SCREENING AND FACTOR ANALYSIS OF DELAYED TREATMENT OF UNDESCENDED TESTIS (UDT) IN EARLY CHILDHOOD

[1]Gabriella Subrata, [2]Besut Daryanto, [2]Pradana Nurhadi.

[1] Faculty of Medicine/University of Brawijaya, Malang.
[2] Department of Urology, Faculty of Medicine/University of Brawijaya, Saiful Anwar General Hospital, Malang.

ABSTRACT

Objective: *This study aims to determine the prevalence of undescended testis (UDT) cases in the integrated health service post of the Wagir health center working area, the level of parental knowledge of UDT disorders, and to find out what factors affect the delay in UDT treatment.* ***Material &Methods:*** *Physical examination by a urology specialist education doctor and distributing questionnaires to parents of toddlers with UDT disorders which were then analyzed with SPSS software using the chi square method followed by the binary logistic regression method.* ***Results:*** *Factors that were found to significantly affect the delay in UDT treatment included antenatal care history (sig. = 0.023) and parental knowledge about UDT (sig.=0.044). Factors found to be less significant in influencing the delay in UDT treatment included affordability of health facilities, insurance ownership, parents' monthly income, latest education, and family history.* ***Conclusion:*** *The prevalence of this with the majority of the population having poor knowledge about UDT. The factors that most influence the delay in treatment are antenatal care history and parental knowledge about UDT.*

Keywords: *Undescended Testis (UDT), parental knowledge, physical examination.*

ABSTRAK

Tujuan: *Penelitian ini bertujuan untuk mengetahui prevalensi kasus undescended testis (UDT) di posyandu wilayah kerja Puskesmas Wagir, tingkat pengetahuan orang tua terhadap gangguan UDT, dan mengetahui faktor apa saja yang mempengaruhi keterlambatan pengobatan UDT.* ***Bahan & Cara:*** *Pemeriksaan fisik oleh dokter pendidikan spesialis urologi dan penyebaran kuisioner kepada orang tua balita penderita kelainan UDT yang kemudian dianalisis dengan software SPSS menggunakan metode chi square dilanjutkan dengan metode regresi logistik biner.* ***Hasil:*** *Faktor-faktor yang ditemukan berpengaruh signifikan terhadap keterlambatan pengobatan UDT meliputi riwayat pemeriksaan antenatal (sig. = 0.023) dan pengetahuan orang tua tentang UDT (sig.=0.044). Faktor-faktor yang kurang signifikan mempengaruhi keterlambatan pengobatan UDT adalah keterjangkauan fasilitas kesehatan, kepemilikan asuransi, pendapatan bulanan orang tua, pendidikan terakhir, dan riwayat keluarga.* ***Simpulan:*** *Prevalensi hal ini dengan mayoritas penduduk memiliki pengetahuan yang buruk tentang UDT. Faktor yang paling mempengaruhi keterlambatan pengobatan adalah riwayat pemeriksaan kehamilan dan pengetahuan orang tua tentang UDT.*

Kata kunci: *Undescended testis (UDT), pengetahuan orang tua, pemeriksaan fisik.*

Correspondence: Besut Daryanto; c/o: Department of Urology, Faculty of Medicine/University of Brawijaya, Saiful Anwar General Hospital, Jl. Jaksa Agung Suprapto No.2, Klojen, Kec. Klojen, Malang, Jawa Timur 65112, Indonesia. Phone: +6282233678283.Fax: +62341333030. Email: urobes.fk@ub.ac.id.

INTRODUCTION

Undescensus testis (UDT) or cryptorchidism is a genital disorder in which one or both testicles are not present in the proper position of the sac.[1] cryptorchidism is locally divided into unilateral and bilateral, and by touch can be classified into two, palpable (70%) and non-palpable, of which 55% are located intraabdominally, 30% in inguinoscrotal, and 15% are absent.[2]

Globally, cryptorchidism is a problematic disorder in many developed countries.[3] In China, only 2423 patients with UDT were diagnosed and the average age of orchidopexy was 274, in Croatia in 2019 198 children with cryptorchidism and ectopic testis were detected with the average age of UDT surgery therapy patients was 30 months5, in New South Wales, Australia, there were 10,875 cases diagnosed with UDT with 4,980 cases undergoing corrective surgery, and it was found that 18% of these cases underwent surgery above 36 months.[6]

In Indonesia, there are 35.9% of undescended testis cases that are only diagnosed after the age of 2 years.[7] In addition, there was also

data from the recording of hormone examinations at Dr. Mohammad Hoesin General Hospital, Palembang, and found 4 variations of UDT cases in pediatric patients with an age range of 2 - 6 years.[8] In a study in Jember, 43% of cases or 16 patients were referred when they were over 18 months old.[3] In 2015-2021, there were 86 cases of cryptorchidism at RSUD Dr. Saiful Anwar Malang, from this data, 72 of the 86 patients underwent orchidopexy surgery, a surgical procedure that moves the wrong position of the testicle to the scrotum, while the rest underwent orchidectomy surgery, which is a surgical procedure to remove the testicle (RSSA urology medical e-records, 2021).

