

THE SIZE PROFILE OF EXTERNAL URETHRAL ORIFICIUM IN MALE ADULT

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ABSTRACT

Objective: Externalurethralorificium (EUO) is the outermost part of the urethra. It lies on the outside, then the operation tool for endourology transurethra must pass urethra meatus externus first before they can go deeper. Unfortunately there is no study addresses the size of EUO of male adults in Indonesia. This study was aimed to know the size of the EUO in males adult. **Material & Methods:** This study was a prospective study by taking the primary data in the Sardjito General Hospital and Kardinah General Hospital, Tegal and implemented during the period from October to December 2016. There were 50 samples of males adult. The exclusion criteria in this study were male patients with meatal stenosis or patients with a history of surgery on the penis or instrumentation of the urethra. External urethra orifice size measurements performed with a digital caliper, and then converted to scale the size of Fr. The data were then analyzed by Npar test with the Kolmogorov-Smirnov test, and then T-test with linear regression. **Results:** There were 50 adult male patients with a mean age of 52.54 ± 10.34 years. For sizes vary with the size of 16.5-26.4 Fr. From the analysis of the size of the EUO obtained a mean size of 22.72 ± 2.62 for Indonesian adult male. **Conclusion:** The average size of the adult male EUO was 22.72 ± 2.62 Fr.

Keywords: External urethral orificium.

ABSTRAK

Tujuan: Externalurethralorificium (EUO) merupakan bagian terluar dari urethra. Letaknya yang berada paling luar, maka alat-alat endourologi transurethra harus melalui meatus urethra externus terlebih dahulu sebelum dapat masuk lebih dalam lagi. Namun sayangnya belum pernah ada penelitian yang membahas ukuran EUO pada laki-laki dewasa di Indonesia. Penelitian ini bertujuan untuk mengetahui EUO pada laki-laki dewasa. **Bahan & Cara:** Penelitian ini merupakan penelitian prospektif dengan mengambil data primer di RSUD Kardinah Tegal dan dilaksanakan selama periode bulan Oktober- Desember 2016. Ada 50 sampel laki-laki dewasa. Adapun kriteria eksklusi pada penelitian ini adalah pasien laki-laki dewasa dengan meatal stenosis ataupun pasien dengan riwayat operasi pada penis maupun instrumentasi pada urethra. Dilakukan pengukuran ukuran EUO dengan kaliper digital, lalu ukuran dikonversi ke skala Fr. Data lalu dianalisis dengan Npar Test dengan Kolmogorov-Smirnov Test. Kemudian dilakukan uji T-Test dan regresi linear. **Hasil:** Ada 50 pasien laki-laki dewasa dengan rerata usia 52.54 ± 10.34 tahun. Untuk ukuran bervariasi dengan ukuran 16.5-26.4Fr. Dari hasil analisis ukuran orificium eksternum didapatkan ukuran rerata EUO laki-laki Indonesia adalah 22.72 ± 2.62 . **Simpulan:** Ukuran rerata EUO laki-laki dewasa adalah 22.72 ± 2.62 Fr.

Kata kunci: External urethral orificium.

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INTRODUCTION

External urethral orificium (EUO) or external urethral meatus, is the outermost part of the urethra. Urethra in men is about 20 cm long, starting from the orificium urethra internum bordering the vesica urinary, then passing the prostate, after that entering the pars of the bulbosa of the penis. The

urethra then walk along the corpus spongiosum, entering the glans penis and ends at the external urethral orificium.¹

Because of its outermost location, the transurethral endourology devices must pass through the external urethra meatus before it can enter deeper. Endourology transurethra tools generally found in several sizes and is usually

measured in units of Fr.

Therefore, the size of the patient's urethral externus orifice is very important if the patient is to be instrumented, because if instrumentation exceeds the size it should be and there will be trauma to the external urethral orifice which may result in meatal stenosis.

From that point, research on the size profile of the external urethral orifice in Indonesian men is necessary, since the current transurethral endourology devices use measurements based on overseas standards, and there was never been any study of the size of the male external urethral meatus in Indonesia

OBJECTIVE

The purpose of this study was to know the size of the adult male external urethral orificium.

