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Lower Urinary Tract Dysfunction in Children. What Do Pre-School Teachers Know About It?

Patricia Lordelo, Fabio Maron, Daniela G. Barros, Danilo V. Barroso, Jose Bessa Jr, Ubirajara Barroso Jr

Department of Pediatric Urology, School of Medicine, Federal University of Bahia, Salvador, Bahia, Brazil

ABSTRACT

Objective: To evaluate the basic knowledge of pre-school teachers who deal with children between the ages of 4 and 7 years, who present signs of lower urinary tract dysfunction (LUTD).
Materials and Methods: We performed a survey with 50 teachers from 9 private schools working with pre-school children. The criteria for selection were if teachers were certified or non-certified elementary school teachers - NCEST and the amount of professional experience.
Results: Thirty-three teachers considered that the normal daily urinary frequency should be from 4 to 7 times. Two of the 50 teachers considered it normal to urinate less than 4 times per day and 15 teachers considered more than 7 times per day as normal. There was no difference between the 2 categories of certified or NCEST nor between those with more or less than five years of professional experience. Thirty-three percent believed that to urinate more than 4 times during a class period (4-5 hours) could indicate a urinary problem. There was a statistically significant difference among the certified and NCEST but not in terms of time of professional experience. If during this period the child would not ask to urinate, only 18% considered that as an indication of urinary problem. When asked about the symptoms that would indicate urinary urgency and urge incontinence, only 24% of the teachers connected it with urinary problem. There was no difference in terms of professional background or professional experience in these 2 last analyses.
Conclusion: Our data shows evidences that private pre-schools teachers are not well informed of the clinical manifestation of LUTD.

***Key words**: children; urinary incontinence; etiology; enuresis; schools*
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INTRODUCTION

Currently children spend most of their day at school giving teachers increasing responsibility as educators and health promoters. For that reason, educators should have a comprehensive understanding about the physical, mental and social characteristics of children regarding growth and development processes and health problems that might occur in different ages.

The Brazilian Ministry of Health acknowledges the importance of good pediatric health practices during school years by developing actions to prevent diseases and to empower factors of protection (1). During that period, children are facing experiences

where habits and attitudes are being modeled. Health promotion should also occur at pre-school age. The definition of "pre-school age" varies among authors as being from 2 to 6 years old or between the ages of 3 and 7 (2). The teacher is responsible for the educational development at school, which includes actively monitoring health deviations, which are sometimes undetected by the children and their family.

Lower urinary tract dysfunction (LUTD) occupies an important place among the causes of urinary losses and urinary tract infections in children from the age of 4 years old. LUTD is clearly associated to urinary infection, vesicoureteral reflux, renal scar and psychological changes (3-6). Clinically it is characterized by symptoms of urinary urgency, urge incontinence without neurological evidence or urinary tract infection. The clinical evidences (conditions or manifestations), such as urinary incontinence, urinary urgency, urinary contention habits, and interrupted voiding are frequently misdiagnosed and may impact the psychological, emotional and social well fare of the child. It is relevant for the teachers to know how to identify the clinical symptoms above because the children spend most of their time at school under their teacher's care. The objective of this study is to evaluate the basic knowledge of teachers working with children between the ages of 4 and 7 years in relation to the major manifestations (we believe it to be better than evidences) of LUTD.

MATERIALS AND METHODS

A questionnaire (Figure-1) was prepared by the researchers and taken by 50 pre-elementary level teachers (pre-elementary level includes children from 4 to 7 years of age) from 9 private schools chosen by convenience. The interviewer delivered the questionnaire to the teacher's work place and explained that it was to be self-administered and anonymous. The responses were compared taking into account the type of professional background: if they are pedagogues or non-pedagogues (certified or non-certified elementary school teachers) and if they have more or less than 5 years professional experience working in the area.

The statistic analysis was performed comparing the proportions using the Qui-square or Fisher test. For continuous variables purposes the "T" test was applied. For statistic significance, P value less than or equal to 0.05 was considered.

RESULTS

Thirty-three professionals were graduated as certified teachers and 17 of them were not. The average time of teaching was 10 years, varying from 0.1 to 24. Thirty-one of he 50 teachers had 5 years of experience or more while 19 teachers had less than 5 years experience.

