

Primary monosymptomatic nocturnal enuresis: can chiropractors handle this? An evidence-based case report

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ABSTRACT

A case report of an eight-year-old child suffering from persistent nocturnal enuresis investigated different therapies for primary monosymptomatic nocturnal enuresis and the efficacy of chiropractic management. Slight improvements were noted after a short trial of chiropractic therapy.

Key words: pediatric, chiropractic, enuresis, case report.

Introduction

Attainment of bladder control is considered a major milestone in a child's development but attaining this milestone is not always accomplished on the anticipated timeline. Nocturnal enuresis (NE) is defined by the International Children's Continence Society as involuntary loss of urine at night, in the absence of an underlying pathology, at an age where a child is supposed to be dry. By consensus, the age of five has been set as the upper limit for being dry.^{1,2}

The genetic factors are key in the etiology of NE. A family history of NE increases the risk with up to 77% of NE occurring in the parents.³ This finding could suggest that the child will get over it at the same age as the parent(s) did.³

Incessant nocturnal enuresis is not only socially disruptive but it is also a stressful condition which affects the whole family. It not only causes frustration and embarrassment for parents and child but also has an impact on the child's psychological situation. In most cases, the child may feel different from others, does not want to participate in school trips or sleepovers and is fearful that someone will discover their problem. This results in emotional distress and low self-esteem which has a negative impact on the child's health and well-being.^{4,5,6}

The nocturnal enuresis in this case report is about primary monosymptomatic enuresis, meaning that the patient had never been dry for longer than six months and had no underlying pathologies causing the incontinence.⁷

Case Report

An eight-year-old girl was presented by her mother to a chiropractic clinic seeking help for persistent nighttime bedwetting. The patient reported that she had never been dry during the night. She denied any history of major falls,

trauma or accidents. Even though she denied experiencing any back pain, the patient mentioned that she regularly had headaches and experience car sickness easily. Further questioning revealed a difficult birth history, symptoms of colic and difficulties with attachment during breastfeeding, which eventually resolved with time.

The mother reported that her daughter was not taking any responsibility for the recommended steps to reduce her persistent bedwetting. She said that her daughter was not drinking enough during the day and did not regularly void before bedtime. Her frequent after school activities made it difficult for the family to eat dinner early. However, they were trying to restrict drinking for two hours before bedtime. The mother reported not having had any history of enuresis herself, but was not sure whether there was a history of enuresis on father's side.

The patient had sought advice from her general practitioner and from the school nurse. In consultation with the nurse, a bed alarm had been tried twice for several weeks without any change. Both the GP and the school nurse reassured the mother that her daughter would grow out of it. Apart from limiting drinking before bedtime, encouragement to hydrate well during the day, requiring the child to go more often to the toilet and using a bed alarm, no other interventions were implemented.

Clinical findings

Clinical examination revealed rotational restrictions in the cervical spine, a restriction at L4-L5 as well as excess tension in the right sternocleidomastoid and bilateral upper trapezius. Significant muscle spasms and stiffness were noted throughout her spine and the right sacroiliac joint was restricted. Internal rotation of the right hip was reduced. The girl was ticklish and exhibited a retained Perez reflex.

Method

A search was conducted to identify research material relevant to the treatment of nocturnal enuresis and whether chiropractic therapy had proven efficacy. This was done using the Cochrane Database, Pedro, Pubmed and Medline. The first search was conducted to find out the current approaches used to treat primary nocturnal enuresis using the keywords nocturnal enuresis, monosymptomatic, child and management. The second search was conducted to find out whether chiropractic had demonstrated any influence in cases of persistent enuresis. This was done using the keywords nocturnal enuresis and chiropractic. In total, 20 articles were retrieved. Additionally, chapters in two books were reviewed.

Discussion

A single etiology for the persistent bedwetting child is unknown and even more unlikely. Over time healthcare professionals have tried to determine an efficacious approach to treat this particular condition. Several studies have looked at the current research and how different approaches were tried to find the best treatment for the bedwetting child. But which one is now the best? Can chiropractors solve this issue? Several categories of treatment are regularly applied.

Behavioral interventions — This term includes the following approaches: restricting fluids before bedtime, the lifting technique (children are taken out of bed while asleep and put on the toilet), reward systems and bed alarms. The best known, least invasive and most sustainable current treatment option is a bed alarm. This is a technique where a pad is placed either in the pants of the child or on the mattress. The pad detects when the child is urinating and either a bell, a vibration or a light signal occurs. Unfortunately, the demanding nature of this therapy, meaning the alarm should be worn every night and requires the parents to actually made their children aware when the alarm goes off, results in low compliance and high dropout rates.^{2,8}

