Long term outcome of adolescents and young adults treated at childhood for non-neurogenic lower urinary tract dysfunction compared to healthy controls.

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Content

List of relevant abbreviations

OAB:	Overactive bladder
LUT dysfunction	Lower urinary tract dysfunction
LUTS	Lower urinary tract symptoms
FVC:	Frequency Voiding chart
ICCS:	International Children's Continence Society
ESPU:	European Society for Paediatric Urology
HADS:	
PINQ:	
RAND-SF36	

Summary

Background:

Non-neurogenic lower urinary tract dysfunction (LUT dysfunction) is a common condition with prevalence up to 10-20 % in 7 year old children and approximately 1-6 % in 17 year old adolescents. LUTS (Lower Urinary Tract Symptoms) as part of LUT dysfunction at childhood might affect normal psychological and social development. The long term functional and mental outcome for adolescents and young adults treated for LUT dysfunction in childhood is largely unknown.

Aim:

The purpose of this study is to evaluate the lower urinary tract function, Quality of life and mental health status in adolescents and young adults previously treated for non-neurogenic LUT dysfunction at childhood. Furthermore outcomes are compared to age related healthy subjects.

Study design:

Observational comparative study.

Study population:

Patients previously treated at the outpatient department of the Radboudumc for non-neurogenic LUT dysfunction at childhood (6-12 years) and healthy controls are approached for participation. Only patients aged 16 and older are eligible for participation. If consent is given subjects are asked to complete a questionnaire concerning voiding habits, mental health status and quality of life.

Intervention:

Filling in a questionnaire concerning quality of life, mental health and voiding habits.

Primary endpoints:

Reassessment of LUTS (Lower Urinary Tract Symptoms) in adolescents and young adults treated at childhood for non-neurogenic LUT dysfunction at childhood. Outcomes are generated by a questionnaire. Results are compared to the outcomes in age related healthy subjects.

Secondary endpoints:

Quality of life and mental health status assessed by the HADS, RAND-SF36 or Pediatric Quality of life. Voiding complaints and if present disease specific quality of life is measured by OAB questionnaire. Data of subjects are compared to data in healthy age related controls.

Study design:

1st intervention:	Eligible subjects are asked for participation by telephone or advertisement (healthy controls).
(5 minutes)	
2nd intervention:	Eligible subjects which are willing to participate are sent
(30 minutes)	the questionnaire and informed consent either by paper (including a franked envelope) or by e-mail.

Introduction

Background

Non- neurogenic lower urinary tract dysfunction (LUT dysfunction) is a common condition with prevalence up to 10-20 % in 7 year old children and approximately 1-6 % in 17 year old adolescents [1, 2]. In turn this might affect mental health status and quality of life during treatment but also later in life. In the literature reduced self-esteem, less social interactions and lower quality of life is reported in children with urinary incontinence[3]. Urotherapy is one of the conservative treatment options in these children with an overall success rate of almost 60 % [4]. Other non-invasive treatment options are cognitive behavioral treatment, pelvic floor treatment, medication and psychological support [5]. If an infravesical obstruction is suspected, urethrocystoscopy with concomitant treatment (for example urethral valves) is performed. The long term functional and mental outcome for adolescents and young adults treated for LUT dysfunction in childhood is largely unknown, especially those referred to and treated in a tertiary university hospital. The purpose of this study is to evaluate lower urinary tract function, quality of life and mental health statuses in patients previously treated for non-neurogenic LUT dysfunction in childhood and compare them to age related healthy controls. This will help to better understand the prognosis and the psychosocial effects of having LUT dysfunction at childhood.

References

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Material and methods

Study population

Subjects ≥ 16 years treated at the Radboudumc outpatient department for non-neurogenic LUT dysfunction at childhood and age related healthy controls.

Definitions

Non-neurogenic LUT dysfunction in children is a broad term used to describe a heterogenic group of lower urinary tract symptoms concerning problems in storage of urine, micturation and post urination in otherwise healthy children without neurological comorbidity > 5 years of age [6]. Further subclassification consists of non monosymptomatic and monosymptomatic enuresis. Mono symptomatic enuresis is defined as enuresis in children > 5 year of age without any other lower urinary tract symptom or bladder dysfunction.
Non monosymptomatic enuresis is defined as enuresis in children > 5 years of age and any lower urinary tract dysfunction of bladder dysfunction.
Enuresis itself is defined as involuntary loss of urine during the night.
Urotherapy is defined as the non-surgical, non pharmacological treatment for children with LUT dysfunction and consists of counseling patients and parents about normal lower urinary tract function and the specific dysfunction in the child, instructions about what to do about it and support and encouragement to precede the training program.

