Original Article

Management of Undescended Testis May be Improved with Educational Updates for Pediatricians, General Physicians and Health Care Providers

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ABSTRACT

Objective: To analyze the role of educational updates for pediatrician, general physicians and health care providers in management of undescended testis.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Department of Pediatric Surgery at Nishtar hospital, Multan, from June 2023 to May 2024.

Methods: The study included all pediatricians, general physicians, and health care providers working in the Department of Pediatric Surgery. Doctors working in other hospital departments were excluded. The institutional review board approved the study. A survey tool introduced by Lim et al in Singapore was used to assess healthcare providers' awareness regarding managing undescended testis. The tool comprised short answers and multiple-choice questions focused on managing undescended testis.

Results: Of the 120 participants, 61 (50.8%) knew about the incidence of undescended testis, 68 (56.7%) knew about the age to check gonads position, 68 (56.7%) check for physical features of a patient having undescended testis, 84 (70.0%) know about the recommended treatment of U.D, 31 (25.8%) know about the best timing of referral to a surgeon, 50 (41.7%) know about the recommended timing of surgery.

Conclusion: The management of undescended testis (UDT) can be significantly enhanced through targeted educational updates for pediatricians, general physicians, and other healthcare providers. Improved knowledge and awareness regarding the timely diagnosis, referral, and treatment of UDT are important to reducing the risk of long-term complications.

Key Words: Undescended testis, pediatricians, general physicians, knowledge updates, pediatrics

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INTRODUCTION

Undescended testis, or cryptorchidism, is one of the most prevalent congenital urological anomalies observed in male infants[1]. It occurs in approximately 3-5% of full-term newborns, making it a relatively common condition at birth[2]. However, the prevalence decreases significantly to about 1-2% by the time the infant reaches three months, as many testis descend spontaneously during this period[3].

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Undescended testis is a common condition, but many healthcare providers lack familiarity with its diagnosis, treatment, and potential complications[4]. Clinical guidelines recommend referring children with undescended testis to a specialist before 12 months of age[5]. Orchiopexy should ideally be performed between 6 and 12 months to prevent complications like fertility issues and testicular torsion. Delayed diagnosis and management can lead to irreversible damage, fertility problems, and an increased risk of testicular cancer[6].

Studies from various countries have reported the referral patterns for children with undescended testis. In the United States, Snodgrass found that the median age of referral was 43.3 months[7]. Similarly, a study from Auckland, New Zealand, reported a mean referral age of 42.6 months[8]. A comparative study on the management of undescended testis in tertiary care centers in England and Nigeria revealed delays in diagnosis and referrals beyond the recommended timeframes in both locations, with lack of awareness and knowledge cited as the primary reasons for these delays[9,10].

Evidence on this topic from Pakistan is lacking. This study aimed to assess the knowledge of doctors working in pediatric surgery services regarding the clinical features of undescended testis, the appropriate age for referral and surgery, and the potential risks associated with delays in treatment. The findings may improve early referral of children and ensure adequate follow-up in adulthood.

METHODS

This cross-sectional study was conducted from June 2023 to May 2024. Total strength of patients was calculated using Open Epi software, considering proportion of 165, a confidence level of 95%, and a margin of error (d) of 5%, proportions of previous studies that reported 51.1%[11] of healthcare providers' adequate knowledge. After collecting responses from participants and the dropout ratio, the final calculated sample size was 120. The study included all pediatricians, general physicians, and health care providers working in the Department of Pediatric Surgery. Doctors working in other hospital departments were excluded. Approval for the study was obtained from the institutional review board.

In this study, a survey tool introduced by Lim et al[12] in Singapore assessed healthcare providers' awareness regarding managing undescended testis. The tool consists of short answers and multiple-choice questions focused on managing undescended testis. Participants were informed about purpose of the study, and consent was obtained while ensuring confidentiality. Contents of study include designation, experience, total score and score obtained by participant. Each question carried one mark, with the maximum achievable score being eight.

Frequencies and percentages were calculated for categorical variables. Mean and standard deviation were calculated for numerical variables. The chi-square test was applied to check the difference between two categorical variables. One-way ANOVA was used to check the difference between the score and designation of the participants. The P-value is considered significant when it ≤0.050.

RESULTS

One hundred twenty participants were included in this study, 85 (70.8%) males and 35 (29.2%) females included. The mean age of the participants was 34.80±9.76 years. (Table. 1).

Of the 120 participants, 61 (50.8%) knew about the incidence of undescended testis, 68 (56.7%) knew about the age at which to check for the position of gonads, 68 (56.7%) knew about the physical features of a patient, 84 (70.0%) know about the recommended treatment of U.D, 31 (25.8%) know about the best timing of referral to a surgeon, 50 (41.7%) know about the recommended timing of surgery, 52 (43.3%) know about age of patient to check position of U.D.T, 57 (47.5%) describe two possible pathological outcomes of a patient with U.D.T. (Table. 2).

