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Original Article

The impact of motivational therapy in the management of enuretic children

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ABSTRACT

Objective: The aim of this study is to determine the impact of a motivational therapy (MT) on the outcomes for individuals diagnosed with nocturnal enuresis (NE).

Material and methods: We enrolled 158 patients with NE referred to the Service of Pediatrics, Campus Bio-Medico University Hospital of Rome, from January 2013 to September 2017. Of these, 21 were excluded because they didn't meet the inclusion criteria. The study was carried out in compliance with the Helsinki Declaration.

Results: A hundred and thirty seven enuretic patients [100 (72.9%) male and 37 (27.1%)] female patients with a median age of 8.8 years were included in the study. The patients were assigned to receive pharmacological therapy with desmopressin (dDAVP) (G1) (n=51), MT (G2) (n=33) and both of them (G3) (n=53). The three groups were homogeneous, with no significant differences in gender, age and family history of NE. In G1, 30/51 (58.82%) children achieved response vs. 1/33 (3.0%) children in G2 vs. 35/53 (66.04%) children in G3. About these results, The differences between G2 vs. G1 ($p<0.01$) and vs. G3 ($p<0.01$) were statistically significant while the difference between G1 vs G3 was not statistically significant ($p=0.45$).

Conclusion: Our study underlines the importance of MT in the management of NE and highlights the safety of treatment and the positive effect of MT on the compliance and the adherence to pharmacological therapy. Considering the importance of the impact of such evidence on children's lifestyle, we expect that further study with a larger sample size may confirm our hypothesis.

Keywords: Desmopressin; enuresis; motivational therapy.

Introduction

Non-adherence to treatment and inefficacy of pharmacotherapy remain as a significant challenge to the clinical management of many pathologies.[1] In particular among children, motivation seems to have an important role in maintaining adequate adherence to pharmacological protocol.[2]

This is one of the reasons why it is important to find different strategies, such as motivational therapy (MT) to increase patient's compliance and/or efficacy of pharmacotherapy. MT is a patient-centred approach whose aim is to guide the patients with different strategies, towards behavioral changes.[3] This treatment option leads to satisfying results, lasting sometimes even more than one year after treatment and it can be used by different professional figures, including medical providers.[4]

Motivational therapy can differ for each patient because it is a tailored intervention whose aim is to encourage motivation, self-esteem, capacity of problem solving and enhancement. It is a style of therapeutic intervention that can be considered as a valid treatment option together with pharmacological therapy.

Positive results of MT are described in many fields, such as health behaviours (diet, exercise, diabetes care, adherence) and general patient outcomes (e.g. mood). Moreover, it has been suggested that it might be effective at both improving quality of life and sustaining adherence to pharmacological treatment in patients with inflammatory bowel disease.[5]

However, its effectiveness is still underexplored in many fields involving children and adolescents because it is influenced by different factors. Indeed, it requires parental engagement, collaboration by all members of the family and it depends on child's social interactions, sensitivity and emotional sphere.

However, in literature there are some evidences supporting the usefulness of MT in pediatric population. One of the most important fields of application of MT is substance abuse. Thanks to this approach, patients can change their behavior and prevent future misuse. Some studies evaluated the effectiveness of a motivational intervention to reduce drinking and associated problems encountered pediatric emergency departments in Germany, with good results.[6] Other researches focused on the importance of motivational therapy interventions in order to increase physical activity and level of satisfaction in children with cerebral palsy.[7]

Limited evidence shows that a motivational interviewing approach may be an effective behavioral intervention to prevent dental caries in children,[8] to reduce the depression scale scores in adolescents with obesity and overweight,[9] to maintain a good diet among obese patients, and for the correct management of dyslipidemic children.[10] There are also studies describing the potential benefit of only toilet/diet/motivation training in the treatment of functional constipation in children.[11]

Nocturnal enuresis (NE) is another condition that may be responsible for behavioral, psychological, and social problems. According to the International Children Continence Society (ICCS), NE is defined as intermittent incontinence occurring exclusively during sleep periods. NE should not be used to refer to daytime incontinence. NE in children without any other lower urinary tract symptoms and a history of bladder dysfunction is defined as monosymptomatic NE.

Nocturnal enuresis has multifactorial etiology and it may benefit from different strategies of treatment.[12] As such, NE can benefit from MT treatment. The disorder may severely impact emotional, psychological, and social functioning so that the child may experience embarrassment, blushing, lack of self-esteem and aggression. The aim of this study is to determine the impact of a MT on the outcomes of individuals diagnosed with NE. Another objective is to evaluate the potential positive effect of combined therapy (pharmacotherapy and MT) in order to reduce wet nights and increase dry nights.