Regarding urinary frequency; 33 answered that the urinary daily frequency would be around 4 and 7 times, 2 thought that the normal frequency would be less than 4 times per day and 15 considered it normal to urinate (they chose the questionnaire's option four) more than 7 times per day. There was no difference between certified and non-certified teachers nor among the professionals with 5 years or less experience (P = 0.37 and 0.17, respectively).

Teachers were asked about the following questions (Table-1) and the results are shown below.

Question: A child frequently asks to urinate 4(four) or more times during a school period (from 4 to 5 hours) - From all the teachers interviewed, 30% considered this normal and 33% believed that this behavior could represent a urinary problem. Fifty-five percent of the certified teachers believed that this could represent a urinary problem as opposed to 17.64% of the non-certified teachers (p = 0.03). This rate was 36.8% and 35.4% for the group of professionals with more or less than 5 years of experience, respectively (p = 0.9).

Question: A child rarely asks to urinate during a school period (from 4 to 5 hours) - From the all the groups, 20% considered this as a normal event and 18% as a urinary problem. From the groups of pedagogues and non pedagogues and the professionals with more or less than 5 years of experience, 30.3% and 11.8% (p = 0.18) and 26.3% and 9.8% (p = 0.26), respectively answered that these changes could happen due to urinary problems.

Questions:

1) Are you a certified elementary school teacher (are you a pedagogue)?
Yes ( ) No ( )

2) Do you have more or less than 5 years professional experience working as an elementary school teacher?
More than 5 years ( ) Less than 5 years ( )

3) In your opinion how many times is normal for a child to ask to urinate during the course of a day (24-hour period)?
( ) 3 times or less
( ) 4 to 5 times
( ) 6 to 7 times
( ) more than 7 times

4) A child frequently asks to urinate 4 (four) or more times during a school period (from 4 to 5 hours). In your opinion this is:
( ) Normal
( ) The child wants to play
( ) This behavior represents a urinary problem
( ) None of the above

5) A child rarely asks to urinate during a school period (from 4 to 5 hours). In your opinion this is:
( ) Normal
( ) A behavioral / emotional problem
( ) A urinary problem
( ) None of the above

6) A child has acquired urinary control (potty training), but needs to run to the bathroom to avoid wetting his (her) pants. Sometimes he (she) has already wet his (her) pants. In your opinion this is:
( ) Normal
( ) Laziness
( ) A urinary problem
( ) None of the above

7) Up to what age do you consider it normal for a child to urinate in his or her pants?
_____ years

8) Up to what age do you consider it normal for a child to urinate in bed (night enuresis)? _____ years

Figure 1 – *Questionnaire applied.*

Table 1 – *Distribution of teachers' answers for each question.*

Questions	N	%
A child frequently asks to urinate 4 (four) or more times during a school period (from 4 to 5 hours). In your opinion this is:	15	30
Normal	7	14
The child wants to play	19	38
This behavior represents a urinary problem	9	18
None of the above		
A child rarely asks to urinate during a school period (from 4 to 5 hours). In your opinion this is:	10	20
Normal	15	30
A behavioral / emotional problem	9	18
A urinary problem	16	32
None of the above		
A child has acquired urinary control (potty training), but needs to run to the bathroom to avoid wetting his (her) pants. Sometimes he (she) has already wet his (her) pants. In your opinion this is:		
Normal	6	12
Laziness	22	44
A urinary problem	12	24
None of the above	10	20

Question: A child has acquired urinary control (potty training), but needs to run to the bathroom to avoid wetting his (her) pants. Sometimes he (she) has already wet his (her) pants - From the group of teachers, 12% considered it normal and 24% considered a urinary problem. It was found that 30.3% and 11.7% ($p = 0.18$) of the group of pedagogues and non pedagogues and 26.3% and 22.5% ($p = 0.38$) of the group of professionals with more or less than 5 years of experience, respectively, considered that this would be an alteration in the urinary tract.

The results for the other questions asked are shown below.

Question: Up to what age do you consider it normal for a child to urinate in his or her pants? - The age varied from 2 to 15, with 3.9 years old as an average. Ninety per cent believed that children stop losing urine up to 5 years old. There was no statistical difference between the group of pedagogue and non-pedagogue and also regarding the group of professionals with more or less than 5 years of experience, believed that children stop losing urine up to 5 years old. There was no statistic difference among the pedagogues and non-pedagogues nor in terms of amount the time working as a professional ($p = 0.17$ and 0.43, respectively).

