 1: Distribution of Patients by Age

Age (year)	Frequency (%)
21-30	15,7 (13)
31-40	12,0 (10)
41-50	22,9 (19)
51-60	21,7 (18)
61-70	20,5 (17)
71-80	7,2 (6)

Table 1 showed that the highest prevalence of erectile dysfunction patients who visited Andrology unit of dr. Soetomo hospital, Surabaya was in the age group of 41-50 years old (22.9 %), followed by 51-60, 61-70, 21-30, 31-40 years old (21.7, 20.5, 15.7, 12%, irrespectively). The lowest prevalence was in the age group of 71-80 years old (7.2%)

Table 2: Distribution of patients by Degree of IIEF-5

Degree	Frequency (%)
22-25 (normal)	0
17-21 (mild)	13.3 (11)
12-16 (mild - moderate)	13.3 (11)
8-11 (moderate)	26.5 (22)
< 7 (severe)	39.8 (33)
other (not married)	7.2 (6)

Table 2 showed that the prevalence of degree Internasional Indeks of Erectile Function ((IIEF)-5 in ED patients who visited Andrology unit of dr. Soetomo hospital, Surabaya, Indonesia was the most in severe group (39.8%), followed by moderate and mild-moderate group (26.5%, 13.3 %, irrespectively). The lowest prevalence was in the mild group (13.3%)

Table 3: Distribution of patients based on EHS Score

EHS Score	Frequency (%)
1	33.7 (28)
2	38.6 (32)
3	26.5 (22)
4	1.2 (1)

Table 3 showed the prevalence of erection hard score (EHS) in ED patients who visited Andrology unit of dr. Soetomo hospital was on EHS score 2 at the highest (38.6%), followed by EHS score 1 and 3 (33.7%, 26.5%, irrespectively). The lowest prevalence was on EHS score 4 (1.2%)

Table 4: Distribution of Patients with Internal Risk Factors

Internal Risk Factor	Frequency (%)
Vasculogenic	90.4 (75)
Neurogenic	8.4 (7)
Hormonal	1.2 (1)
Iatrogenic	0

Table 4 showed the prevalence of the most frequent internal risk factors in ED patients who visited Andrology unit of dr. Soetomo hospital was vasculogenic factor (90.4%), followed by neurogenic and hormonal factors (8.4%, 1.2%, irrespectively). There was no iatrogenic factor in this study

Table 5: Distribution of Patients with External Risk Factors

External Risk Factor	Frequency (%)
Life style	56.6 (47)
Phsycology Factor	22.9 (19)
Surgery History	20.5 (17)

Table 5 showed that the prevalence of the most frequent external risk factors in ED patients who visited Andrology unit of dr. Soetemo hospital was lifesyle factor (56.6%), followed by phsycology factor and history of surgery (22.9%, 20.5%, irrespectively)

Discussion

Age is one of the risk factors for erectile dysfunction. Age affects the occurrence of ED associated with decreased physiological function of body organs. In this study, the prevalence of ED occurs on age 20-80 years old, whereas in other study the ED occurs on age 30-80 years old. In addition, according to previous study, it was stated that the prevalence of erectile dysfunction began to increase by around 8.2% on age 40-49 years and increased to 77.5% on age above 75 years [4].In contrast, in this study, mostly ED has occurred under the age of 70 years [4].It means that the trend of age of ED patients was has shifted into earlier age compared to

the previous study. Even still young, they are already got ED, this might be explained why they are seek for medical treatment immediately. Furthermore, the highest prevalence occurs in around on age 30-50 years old in this study and the other study. ED patients in this age are in the peak of carrier, therefore ED may initiates in anxiety, loss of self confidence that may end to depression.

There are differences in erectile dysfunction from one person to another. These differences raise a classification based on the inability of men to achieve and maintain penile erection, which is called the degree of erectile dysfunction. In epidemiological studies, it is very important when assessing the questionnaire for people with simple ED characteristics, practical and valid. IIEF-5 is one of the questionnaires that can be used to classify the degree of erectile dysfunction which aims to supplement, not replace, as a clinical assessment and useful diagnostic assessment [5, 6].In this study, the highest prevalence of IIEF-5 score were severe and moderate. The explanation of this issue was maybe the ED patients prefer to seek the traditional medication, rather than medical treatment.

