

## DEVELOPMENT OF BLADDER CONTROL IN MENTALLY HANDICAPPED CHILDREN

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### ABSTRACT

**Purpose:** To analyze the role of mental handicap as a possible source of lack of development of bladder control and to find out the chance of continence to advise future patients.

**Materials and Methods:** The parents and relatives of 100 consecutive mentally handicapped patients were inquired by a personal interview. Questions included the age when they stopped using diapers, enuretic events, frequency, urgency and leakage episodes, urinary infections. Etiology of their mental problem was unknown in 34, perinatal anoxia in 17, Down syndrome in 15, phenylketonuria in 18 and others minors causes. The grade of mental deficiency were profound in 1, severe in 10, moderate in 39, mild in 33 and normal inferior value in 17. The age varied from 7 to 37 years old, with an average of 14 by the time of the interview, comprising 60 males and 40 females.

**Results:** All profound and severe patients presented leakage episodes regardless of the age. The mild and normal inferior value acquired progressive urinary control with aging, and 33% still remain with urinary symptoms above 16 years old. Urinary infection was similar in males and females, around 29%. The most committed group presented less urinary infections. The etiology of the mental handicap was not correlated to the incidence of urinary leakage.

**Conclusions:** The lack of bladder control was correlated to the grade of mental handicap. In severe and profound groups, the expectancy of control is disappointing. In the less compromised groups, there is a delay in bladder training, with achievement of control in 2/3 after 16 years of age. Those in the normal inferior value have a chance of postponed urinary control, easily misdiagnosed by normal urological interviews.

**Key words:** mental retardation; mentally disabled persons; urinary incontinence; bladder; behavior control

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### INTRODUCTION

Daytime urinary leakage and nocturnal enuresis are limiting factors for the adequate development of affective and social behavior in childhood. Absence or delay in bladder control can cause psychological damages as consequence of these problems in this very important period of life. The achievement of bladder control needs the children interpretation of their bladder filling sensations and the perception of the social convenience of toilet

training. Children with mental retardation obviously will have problems dealing with these situations being expected at least a delay in their bladder control. The emotional and social consequences are complicating factors in the care of these disabled individuals. No reports exist comparing the difficulty to achieve urinary continence to the grade of mental disability. Better understand of this matter will enable us to advice parents about the expectancy of their son's urinary training and will improve our knowledge on IQ deficiency promoting enuresis.

**MATERIALS AND METHODS**

We inquired the parents and relatives of 100 consecutives mentally handicapped patients, in a personal interview done for the same individual. Questions included the age when they stopped using diapers, enuretic events, frequency, urgency and leakage, known urological problems as urinary infections and malformations. Etiology of their mental problem were unknown in 34, perinatal anoxia in 17, Down syndrome in 15, phenylketonuria in 18 and others in 19. The grade of mental deficiency, according to World Health Organization, were profound (IQ < 19) in 1 patient, severe (IQ 20 to 34) in 10, moderate (IQ 35 to 49) in 39, mild (IQ 50 to 70) in 33 and normal inferior value (NIV) (IQ 71 to 84) in 17 patients. Their age ranged from 7 to 37 years (mean = 14), comprising 60 males and 40 females. The ages by the time or the interview are 7 to 10 years old (31 patients), 11 to 15 years old (35 patients) and above 16 years old (34 patients). The level of significance was set in 5%.

**RESULTS**

**Urinary Control**

Diapers were used by 99% of the patients at age of 5 years. All profound and severe patients were incontinent in the 3 groups of age (Table-1). The moderate patients presented urinary leakage in same proportion at 7 to 10 years and at 16 years old or above, around 66 to 69%. The mild and normal inferior value acquired progressive urinary control with aging, and 33% off both groups still remain with urinary leakage episodes above 16 years old.

*Table 2 – Incidence of urinary infections in mentally handicapped patients.*

Profound and Severe	1/11 (9%)
Moderate	11/39 (28%)
Mild	13/33 (39%)
Normal Inferior Value	4/17 (24%)

**History of Urinary Infections**

Previous history of urinary infection was similar in males and females, around 29% (Table-2). Only 9% of the severe and profound groups presented urinary infections. The other groups showed 31% of previous urinary infections, being 28% in the moderate, 39% in the mild and 24% in the normal inferior value.