According to some studies, patients experience delays in diagnosis due to their parents or health workers. Parents' reasons include not referring their children to health facilities on time for examination, parents' low educational background, ignoring their children's condition and assuming that their children's abnormalities will be normal in the future, financial conditions or insurance problems that cause insufficient funds for treatment, or difficulty in reaching the nearest health facility. On the other hand, health workers' lack of understanding about cryptorchidism can lead to failed detection of undescended testes at newborn, misdiagnosis of UDT-like disorders such as retractile testis, and misinformation about the process of testicular descent. Delayed treatment can lead to various complications, including infertility, azoospermia, testicular malignancy [9], increased risk of testicular torsion, and testicular trauma.[10]

Based on the description above, it can be concluded that almost all cases experience delayed treatment (more than 18 months) with various causes, one of which is from public understanding. The number of incidents of cryptorchidism in Malang is also still small compared to the number of incidents in other countries.

OBJECTIVE

This study aims to determine the incidence rate of UDT in Malang Regency, the researcher believed that screening using the survey method was required, find out the community's understanding of UDT to detect UDT early, and find out what factors support the delay in UDT treatment.

MATERIAL &METHODS

This research is an analytical descriptive study with a survey approach. This type of research is cross-sectional and allows for recruiting research participants, collecting data, and utilizing various methods. The survey in this study used a questionnaire in the form of HVS sheets and Google forms (attached). This study has received ethical approval by the Ethics Commission of the Faculty of Medicine, Universitas Brawijaya with number 122/EC/KEPK-S1-PD/05/2024.

The research sample was children under 5 years old. Respondents for the questionnaire are parents of patients who bring children under 5 years of age who fall into the inclusion and exclusion criteria will be given an informed consent sheet and will be asked to fill out a questionnaire that has been made.

This study used a total sampling method, namely all toddler patients who met the inclusion criteria at the study site for 3 months. The respondent population was reached by distributing questionnaire sheets from researchers to respondents in the integrated health service post of the Wagir health center working area. For respondents who are in RSSA Malang, the sampling method is by telephone and conducting oral interviews. The population to obtain data on the incidence of cryptorchidism in Malang Regency was by conducting physical examinations of all boys under 5 years old.

The data collection of this research uses primary data. Data collection will use a questionnaire in the form of a google form in the form of MCQ (Multiple choice questions). For the first stage, respondents will be given an informed consent sheet, if the respondent agrees, then the respondent will be given a questionnaire. In addition, respondents will also be asked about insurance ownership, antenatal care history, and respondents' accessibility to primary health facilities.

Characteristic data will be presented in descriptive form, and the Chi-square test will be used to compare the variables. If the findings are significant, a binary logistic regression test will be conducted. To assist the analysis, the collected data will be analyzed through the Statistical Package for Social Sciences (SPSS) software application. Results are statistically significant if the P value <0.05.

RESULTS

After 12 visits to several locations of the integrated health service post of theWagir health center working area,this research obtained 253 subjects with genital abnormalities, with 26 of the subjects having UDT. An additional 5 subjects with

UDT were also found in RSSA. By this number, the prevalence of the case is 12.2% with 56.3% of the subjects experienced delayed treatment.

The characteristics of the research samples are general characteristics which include age and factors that may associate with delayed treatment of the subjects which are parents educational background, economic status, insurance ownership, distance to the nearest health facility, history of antenatal care, family history, and knowledge about UDT based on the questionnaire given prior to physical examination.

Table 1. Age distribution of children.

Age (year)	Frequency (n)	Percentage (%)
<1	4	12.9
1	11	35.4
2	10	32.2
3	2	6.4
4	3	9.6
5	1	3.2
Total	**31**	**100**

Table 2. Characteristics of research sample.

Characteristic	Frequency (n)	Percentage (%)
Age		
Below 2 years old	15	48.3
Above 2 years old	16	51.6
Parents educational background		
College	9	29
High school	11	35.4
Middle school	9	29
Elementary school	2	6.4
Parents monthly income		
High income	11	35.4
Low income	20	64.5
Insurance ownership		
Yes	15	48.3
No	16	51.6
Distance to the nearest health facility		
Near	26	83.8
Far	5	16.1
History of Antenatal Care (ANC)		
More than 6 times	23	74.1
Less than 6 times	8	25.8
Family History		
Yes	2	6.4
No	29	93.5
Parents knowledge about UDT		
Good	9	29
Bad	22	71
Total	**31**	**100**

The average age is 2 years and 1 month (25 months). From the table below, it can be seen that the highest number of subjects with the age when found out was 1 year old (35.4%), with the following age is 2 years old (32.2%).