Material and methods

Subjects

We enrolled 158 patients, aged between 5 and 14 years (median age 8.8 yrs), with NE referred to the Service of Pediatrics, Campus Bio-Medico University Hospital of Rome, from January 2013 to September 2017. Of these, 21 were excluded because they didn't meet the inclusion criteria. To be eligible for inclusion, patients had to meet the ICCS definition of NE. Exclusion criteria were secondary NE, history of urinary tract infections, other urinary tract disorders, other pharmacological treatments within the previous 3 months.

Data collection

All patients had undergone an anamnestic and clinical evaluation. All the families were asked to keep a diary collecting information about the time and the number of occasions of urination, volume of urine, and fluid intake, urinary leakage, and activities that provoked it, and signs of urge incontinence.

After the clinical evaluation, children were randomly assigned to receive one of the following treatments: desmopressin (dDAVP) at a dose of 120 mcg a day (G1), MT (G2) or both of them (G3).

Motivational therapy consisted in some advices and educational information for the parents (Table 1) and a list of dietary recommendations (Table 2).

The outcomes were evaluated after three months of therapy with regular follow-up visits or interviews after 2 weeks, 1, and 3 months. During this period every family was asked to keep a NE calendar depicting the wet and the dry nights and a food diary.

Table 1. Advices and educational program for parents

Avoid punishment
Don't forget the importance of a supportive environment
Don't forget that bedwetting is not a child's fault
A correct management of constipation may be useful
Encourage your child to keep a "voiding diary" (calendar of dry and wet nights)
Keep a diary about the fluid intake of your child
Encourage regular voiding during the day and before going to bed
Try to concentrate fluid intake during the morning and the afternoon
Avoid the use of diapers and pull-ups
Reward not only dryness, but also the agreed-upon behaviour

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As outcomes, the number and percentage of non-responders and responders (responders were classified as children who showed 50% or more decrease in wet nights/week compared to the baseline[12]) to therapy were evaluated after three months in each group.

Table 2. Dietary recommendations

Recommended food
Vegetables: spinach, chard, cauliflower, chicory, cabbage, legumes, tomatoes, eggplant, peppers, beans, cucumbers, asparagus, celery, peas, beans, lettuce, kale
Fish: tuna, salmon, sardines, sea bream, sole, sea bass
Seafood
Dried fruits
Cereals: gems of oats, wheat buds, puffed rice, corn flakes, wheat bran, muesli
Eggs
Food items not recommended at evening
Yogurt
Water
Fruit: pineapple, melon, apples, watermelon, apricot, banana
Milk
Cheese: mozzarella, cottage cheese, soft cheese, chartreuse
Foods not recommended
Salt
Chocolate, cocoa
Carbonated drinks
Tea
Fruit juice: specially grapefruit and orange

Statistical analysis

Analyses were conducted using Microsoft Excel 2011 (version 14.0.0). We used descriptive statistics to describe patients' information (age, gender, familiarity). Data were expressed as mean±standard deviation and percentage. The χ^2 test was used for categorical variables. The significance level was set at $p<0.05$.

Results

Twenty-one out of 158 patients enrolled in the study at baseline were excluded for the following reasons: children with daytime symptoms (n=9), who underwent therapy with dDAVP within the previous 3 months (n=6), 4 who had secondary NE, 2 with a history of recurrent urinary tract infections.

Therefore, 137 children were included in our study. Our sample was made up of 100 (72.9%) male and 37 (27.1%) female patients. The median age was 8.8 years. Of these enuretic children, 51 were assigned to receive pharmacological therapy with dDAVP (G1), 33 received MT (G2) and 53 received both of them (G3). The three groups were homogeneous, with no significant differences in gender, age and family history of NE (Table 3).

The mean number of wet nights before the treatment was 6.5±0.7 in G1, 6.3±0.8 in G2 and 6.3±0.9 in G3. After 3 months of therapy, we evaluated the response to the treatment in each group in terms of the number of wet nights and response rate. The mean number of wet nights after the treatment was 2.4±2.8 in the children treated with dDAVP, 4.6±0.98 in those treated with MT, and 2.3±2.6 in those receiving both of them.

In G1, 30/51 (58.82%) children achieved response vs. 1/33 (3.0%) children in G2 vs. 35/53 (66.04%) children in G3. About these results, the differences were statistically significant between G2 both vs G1 ($p<0.01$) and vs G3 ($p<0.01$), while the difference between G1 vs. G3 was not statistically significant ($p=0.45$).