Question: Up to what age do you consider it normal for a child to urinate in bed (night enuresis)? - In this question, 88% considered that the child could have nocturnal enuresis up to 7 years old. The average age was 4.3 years old varying from 2 to 10 years old. There was a statistical difference between the average age suggested by the pedagogues and non-pedagogues, but not when compared with the time of professional experience ($p = 0.02$ and 0.38, respectively).

COMMENTS

Our data shows that the teachers have a significant lack of knowledge about the subject of LUTD, despite its relevance and frequency. Hellstrom et al. emphasized that around 6% of the girls and 3.8% of the boys had daily urinary incontinence at 7 years old (7). Simple urinary instruction measures could revert those symptoms and that despite the high rate of spontaneous remission, some children have urinary infection and high post-urinary residue, vesicoureteral reflux and even detrusor hypocontractility where it is necessary to use clean intermittent catheterization (3-5).

There was no difference between time of professional experience and the quality of the responses. There was a statistically significant difference in two questions regarding the answers of the pedagogues and non-pedagogues, demonstrating that the type of professional background can have some impact in the problem recognition. For example, when asked about the children who urinate four times or more during the class period, there was a statistically significant difference among pedagogues and non-pedagogues. Even so, the rate of pedagogues that considered it as a urinary problem was only 56%. Frequency in children deserves some clinical urological evaluation since not only does this represent the possibility of disturbances of an emotional order, but it also could be the clinical manifestation of a urological disease (8). Even so, only 24% of the teachers believed that clinical signs of urge incontinence represent urological abnormalities while 44% pointed out that the child loses urine simply because she or he does not feel like going to the toilet. Urinary incontinence and manifestation of bladder over activity makes the child feel extremely embarrassed. The interpretation of these facts as a laziness or untidiness often leads to punishing or singling out the children for their lack of willpower.

Another remarkable consideration is that 10% of the teachers considered it normal for a child to urinate in his or her underwear after the age of 5, an age on which a child is already expected to have fully developed urinary control. Also when asked what they thought of a child who does not frequently ask to go to the toilet in order to urinate in a period of 4-5 hours, 33% of the teachers considered it normal. Prudent urinary health prescribes that children must be stimulated to avoid spending such a long period of time without urinating. Bladder over distention may cause bladder over activity, urinary infection and histological alterations such as collagen deposition (9,10).

In Cooper's studies it has been observed that only 18% of public elementary school teachers in the USA have received some form of information about abnormalities on the functioning of the urinary bladder or bowel (11). This demonstrates that even in developed countries, there is too little information about this theme. These authors also suggest a training program to the teachers about elimination disturbances.

CONCLUSION

Our data shows that teachers working with children at ages between 4-7 years, in the private educational system, have too little information about clinical occurrences of the LUTD. An educational process lead by professional educators needs to be implemented in order that children receive proper orientation about LUTD, while at school.

CONFLICT OF INTEREST

None declared.

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Correspondence address:
Dr. Ubirajara Barroso Jr.
Rua Alameda dos Antúrios, 212 / 602
Salvador, BA, 40280-620, Brazil
E-mail: ubarroso@uol.com.br

EDITORIAL COMMENT

The authors are to be congratulated on exploring an important, but frequently ignored area. As noted in their manuscript, children spend a significant amount of their waking hours in school. With an increase in the number of children attending pre-school it is important to evaluate the level of knowledge pre-school teachers hold regarding a child's basic biological functions. In this study, the authors demonstrate inconsistent answers among a group of 50 pre-school teachers. For the most part this did not seem to relate to the teachers' previous training, which likely reflects a deficit of training regarding this topic in the curriculum for future teachers.

We previously reported similar findings in public elementary school teachers in the United States. Since many toileting habits are established during pre-school, the findings in the present study are potentially even more relevant. The authors of the present study also propose a training program regarding pediatric toileting for professional educators. Since a significant number of children with urinary incontinence or recurrent urinary tract infections benefit from practicing improved bladder habits, teaching these habits during pre-school could have significant public health benefits. Therefore, further studies to evaluate the efficacy of teaching future educators what constitutes normal and abnormal pediatric bowel and bladder habits seem warranted.

Christopher S. Cooper
Associate Professor of Urology
Director of Pediatric Urology
University of Iowa Hospitals and Clinics
Iowa City, Iowa USA
E-mail:christopher-cooper@uiowa.edu