As known, the traditional medication such as herb or go to the midwife were not expensive and esier to get. If the traditional medication was not effective, then they start to go to doctors for medical treatment. At this moment, perhaps the degree of ED already getting worse become moderate or even severe. Besides IIEF, there is also other parameter to diagnose or detect the severity of ED, namely EHS. EHS is a single item scale that focuses on the subjective assessment of penile violence by the patient himself, as follow : 0 (the penis does not enlarge), 1 (penis is larger, but not hard), 2 (penis is hard, but not hard snough for penetration, 3 (penis is hard enough for penetration, but not completely hard), and 4 (penis is really hard and fully rigid).

Since its initial development in 1998, EHS has been used in several clinical trials, proven to be easily administered and significantly related to sexual function outcomes.

EHS correlates with various elements, such as aging, sexual behavior, sexual beliefs, and risk factors associated with ED, and can be valuable tools in clinical practice to monitor and manage ED [7, 10].In this study, the highest prevalence of EHS score were 1 and 2.

The explanation of this issue was maybe similar to the IIEF, that the ED patients prefer to seek the traditional medication compared to medical treatment. Therefore the severity become worse and not managable, then they finally go to the doctors. In addition, for elderly patients, perhaps the etiology of patient were underlyied by other diseases, hence the severity of ED worse compared to younger patients who has no underlying diseases. Broadly speaking, the causes of erectile dysfunction can be divided into two main groups, namely organic and psychogenic.

In addition, the etiologies of organic ED include vascular, neurogenic, endocrine and iatrogenic [11, 12].Furthermore, these etiologies are classified into internal factors of ED. In this study, mosltly ED occurred by vascular factor and the age of ED patients was earlier or younger.

In younger ED patients, the vascular disorders are focal arterial occlusive disease, subclinical endothelial dysfunction, and Peyronie's disease. Focal arterial occlusive disease could be occurred in biker [13].The possible mechanism is the perineal pressure from bicycle seat that obstructs penile vessels. This condition may cause arterial insufficiency and disturbs penile compliance, that direct to ED [14].

Even tough ED patients do not have cardiovascular disease yet, but they are may be possess by the subclinical risk factor of ED such as high systolic blood pressure, thick carotid intimal media and elevated cholesterol profile level [15].These risk factors can trigger endothelial dysfunctions and predispose them to ED.

In Peyronie's disease, there are a few mechanisms that related to ED such as larger plaque size, veno-occlusive dysfunction and impaired cavernosal arterial flow [16].

Actually, besides the physical, there is also psychologic impact of Peyronie's disease that heightening the ED condition, such as self-image, sexual function, pain and discomfort, and social isolation [17].Compared to the younger ED patients, the vascular disorders in older ED patient are obvious, since it is occurred in cardiovascular disease, stroke and others. In the physiology of erection, the peripheral, spinal and supraspinal nerves are incorporated to each other.

Therefore, the neurologic disorder may contribute to ED. The neurologic disorders that have been reported in causing ED are multiple sclerosis, epilepsy, femoral head fractures and lumbar spine procedures [18]. Nerve dysfunction, inflammation-dependent endothelial dysfunction and illness related stress are mechanisms of these neurologic disorders [19].

Hypogonadism, hypo/hyperthyroidism and diabetes have been reported as endocrinopathies that can lead to ED [19].Hypogonadism could be occurred primarily as Klinefelter syndrome or cryptorchidism, and secondarily as prolactinoma, hemochromatosis and drug abuse [20]. Hypo/hyperthyroidism patients have inadequate erections [21].A study reported that 63% of men with hypothyroidism and 70% with hyperthyroidism were suffer from ED, compared to 34% in the control group [22].