Table 3. Characteristics of the sample

	dDAVP		MT		MT + dDAVP	
Male	36	71%	24	73%	40	75%
Female	15	29%	9	27%	13	25%
Mean age (yrs)	8.8±1.96		8.7±2.00		8.8±2.05	
Family history	39	76%	24	73%	39	74%
Success rate after 3 months	30	59%	1	3%	35	66%

dDAVP: desmopressin; MT: motivational treatment

In particular we found an interesting result while analyzing data after 2 weeks of therapy. Children in G1 and G3 showed similar response rates at the end of three months. In G2 more than 50% of children showed a response within the first two weeks of therapy, but the majority of them relapsed, so that, at the end of the three months of therapy we found that in only one child there was 50% or more, but less than 90% decrease in wet nights compared to baseline. The odds ratio of response (the ratio between the probability/improbability to respond to treatment) for children in G3 was 1.94=(35/53)/(18/53)=(0.66/0.34), while the odds ratio of response in G1 was 1.42=(30/51)/(21/51)=(0.59/0.41). The ratio between the 2 odds was 1.94/1.42=1.37. During the 3 months no children manifested significant adverse effect.

Discussion

Motivational therapy is a type of approach that may be very useful in the management of several conditions because it can increase the awareness about the condition and empower the responsibility of the individuals involved. Moreover, it may improve the compliance and the adherence to a pharmacological therapy, suggesting the adjuvant role of MT.[5]

In the literature, many studies focused on the positive effects of MT in some disorders, such as, for instance, alcohol and substance abuse, dental caries, blood pressure, IBD, body weight, HIV.[4,5] However, less is known about effectiveness of this kind of therapy in children and adolescents. The results of the available studies focusing on MT and children are encouraging. In fact, some of them, for example, confirm the positive effect of the approach in reducing the abuse of substance and alcohol among children and adolescents, in increasing physical activity and level of satisfaction in children with cerebral palsy, in treating functional constipation in children, and in improving the mood disorders among obese individuals.

Since enuresis is a disorder characterized by a deep impact on psychological, behavioral and social functioning of the child, it can benefit from a MT approach.[13-20] Our study focused on the role of MT in enuretic children undergoing pharmacological treatment or not, and its potential positive effects.

Our research shows interesting results in response rates among the groups studied. In particular, the response rate of children treated with MT was statistically significantly lower than that of children treated with dDAVP (3.0% vs. 58.82%), while response rate of children treated with MT + pharmacological therapy was higher than that of children treated with only pharmacological therapy (66.04% vs. 58.82%). Even if the difference we found between children treated with pharmacological therapy and those treated with both MT and pharmacological therapy is not statistically significant, we suppose that it could be due to the small sample size which is a limitation of our study. More significant results might be expected by enlarging the sample size. However, we believe that showing a higher rate of response between children treated with MT together with dDAVP may be considered as a positive effect of MT (OR >1).

We would like to underline an interesting preliminary result we found comparing data after 2 weeks of therapy and at the end of the period. The high success rate we observed in the group treated with MT in the early period (more than 50% of children showed a response after only 2 weeks) was probably due to the deep impact it had on psychological and emotional sphere of enuretic children. Moreover, we observed that after two weeks of therapy, children belonging to this group with a lower rate of decrease in the number of wet nights were more likely to relapse. This was probably due to insufficient motivation in following the given advices which resulted in cessation of the MT treatment. In fact, after the three months of treatment we observed that, among children treated with MT, only one (3.0%) achieved a partial decrease in wet nights.

No children showed any side effects during the period of observation. An important strength of our study is that we enrolled a group undergoing motivational treatment only, in order to explore the role of this kind of approach, compared to the others using pharmacological and combined approaches.

In conclusion, our study underlines the importance of MT in the management of enuresis, a very common disorder with emotional, relational and psychological consequences. Even if some of our results are not statistically significant, they highlight the safety of treatment and, especially, the positive effect of MT when recommended together with pharmacological therapy. In fact it improves patient's compliance and the adherence to pharmacological therapy. Considering the importance of the impact of such evidence on children's lifestyle, we expect that further studies performed with a larger sample size will confirm our hypothesis.

Ethics Committee Approval: The study was carried out in compliance with the Helsinki Declaration and was approved by the Service of Pediatrics of Campus Bio-Medico University.

Informed Consent: Informed consent was obtained from patients who participated in this study.

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