Inclusion criteria

- Age at time of consent ≥ 16 years.
- Subjects previously diagnosed and treated for non mono-symptomatic enuresis as part of non-neurogenic LUT dysfunction. For definition of treatments see previous paragraph.
- Dutch speaking subjects
- Signed informed consent

Exclusion criteria

- Subjects with underlying neurological or congenital anomalies except those treated for subtle infravesical obstruction (meatal stenosis, posterior urethral valves).
- Subjects with mental disorders unable to fill in questionnaire.
- Non Dutch speaking subjects
- Subjects treated for mono-symptomatic enuresis because its etiology and treatment differ from patients with non mono-symptomatic enuresis which in turn might influence outcome.

Control group

The control group consists of healthy adolescents and young adults which are asked for participation by advertisement.

Patient withdrawal and lost to follow up

Subjects can withdraw from the study at any time for any reason if they wish to do so, without any consequences.

Study design

- Observational study.

Protocol and parameters

Patients previously treated at the outpatient department of the Radboudumc for non mono symptomatic enuresis as part of non-neurogenic LUT dysfunction at childhood are approached by telephone for participation. Only patients aged 16 years or older are eligible for participation. If consent is given subjects are asked to fill in a questionnaire concerning quality of life, mental health and current LUTS (Lower Urinary Tract Symptoms). The Questionnaire can be filled in and returned either by email or paper version (with franked envelope included). Furthermore parameters are collected from patients files used during their treatment at childhood.

The questionnaire and estimated time to fill in included are:

1. - General part including social economic status, demographics 5 minutes
2. - Voiding habits and disease specific Qol 5 minutes
3. - Mental status Hospital Anxiety and Depression scale (HADS) 10 minutes
4. - General Quality of life
    - Subjects < 18 years: PedsQol 10 minutes
    - Subjects ≥ 18 years: RAND-SF36 10 minutes

Baseline subject characteristics are collected from patient files or from the general part of the questionnaire. Furthermore data of treatment at childhood are collected like date of first visit to the outpatient clinic, duration of any therapy for LUT dysfunction at childhood, type of therapy concerning LUT dysfunction at childhood (urotherapy, pelvic floor treatment/ biofeedback, psychological support, cognitive behavioral treatment, surgical procedures, medication), history and medication use, existence and treatment of obstipation, response according to the ICCS criteria (no response 0-49 % decrease in either subjective/ objective parameters like urge/ pad use/ change of clothes, partial response 50-99 % decrease, full response 100 %).

Other parameters collected are based on questionnaires during adolescence and young adulthood. These include voiding habits and disease specific quality of life measured by the OAB- questionnaire. Current therapy or medication for LUT dysfunction is noted. General quality of life and mental health status are measured by outcomes of several questionnaires: Hospital Anxiety and Depression scale, RAND-SF 36 if ≥ 18 years of age and PedQol if 16-17 years of age.

Primary outcome

Reassessment of LUTS (Lower Urinary Tract Symptoms) in adolescents/ young adults previously treated for non-monosymptomatic enuresis at childhood. Data are compared to data in age related control subjects.

Secondary outcomes

Quality of life and mental health status assessed by the HADS, RAND-SF36 or Pediatric Quality of life. Voiding complaints and if present disease specific quality of life is measured by OAB questionnaire. Data of subjects are compared to healthy age related controls.

Statistical analysis

All discrete data are noted in numbers and percentages. All continues data are noted as mean, median, standard deviation with 5-95 % percentile. Demographics will be summarized. The data of the questionnaires filled in at adolescence/ young adulthood are compared to data at childhood and to data in healthy volunteers. The outcome is defined within categories:

- No current LUTS (Lower Urinary Tract Symptoms) after complete/ good response at childhood.

- No current LUTS (Lower Urinary Tract Symptoms) after partial/ no response at childhood.

- Persistent LUTS (Lower Urinary Tract Symptoms) after partial/ no response at childhood.

- Recurrent LUTS (Lower Urinary Tract Symptoms) after complete/good response at childhood.

The study group is hypothesized to have 25% more LUTS (Lower Urinary Tract Symptoms) during adolescence/ young adulthood compared to healthy controls. A power calculation revealed that we have to enroll 60 patients in each group to detect a 25 % difference in prevalence of any kind of LUTS (Lower Urinary Tract Symptoms) between the groups.

Furthermore Qol and mental health is assessed within these different groups and corrected for confounders. These data are compared between groups and data of healthy age related controls. A sub classification is made for patients > 18 years and under 18 years.

Safety measurements

No adverse/ serious adverse events are expected.

Administration

Compensation

Subjects > 18 years will receive 5,- euro for their participation in this study. This amount will be transferred to a predefined bank account after required documents are filled in and received either by envelope or by mail.

Data

All data are collected and analyzed anonymously. These data are irreducible without code. The principal investigator has access to this code.

Publication

Data and results are submitted for presentation at the European Society of Pediatric urology (ESPU) and publication in the journal of pediatric urology or any other relevant journal.

Attachments

- Questionnaire for patients 16-17 years of age

- Questionnaire for patients ≥ 18 years of age

- PIF, Informed consent

- Advertisement for recruitment of healthy volunteers