Questions and their correct answers concerning the designations of the participants were shown in the table. III. It was seen that pediatricians' knowledge was better than that of general physicians and health care providers ($p<0.050$) (Table. 3).

The mean scores of pediatricians, general physicians, and health care providers were 6.20±1.06, 4.53±0.87, and 3.76±1.16, respectively. ($p<0.001$) (Table. 4).

Table No.1: Demographics of the participants

Variable	N (%)	Mean ± S.D
Gender		
Male	85 (70.8)	
Female	35 (29.2)	
Age (years)		34.80±9.76

Table No. 2: Questions and their correct answers by the participants

Sr. No.	Question	Correct answer n (%)
1.	The incidence of undescended testis	61 (50.8)
2.	Age to check gonads position	68 (56.7)
3.	Check for physical features of a patient having undescended testis	68 (56.7)
4.	Recommended treatment of U.D	84 (70.0)
5.	Best timing of referral to a surgeon	31 (25.8)
6.	Recommended timing of surgery	50 (41.7)
7.	Age limit to examine a patient of U.D.T	52 (43.3)
8.	Describe two possible pathological outcomes of a patient with U.D.T	57 (47.5)

Table No.3: Questions and their correct answers with respect to designations of the participants

Question	Pediatricians	General physicians	Health care providers	Test of sig.
The incidence of undescended testis	37 (67.3)	14 (35.0)	10 (40.0)	χ^2=11.13, d.f=2,p=0.004
Age to check gonads position	40 (72.7)	17 (42.5)	10 (40.0)	χ^2=10.68, d.f=2,p=0.005
Physical characteristic of a patient with undescended testis	36 (65.5)	23 (57.5)	9 (36.0)	χ^2=6.08, d.f=2,p=0.048
Recommended treatment of U.D	43 (78.2)	27 (67.5)	14 (56.0)	χ^2=7.02, d.f=2,p=0.002

Best timing of referral to a surgeon	20 (36.4)	7 (17.5)	4 (16.0)	χ^2=5.89, d.f=2,p=0.050
Recommended timing of surgery	23 (41.8)	21 (52.5)	6 (24.0)	χ^2=8.14, d.f=2,p=0.016
Age limit to examine a patient of U.D.T	31 (56.4)	16 (40.0)	5 (20.0)	χ^2=9.53, d.f=2,p=0.009
Describe two possible pathological outcomes of a patient with U.D.T	33 (60.0)	15 (37.5)	9 (36.0)	χ^2=6.38, d.f=2,p=0.041

Table No. 4: Comparison of score by the designation of the participants

Score	Pediatricians	General physicians	Health care providers	Test of sig.
Mean ± S.D	6.20±1.06	4.53±0.87	3.76±1.16	F=59.06, d.f=2, p<0.001

DISCUSSION

This study highlighted a significant gap in knowledge among medical specialists, pediatricians and doctors working in pediatric settings regarding a common congenital anomaly, undescended testis. Despite being a condition that can often be diagnosed with relative ease during the neonatal period, the lack of awareness and understanding among healthcare professionals may lead to delayed recognition and management, potentially impacting long-term outcomes for affected children[13].

Among total 56.7% of participants answered correctly the question about the correct position of gonads, and 72.7% provided the most accurate answers by pediatricians. Similar findings were reported by Israr et al.[11], who observed that 69 participants (51.1%) demonstrated knowledge about the significance of neonatal examination in determining the position of gonads. In comparison, 76 participants, 56.3%, were aware of the physical characteristics of undescended testis (UDT).

A total of 43.3% of participants replayed the correct answers about the age of examination of the child for UDT. In a nationwide study from Germany conducted by Boehme et al[14], which aimed to investigate the delayed referral and non-compliance to recommendations. Similarly, results of survey revealed varied responses, 89% of pediatric surgeons write down correct answer that 1 year duration is enough to treatment of undescended testis. A study conducted in Nigeria by Ekwunife et al[15] found that although all children were born at various levels of hospitals, only 23% examined the inguinal region at birth or during the six-week follow-up visit. Overall, doctors made the diagnosis in just 25.6% of the cases.

A U.S. survey by Shnorhavorian et al.[16] found that 20% of primary care providers delayed referral for undescended or retractile testis until puberty, with 25-30% counseling parents on risks of infertility and malignancy, similar to responses in our graduate group. Keys et al[17] reported similar findings, noting that the treatment for this condition is typically watchful waiting, with counseling for the parents being crucial to alleviating their concerns.

Studies conducted by Tseng et al[18] and Hrivatakis et al[19] have reported that orchiopexy is currently recommended between 6 and 12 months of age. This was decided on the potentially harmful effects of the high temperatures that testis are exposed to at supra-scrotal locations. An exhaustive survey aimed at identifying the exact age of orchiopexy, and reached a consensus that the late infancy period is the most appropriate time for the procedure.