MATERIAL & METHODS

This study was a prospective study by taking primary data in urological patients at Sardjito General Hospital Yogyakarta, and Kardinah General Hospital Tegal. The research was conducted from the period of October - December 2016. 50 patients male adults were recruited, with the inclusion criteria in this study were adult male patients who had never undergone instrumentation in the urethra. The exclusion criteria in this study were male adult patients with meatal stenosis or patients with a history of surgery on the penis or the urethra, or previous history of instrumentation in the urethra. External urethral orificium measured using a digital caliper. From the result of diameter measurement (in mm) then converted to unit Fr.

Data obtained from the patient's recapitulation of primary data will be processed using Npar test with Kolmogorov-Smirnov test. Then tested with T-test to determine the significance of the difference of orificium urethra externum in Indonesian men. To determine the relationship between age with the size of orificium urethra externum, analysis with linear regression. The data analyzed using the computer by using SPSS 21.0.

RESULTS

From the data obtained, it was found that the mean of sample age was 52.54 ± 10.34 with the youngest age was 28 years old, with the oldest age

was 71 years. For the size of external urethral orifice varies with size 16.5 Fr to the largest 26.4 Fr.

Table 1. EUO size data.

Size	Frequency	Percent
16.5	1	2
16.8	1	2
17.1	2	4
17.4	1	2
17.7	1	2
19.5	1	2
19.8	1	2
20.1	1	4
20.7	2	2
21.3	2	4
22.2	2	4
22.5	2	4
22.8	2	4
23.1	2	4
23.4	4	8
23.7	5	10
24.0	2	4
24.3	2	4
24.6	4	8
24.9	6	12
25.2	3	6
25.5	1	2
25.8	1	2
26.4	1	2
Total	50	100

Table 2. One-sample Kolmogorov-Smirnov test.

		OUE
N		50
Normal Parameters ^{a,b}	Mean	22.7280
	Std. Deviation	2.62974
Most Extreme Differences	Absolute	.181
	Positive	.114
	Negative	-.181
Kolmogorov -Smirnov Z		1.279
Asymp. Sig. (2 -tailed)		.076

a. Test distribution is normal.

b. Calculated from data.

Based on the results in the table above testing of the data yielded the asymptotic significance greater than 0.05. According to the rules of testing it can be concluded that the data were normally distributed.

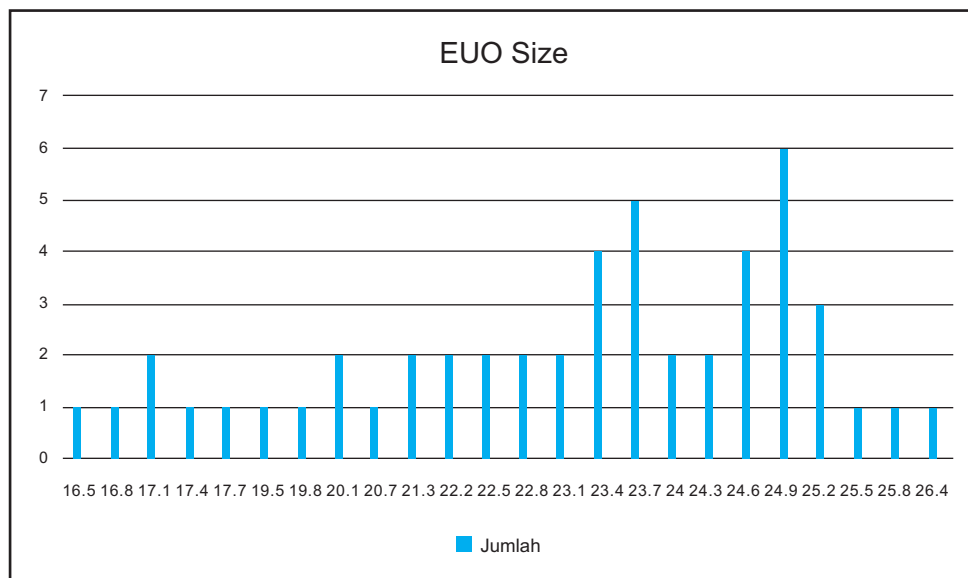


Figure 1. Graphic of EUO size.