In a study demonstrated that diabetes has strong correlation with ED. The prevalence of ED in diabetic patient was in 68 cases per 1000 patients per year, compared to 25.9 cases per 1000 patients [23].As have known,

in diabetes there is endothelial dysfunction complication as mechanism of ED. Besides internal factors, ED also caused by external factors such as lifestyle, psycogenic and surgery history.

There are several clinical studies that have shown that several lifestyle factors are associated with ED, such as smoking, alcohol consumption, obesity, and limited physical activity can have a significant effect on changes in erectile function and testosterone levels [24, 29]. Lifestyle and nutrition have been recognized as central factors that influence the production of NO blood vessels and erectile function. Therefore, steps are needed to change lifestyle patterns to prevent the development or even reduce the symptoms of the earliest manifestations of ED [30].

Furthermore, reducing lifestyle habits that cause clinical inflammation to a lower level so that it is possible to reduce the burden of sexual dysfunction [31].Performance anxiety, stress and mental disorders are psychological factors that reported could cause ED [32].In addition, surgery history such as radical prostatectomy and other surgeries in crotch area, also being reported may lead to ED.

Conclusion

In Indonesia, particularly in Surabaya, the incidence of erectile dysfunction has increased in the 40 year age group with severe degree, which mostly caused by vascular disorder combined with lifestyle factors. Multidisciplinary treatment and healthy life are needed for erectile dysfunction management to improve the quality of life.

References

1. Wibowo S, Disfungsi Ereksi (2005) Yogyakarta: Pustaka Cendekia Press Yogyakarta.

2. Taher A, Karakata S, Adimoelya A, Pangkahila W, Kakiailatu F (1999) Penatalaksanaan disfungsi ereksi. Pendidikan Kedokteran Berkelanjutan; 10 Juli Jakarta: Pengurus Ikatan Dokter Indonesia.

3. Romeo JH, Seftel AD, Madhun ZT, Aron DC (2000) Sexual function in men with diabetes type 2: associaation with glycemic control. J. Urol., 163: 788-791.

4. Selvin E, Burnett AL, Platz EA (2007) Prevalence and risk factors for erectile dysfunction in the US. Am J. Med., 120: 151-7.

5. Rosen RC et al (1999) Development and evaluation of an abridged, 5- item version of the International Index of Erectile Function (IIEF-5) as a diagnostic tool for erectile dysfunction. Int. J. Impot Res., 11: 319-326.

6. Rosen RC et al (1997) The International Index of Erectile Function (IIEF): a multidimensional scale for assessment of erectile dysfunction. Urology, 49: 822-830.

7. Goldstein I, Lue TF, Padma-Nathan H, Rosen RC, Steers WD, Wicker PA (1998) Oral sildenafil in the treatment of erectile dysfunction. Sildenafil Study Group. N. Engl. J. Med., 338: 1397-404.

8. Goldstein I, Mulhall JP, Bushmakin AG, Cappelleri JC, Hvidsten K, Symonds T (2008) The erection hardness score and its relationship to successful sexual intercourse. J. Sex Med., 5: 2374-80.

9. Claes HI, Andrianne R, Opsomer R, Albert A, Patel S, Commers K (2012) The HelpED study: Agreement and impact of the erection hardness score on sexual function and psychosocial outcomes in men with erectile dysfunction and their partners. J. Sex Med., 9: 2652-63.

10. Kimura M, Shimura S, Tai T, Kobayashi H, Baba S, Kano M, and Nagao K (2013) A web-based survey of Erection Hardness Score and its relationship to aging, sexual behavior, confidence, and risk factors in Japan. Sex Med., 1: 76-86.

11. Miner M, Nehra A, Jackson G, Bhasin S, Billups K, et al (2014) All men with vasculogenic erectile dysfunction require a cardiovascular workup. Am J. Med., 127: 174-82.

12. Ralph D, McNicholas T (2000) UK management guidelines for erectile dysfunction. Br Med. J. 321: 499-503.

13. Andersen KV, Bovim G (1997) Impotence and nerve entrapment in long distance amateur cyclists. Acta Neurol. Scand, 95: 233-40.