**Etiology of the Mental Handicap and Incidence of Urinary Leakage**

Table-3 shows the incidences of urinary symptoms at 7 to 10 years old and the etiology of their mental problem. The lack of urinary control seems to be correlated only to the grade of deficiency and not to the etiology of the handicap. Perinatal anoxia patients presented 59% of urinary symptoms, Down syndrome 73%, phenilketonuria 87%, other minor causes 74% and unknown 71%.

**DISCUSSION**

People with mental retardation represent problem due to a series of factors. Larger incidence of problems of health (1) and shorter life expectation (2), associated to the lack of communication skills

*Table 1 – Number of patients with leakage episodes at different ages.*

Etiology	Ages		
	7 – 10 y.o.	11 – 15 y.o.	> = 16 y.o.
Profound and Severe	11/11 (100%)	8/8 (100%)	4/4 (100%)
Moderate	27/39 (69%)	19/29 (66%)	12/18 (67%)
Mild	22/33 (66%)	16/24 (67%)	3/9 (33%)
Normal Inferior Value	12/17 (71%)	4/8 (50%)	1/3 (33%)
Total	72/100	47/69	20/34

**Table 3** – Etiology of mental handicap and urinary leakages at 7 – 10 years old.

Etiology	No. Patients / (%)
Perinatal anoxia	10/17 (59%)
Down's syndrome	11/15 (73%)
Phenylketonuria	13/15 (87%)
Others	14/19 (74%)
Unknown	24/34 (71%)

make them objective of special attention on the part of the medical staff. Urinary incontinence and nocturnal enuresis also occur more often in mentally retarded people than in the normal population (3,4), being an additional problem to the social integration of these persons. Few studies exist about the capacity of development of bowel and bladder control in these individuals. A retrospective study of 105 patients analyzed by mail through questionnaire (IQ < 70), showed 63% of urinary control at 7 years of age and 83% at 20 years (5), suggesting control possibility in the groups profound and severe. Similar study was accomplished by inquiry in a group of patient severe and profound mentally handicapped evaluated with 7 years of interval (6). The results suggest possibility of urinary control in these groups of patients, emphasizing that in spite of difficult, toilet training can be worthwhile in these persons. Attempts to better understand the bladder and sphincter dysfunction of these individuals were accomplished in children with cerebral palsy (7) and in a small group of different etiologies (8) by urodynamic tests, but not relating the mental retardation to the focus of the research. In our study, we analyzed 100 consecutive cases. The interviews were personal with the persons responsible for the patients, done by a same interviewer. Thirty-four with more than 16 years of age, could be analyzed in relationship to the 3 stages of age for which they passed. Practically all the children still used diaper at 5 years of age. No continence control was found in the profound and severe persons, regardless of their ages. At 7 to 10 years of age, about 2/3 of the moderate, mild and normal inferior value children still

presented episodes of urinary loss. Improvement with the age was observed in the groups mild and normal inferior value, more accentuated in this last one. The moderates did not have clear improvement after the initial achievement of continence at 7 to 10 years. Special attention should be directed to the normal inferior value people, in which enuresis and urinary losses can be considered as of unknown etiology, if appraised superficially. The incidence of urinary losses was not correlated to the etiology of the mental retardation, but to its degree.

Urinary infection occurred in 29%, similar in both sexes. The expectation of larger incidence of urinary infection in the feminine sex did not correspond to our findings. The possible explanation for this fact can be the misdiagnosed bacteriuria in girls and the interference of more rigorous hygienic habits. Surprisingly, the incidence of urinary infection was smaller in the most committed groups (profound and severe). The probable cause would be the maintenance of synergic urination and total emptying without voluntary interferences. The less committed groups probably try to control urgency by voluntary sphincter contraction, increasing the chance of infection.

In conclusion, the lack of bladder control was clearly correlated to the grade of mental handicap. In severe and profound groups, the expectancy of control is disappointing. In the less compromised groups, there is a delay in bladder training, with achievement of control in 2/3 of them after 16 years of age. Individuals seemingly normal, presenting delay of bladder control, should be evaluated in relation to the school acting and capacity of answering to more complex questions, trying to identify persons in the normal inferior value situation and consequently the cause of the problem.

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