Table 3. Distribution of UDT types in several locations in the integrated health service post in the wagir working area and rssa.

Characteristic	Frequency (n)	Percentage (%)
Unilateral UDT Palpable	18	58
Unilateral UDT Impalpable	1	3.2
Bilateral UDT Impalpable	4	12.9
Unilateral Retractile Testis	5	16.1
Bilateral Retractile Testis	3	9.6
Total	**31**	**100**

Of these cases, 18 of them were found unilateral palpable (58%), 3.2% of them are unilateral impalpable, 12.9% are bilateral impalpable, 15.12% are retractile unilateral, and 12.9% are retractile bilateral.

Table 4. Correlation between parental education and delayed treatment.

Characteristic	Delay		Frequency (n)	Sig.
	Yes	No		
University	5	4	9	.516
High School	5	6	11	
Junio High	4	5	9	
Elementary School	2	0	2	
Unenrolled	0	0	0	

The respondents' educational background were categorized from those who didn't go to school to those who graduated from college. Table 3 shows that most of the respondents are high school graduates (35.4%), with 45.4% of their child experienced delay. It was found that 55.5% of the respondents children who graduated from college

experienced delay. On the other hand, 55.5% of the respondents child who graduated from junior high school did not experience delay. It was also found that all of the respondents child who is an elementary school graduates experienced delay, and there are no unenrolled respondents.

Table 5. Correlation between family history with delayed treatment.

Characteristic	Delay		Frequency (n)	Sig.
	Yes	No		
Yes	1	1	2	.742
No	15	14	29	

The table above shows correlation between family history and delayed treatment of UDT. It was found that 93.5% of the respondents didn't have any history with 55.17% of the respondents experienced delayed treatment, whilst 1 out of 2 of the respondents who did have history of UDT experienced delay.

Table 6. Correlation between parents economic status with delayed treatment.

Characteristic	Delay		Frequency (n)	Sig.
	Yes	No		
High income	11	9	20	.447
Low income	5	6	11	

Parents' economic status are divided into high income and low income which was standardized based on the minimum salary in Malang, Indonesia. It was found that 20 respondents (64.5%) have high income, but 55% of their child experienced delay, while 54% of the respondents child with low income did not experience it.

Table 7. Correlation between insurance ownership and delayed treatment.

Insurance Ownership	Delay		Frequency (n)	Sig.
	Yes	No		
Yes	6	9	15	.210
No	10	6	16	

This table shows that 40% of the respondents who answered they have insurance still experience delayed treatment to their child, while 62.5% who didn't have insurance, did not experienceit.

Table 8. Correlation between distance to the nearest facility and delayed treatment.

Health Facility	Delay		Frequency (n)	Sig.
	Yes	No		
Near	15	11	26	.146
Far	1	4	5	

Respondents who answered they can reach the nearest health facility are 26 people (83.8%), but 15% of them still experience delayed treatment. Alongside of that, thoseo cannot reach the nearest healthy facility and experience delay are only 20%.

Table 9. Correlation between history of antenatal care with delayed treatment.

ANC	Delay		Frequency (n)	Sig.
	Yes	No		
More than 6 times	9	14	23	.023
Less than 6 times	7	1	8	

This table showed 74.1% of the respondents went to ANC more than 6 times and 60.8% of their child didn't experience delayed treatment. On the contrary, 7 respondents went to ANC less than 6 times and 87.5% of them experienced delayed treatment.

Table 10. Correlation between parents knowledge about udt with delayed treatment.

Parents Knowledge	Delay		Frequency (n)	Sig.
	Yes	No		
Good	2	7	9	.044
Bad	14	8	22	

Based on the table above, 77.7% of the respondents child who had good knowledge about UDT did not experience delayed treatment, whereas 70.96% of them who had bad knowledge about UDT, leading 63.6% of the respondents child experience delayed treatment.

Table 11 shows respondents' personal opinion about factors that may increase delayed treatment. A percentage of 45.2% showed that due to the absence of knowledge about UDT that can cause complications, someone may experience delayed treatment. On the other hand, 6 of the respondents answered that they are too scared of the procedures that their child has to go through so they would wait for their age to mature. These opinions are followed by financial problems, parents neglect, and misinformation from health workers.

Table 11. Other associated factors that may affect delayed treatment of udt.