Table 3. T-test (One-sample statistics).

	N	Mean	Std. Deviation	Std. Error Mean
OUE	50	22.7280	2.62974	.37190

Table 4. T-test (One-sample test).

Test Value = 24						
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
OUE	-3.420	49	.001	-1.27200	-2.0194	-.5246

Table 5. Anova test.

	Sum of Squares	df	Mean Square	F	Sig.
Regression	289.605	1	289.605	2.808	.100
Residual	4950.815	48	103.142		
Total	5240.420	49			

The independent variable is OUE_Bulat.

From the analysis results obtained externum orifice size average size externum male urethra orifice - an adult male was 22.72 ± 2.62 .

Therefore the value of $t > t$ table ($3.420 > 2.009$) and p value ($0.001 < 0.05$), then H_0 is rejected, meaning that the average size of OUE in Indonesia different with OUE of people overseas. Results of t

negative indicates that the average OUE people overseas is higher than the domestic OUE.

Linear regression test then performed between age and the size of external urethral orifice.

From the results of linear regression test, no relationship between age with the size of external urethral orifice.

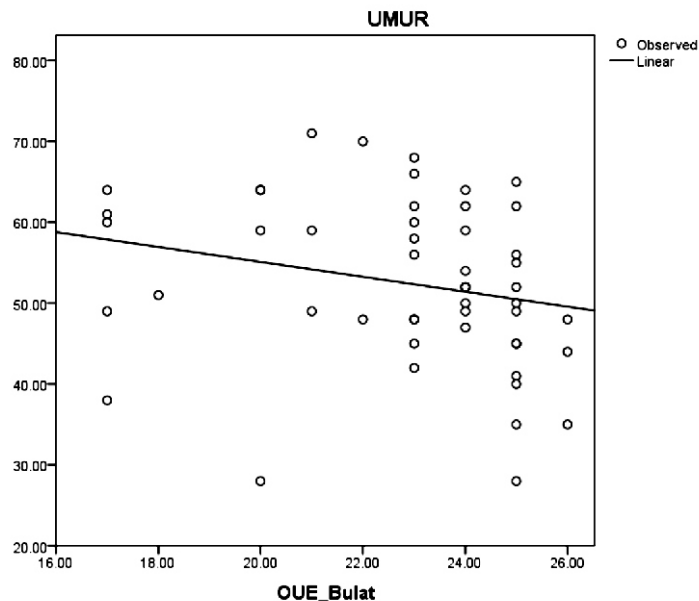


Figure 2. Linear regression test.

DISCUSSION

The size of the exterior orificium urethra in males can vary greatly. The size of the external urethral meatus normal is 24-26 Fr, then slightly flared at the penile urethra, and widened at the urethra bulbosa (about 36 Fr) and narrows again at the posterior urethra, just above the perineal membrane.² Noel in his book also says that the normal size of the urethral meatus externum men are 24 Fr.³

Orificium urethra externum size is very important in the use of instruments on endourology, because the use of too large and forced can damage the mucosa that can cause meatal stenosis.

In this study, the average size of the external urethral orifice in adult males was 22.72 ± 2.62 Fr. This is different from the research that has been done in other countries.

Thomson from Guy's Hospital, was the first to document the size of the external urethra meatus. From his research, it was found that the size of the urethral meatus externum of adult males is 0.35 inches or 29.6 Fr.⁴

Berry and Cross in 1955, performing measurements on the size of the orifice of the urethra externum on Americans who do circumcision and to those not performed circumcision with the results of the size who do not do circumcision is 22.7 Fr and the men who do circumcision is 19.9 Fr.⁵

Gajanan et al., in a study of people of India found that the average size of the external urethral orifice of adult male in India is 28.49 Fr.⁶

CONCLUSION

From this study, it showed that the average size of the external urethral orifice in Indonesian males was 22.72 ± 2.62 Fr. This means that the size of the orificium urethra externum of Indonesian male is 1.28 Fr smaller from the average size of people overseas.

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