47.5% of the population correctly replied to a question about knowledge about pathological outcomes of a patient with U.D.T. Vikraman et al[20] highlighted that subfertility and malignancy remain potential risks even after timely orchiopexy due to unknown germ cell damage. Subfertility was widely recognized, but only 12% mentioned the malignancy risk. Consultants scored higher than graduates, with comparable scores to postgraduate residents.

CONCLUSION

Targeted educational updates for pediatricians, general physicians, and other healthcare providers can significantly enhance the management of undescended testis (UDT). Improved knowledge and awareness regarding the timely diagnosis, referral, and treatment of UDT are important to reducing the risk of long-term complications.

Author's Contribution:

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REFERENCES

1. Kübarsepp V, Varik K, Varendi H, Antson A, Veinla M, Nellis G, et al. Prevalence of congenital cryptorchidism in Estonia. Androl 2022;10(2):303-9.
2. Aggarwal H, Rehfuss A, Hollowell JG. Management of undescended testis may be improved with educational updates for referring providers. J Pediatr Urol 2014;10(4):707-11.
3. Gates RL, Shelton J, Diefenbach KA, Arnold M, Peter SD, Renaud EJ, et al. Management of the undescended testis in children: an American pediatric surgical association outcomes and evidence based practice committee systematic review. J Pediatr Surg 2022;57(7):1293-308.
4. Saab MM, Davoren MP, Murphy A, Murphy D, Cooke E, Landers M, et al. Promoting men's awareness, self-examination, and help-seeking for testicular disorders: a systematic review of interventions. HRB Open Res 2023;1:16.
5. Baydilli N, Dönmez MI, Wilcox DT, Hadziselimovic F, Hayashi Y, Oswald J, et al. Undescended testis: a roundtable discussion based on clinical scenarios–Part 1. J Pediatr Urol 2024;20(1):95-101.
6. Yi W, Sheng-de W, Lian-Ju S, Tao L, Da-Wei H, Guang-Hui W. Management of undescended testis may be improved with educational updates and new transferring model. Italian J Pediatr 2018;44:1-5.
7. Snodgrass W, Bush N, Holzer M, Zhang S. Current referral patterns and means to improve accuracy in diagnosis of undescended testis. Pediatr 2011;127(2):e382-8.
8. Upadhyay V, Kothari M, Manoharan M. The referral pattern for undescended testis in Auckland. N Z Med J 2001;114(1135): 310-11.
9. Peiris HD, Lakshminarayanan B, Osifo OD, Lakhoo K. Management of undescended testis: a comparative study in England and Africa. Ann Pediatr Surg 2014;10:115-8.
10. Schneuer FJ, Holland AJ, Pereira G, Jamieson S, Bower C, Nassar N. Age at surgery and outcomes of an undescended testis. Pediatr 2016;137(2): e20152768.
11. Israr S, Akhtar J, Taqvi SM, Zamir N, Bibi S. Gaps in Knowledge about the Management of Children with Undescended Testis: A study from Tertiary Care Pediatric Hospital. Pak J Med Res 2021;60(1):32-7.
12. Lim LY, Nah SA, Lakshmi NK, Yap TL, Jacobsen AS, Low Y, et al. Undescended testis: Level of knowledge among potential referring health-care providers. J Paediatr Child Health 2015; 51(11): 1109-14.
13. Parkes R, Garcia TX. Bringing proteomics to bear on male fertility: key lessons. Expert Review Proteom 2024;21(4):181-203..
14. Boehme P, Geis B, Doerner J, Wirth S, Hensel KO. Shortcomings in the management of undescended testis: guideline intention vs reality and the underlying causes - insights from the biggest German cohort. BJU Int 2018;122(4):644-53.
15. Ekwunife OH, Ugwu JO, Onwurah C, Okoli CC, Epindu LK. Undescended testis: Contemporary factors accounting for late presentation. Afr J Urol 2018;24(3):206-11.
16. Shnorhavorian M, Jacobs MA, Stearns G, Mingin G, Koyle MA. Practice variation and clinical confusion regarding undescended testis and retractile testis among primary care respondents: a multi-regional survey study in the United States. Pediatr Surg Int 2012;28(6): 635-9.
17. Keys C, Heloury Y. Retractile testis: a review of the current literature. J Pediatr Urol 2012;8(1):2-6.
18. Tseng C, Chiang I, Hong C, Lu YC, Hong JH, Chang HC. Advantage of early orchiopexy for undescended testis: Analysis of testicular growth percentage ratio in patients with unilateral undescended testicle. Sci Rep 2017;7:17476.
19. Hrivatakis G, Astfalk W, Schmidt A, Hartwig A, Kugler T, Heim T, et al. The timing of surgery for undescended testis - a retrospective multicenter analysis. Dtsch Arztebl Int 2014;111(39): 649-57.
20. Vikraman J, Hutson JM, Li R, Thorup J. The undescended testis: Clinical management and scientific advances. Semin Pediatr Surg 2016;25(4):241-8.