Delayed Factors	Frequency (n)	Percentage (%)
Afraid or unwilling to undergo surgery	6	19.4
Financial Status	3	9.7
Parents neglect	3	9.7
Never been told by health workers nor examining the baby	2	6.5
Misinformation by the health workers	3	9.7
Didn't know it would cause complications when growing up	14	45.2
Total	**31**	**100**

DISCUSSION

Indonesia is a developing country with a very rich culture. The views of the Indonesian people towards the health system are determined by interrelated factors, namely sociodemographic factors such as parental education, culture, income, views on access to health services, and costs.[11]

One of the objectives of the study was to find out about parent's knowledge about UDT. Similar studies have been conducted in several areas, including those from domestically, namely in Jember [3], and there are also those abroad such as in Saudi Arabia[12], and America.[13] The results showed a significant relationship between parental knowledge about UDT and delayed treatment. It is proven that respondents who have better knowledge do not experience delays in treatment. This is supported by research conducted by Madni, Shiryazdi, and Abdulrahman. It was proven that respondents who had never even heard of the disorder experienced delays in diagnosis which led to delays in treatment.[12]

This research shows no correlation between the two. Research by Shiryazdi also showed no significant correlation between parents educational background and delayed treatment of UDT.[14] It is known that higher education background didn't determine ones knowledge about a specific disease.

UDT is a hereditary disease. Due to that, this research wants to see the correlation between family history with delayed treatment of UDT. Based on this research, it was found that 93.5% of the respondents did not have a family history of UDT. It is also found that there are no significant correlation between the two. Jiang did a research similar to these findings and also did not find a significant correlation.[13] This was because of parents neglect to their child's condition and thought the child's testis would decend on its own later on.

A total of 20 respondents or 64.5% of respondents with monthly income more than or equal to MSEs experienced delays. On the other hand, 55% of respondents with monthly income less than MSEs experienced delays. Based on the results of the analysis, an insignificant value was obtained regarding the relationship between monthly income. This research is supported by research conducted by.[3] A study states that low family income can determine a person's non-compliance in treatment. In this case, a person's income level can determine whether a person will immediately go to a health facility to be examined. Ratnapradipta's research proves this statement with the results he got, namely cost is the most frequent reason for late treatment. He found that 78.6% of his sample experienced delays due to the sample's financial inability.[15] The non-significant results could be due to the economic situation, which although well-off, there are still non-financial challenges that can affect the delay in treatment such as the state of the local health system which continues to fall short in aiding in diagnosis confirmation.

Bayne conducted a study on socioeconomic factors affecting treatment delays, where one of the factors studied was the type of insurance. He concluded that both commercial and non-commercial insurance still experienced delays, so the results of the study were not significant.[16] Supported by Jiang's research, the sample insurance ownership is not related to the delay and the analysis results are not significant either. Insignificance can be caused because some people still do not understand how to utilize health services (BPJS), or because there are other considerations such as the cost of expenses outside of health. From the above studies, this study is in line with the insignificant relationship between insurance ownership and delay in UDT treatment.[13]

Health facilities are said to be affordable if the distance that needs to be traveled is less than 2 km or the equivalent of a trip of less than 40 minutes on foot.[17] Based on the results of the above study, there was an insignificant correlation between the two. In accordance with the results of this study, Jiang found that 56% of cases in the local area of Portland city had a delay of more than 18 months. The study conducted by Turk also obtained insignificant results whether living in the city center or in rural.[18] It is stated that travel to health facilities is influenced by geographical location and road accessibility to the nearest health facility, with external factors that cannot be controlled.

Antenatal care is a series of activities carried out from the moment of conception to before the start of the quality labor process for all pregnant women. It is said that antenatal care is optimal if the frequency of visits is equal to or more than 6-8 visits.[19] The results of the above study indicate that there is a significant correlation between respondents who routinely visit for ANC and those who do not routinely. This is supported by a case report in Uganda in 2018 by Afodun.[20] It was reported that ultrasonography (USG) examination could identify 12 out of 45 UDT cases. With this discovery in the fetus, doctors can detect abnormalities early and educate parents so that delays are prevented.

CONCLUSION

Based on the results of the research that has been conducted, it can be concluded that the prevalence rate of UDT in children under five in the integrated health service post of the Wagir health center working area, Malang regency is 12.2%, with 65.3% of cases experiencing delays. In addition, in accordance with the previous hypothesis, 71% of the understanding of UDT in the community at the posyandu in the working area of the puskesmas Wagir Malang Regency and RSSA is still classified as poor, where the factors that significantly influence the delay in UDT treatment are ANC history and parental knowledge of UDT disorders.

Other factors that can affect the delay in UDT treatment include distance to the nearest health facilities, insurance ownership, monthly income, latest education, and family history. Researchers suggest that a survey can be conducted in advance of the data collection location, both from the sociodemographics of the local community and the number of children to the population of boys under five in one place. In order to increase the amount of data sample predicted, the data gathering procedure might also be prolonged. Researchers also suggest being able to better assist respondents when filling out questionnaires so that the respondents would have better understanding.

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