14. Sommer F, Goldstein I, Korda JB (2010) Bicycle riding and erectile dysfunction: a review. J. Sex Med., 7: 2346-58.

15. Yao F, Huang Y, Zhang Y, Dong Y, Ma H, et al (2012) Subclinical endothelial dysfunction and low-grade inflammation play roles in the development of erectile dysfunction in young men with low risk of coronary heart disease. Int. J. Androl., 35: 653-9.

16. Chung E, De Young L, Brock GB (2011) Penile duplex ultrasonography in men with Peyronie's disease: is it veno-occlusive dysfunction or poor cavernosal arterial inflow that contributes to erectile dysfunction? J. Sex Med., 8: 3446-51.

17. Rosen R, Catania J, Lue T, Althof S, Henne J, et al (2008) Impact of Peyronie's disease on sexual and psychosocial functioning: qualitative findings in patients and controls. J Sex Med., 5: 1977-84.

18. Ludwig W, Phillips M (2014) Organic causes of erectile dysfunction in men under 40. Urol. Int., 92: 1-6.

19. Papagiannopoulos D, Khare N, Nehra A (2015) In Evaluation of young men with erectile dysfunction. Asian Journal of Andrology, 17(1):11-6.

20. Young J (2012) Approach to the male patient with congenital hypogonadotropic hypogonadism. J. Clin Endocrinol. Metab., 97: 707-18.

21. Veronelli A, Masu A, Ranieri R, Rognoni C, Laneri M, et al (2006) Prevalence of erectile dysfunction in thyroid disorders: comparison with control subjects and with obese and diabetic patients. Int. J. Impot. Res, 18: 111-4.

22. Krassas GE, Tziomalos K, Papadopoulou F, Pontikides N, Perros P (2008) Erectile dysfunction in patients with hyper- and hypothyroidism: how common and should we treat? J. Clin Endocrinol. Metab, 93: 1815-9.

23. Bortolotti F, Coscelli A, Santeusanio F, Chatenoud L, Collie E (2000) Erectile dysfunction in type 1 and type 2 diabetics in Italy. J. Epidemiol., 29: 524-31.

24. Hannan JL, Maio MT, Komolova M, Adams MA (2009) Beneficial impact of exercise and obesity interventions on erectile function and its risk factors. J. Sex Med., 6 (3): 254-61.

25. Horasanli K, Boylu U, Kendirci M, Miroglu C (2008) Do lifestyle changes work for improving erectile dysfunction? Asian J. Androl., 10: 28-35.

26. Chew KK, Bremner A, Stuckey B, Earle C, Jamrozik K (2009) Alcohol consumption and male erectile dysfunction: an

unfounded reputation for risk? J. Sex Med., 6: 1386-94.

27. Esposito K, Ciotola M, Giugliano F, Maiorino MI, Autorino R, et al (2009) Effects of intensive lifestyle changes on erectile dysfunction in men. J. Sex Med., 6: 243-50.

28. Håkonsen LB, Thulstrup AM, Aggerholm AS, Olsen J, Bonde JP, et al (2011) Does weight loss improve semen quality and reproductive hormones? Results from a cohort of severely obese men. Reprod. Health, 8: 24.

29. Khoo J, Piantadosi C, Worthley S, Wittert GA (2010) Effects of a low-energy diet on sexual function and lower urinary tract symptoms in obese men. Int. J. Obes. (Lond.) 34: 1396-403.

30. Esposito K, Giugliano F, Maiorino MI, Giugliano D (2010) Dietary factors, Mediterranean diet and erectile dysfunction. J. Sex Med., 7: 2338-45.

31. Esposito K, Giugliano F, Di Palo C, Giugliano G, Marfella R, et al (2004) Effect of lifestyle changes on erectile dysfunction in obese men: a randomized controlled trial. JAMA, 291: 2978-84.

32. Tom F, Lue MD (2006) "Causes of Erectile Dysfunction". Erectile dysfunction. Armenian Health Network, Health. Am. Retrieved 2007-10-07.