Another anti-enuretic but controversial strategy is lifting. This means the parents pick up their sleeping child out of bed and put him or her on the toilet. This can be done either in silence or the parent can ask the child to tell them the pre-agreed password so they are sure the child is aware that he or she has to go the toilet. The concern here is that this technique encourages the child to pass urine while asleep. The criticism of this technique is that it does not encourage the child to learn to wake when the bladder is full.^{5,9} The study by Van Dommelen and colleagues⁹ revealed that despite that criticism, children eventually remain dry with this technique. Furthermore, lifting the child to the toilet without the use of a password resulted in better outcomes than lifting with a password. The long-term effect has also been that 78% of the children were still dry three years after the intervention took place. Although this study included

children younger than five years of age, the results are still credible as fewer children (69%) in the control group were dry at follow-up but further critical analysis is warranted.⁹ For example, lifting was done by different parents and without any objective control meaning the researchers are not sure whether the technique was done correctly and consistently.

The most recent investigation into behavioral interventions for nocturnal enuresis reveals the complexity of the condition.⁴ The authors concluded that the same strategies used to overcome bedwetting at 7½ years old were not always effective in correcting enuresis at 9 ½ years old.⁴ However, this study was of poor quality as it did not differentiate between monosymptomatic or non-monosymptomatic bedwetting. Ultimately what the authors concluded was that every case was different, that parents should seek advice and that the choice of treatment depended on the subtype of enuresis, the severity of the case and the motivation of parents and child to solve the issue(s).^{3,4,10}

Are medications effective treatment for primary nocturnal enuresis? — Opinions are divided and caution around the use of medications with children is an issue. The most well-known drug for treating nocturnal enuresis is desmopressin. Glazener and Evans¹¹ concluded that the utilization of desmopressin is twice as likely to achieve 14 consecutive dry nights compared to no active treatment or placebo. Unfortunately, they also found that once the therapy has ended, the effect of desmopressin was not sustainable and relapse rates were high.^{6,11} A problem with interpreting similar pharmaceutical related findings was that several included studies in this review were quasi-randomized, included children younger than five, failed at reporting how the data was obtained and few studies included follow-up. A 2005 review¹² found that drugs showed a quicker onset of action, especially desmopressin,¹³ than an enuresis alarm. It also related that both interventions are still frequently prescribed. Another drug trialed was a tricyclic, which showed improvement compared to absence of treatment or “doing nothing.” There has been debate as to whether tricyclics should be used alone or in combination with another tricyclic or anticholinergic drug.¹² Some suggest that if imipramine is combined with oxybutynin, the outcomes are more efficacious than imipramine used on its own.^{8,14} However, it has been shown that the combination of imipramine with desmopressin did not give better outcomes than the imipramine monotherapy.⁸ It was not specified which type of cases for which either combination therapy or monotherapy should be chosen.¹⁵

Further, almost all reviews about the effect of drugs for bedwetting were of poor quality. The possibility of an underlying organic disease or daytime bedwetting could not always have been excluded which could have biased the result; trials had small populations and baseline bedwetting

was not consistently measured.^{8,14,15}

Overall, all the cited researchers agreed that the use of drugs to combat nocturnal enuresis have had adverse effects occur such as liver and heart problems, seizures and gastrointestinal issues.⁸ Therefore, it has been recommended to only use them episodically and preferably in combination with behavioral interventions.^{12,13}

Complementary or Alternative treatment options — Usually when the classic medical interventions fails, parents seek help from CAM (complementary and alternative medicine) healthcare professionals. This may include acupuncture, homeopathy, hypnosis, chiropractic, dietary advice or counselling therapy.¹⁶ A Cochrane review investigated 24 randomized controlled trials, in which 1,283 children received a complementary intervention. They found that subjects who underwent chiropractic treatment resulted in less enuresis post-treatment.¹⁶ Their finding confirmed that of Van Poecke and Cunliffe.¹⁷ Their case series found a 66.6% response rate to chiropractic therapy which was significantly higher than the natural remission rate of 15%.¹⁷ Acupuncture also seemed to have slightly better outcomes than tricyclics.¹⁶ There was insufficient evidence for homeopathy, surgery or dietary interventions. However, these findings should be interpreted carefully. The review concluded that the included articles were of poor quality, lacking follow-up data and the baseline comparability of half of the trials was doubtful. Therefore, the claims any of the previously mentioned alternative therapies are useful in the treatment of primary nocturnal enuresis are not sufficiently substantiated.¹⁶

Biological plausibility — Although there is not a consensus as to whether chiropractic treatment could help or not, there may be biological plausibility from an neuroanatomic perspective.¹⁸ The autonomic regulation of the bladder shows teamwork between the voluntary and the visceral motor system which consists of the sympathetic and parasympathetic division. Both divisions find their origin within the spinal cord, the sympathetic division at T10-L2 and the parasympathetic at S2-S4. Contraction of the sphincter also originates within the sacral spinal cord segments (S2-S4). Spinal manipulation of these levels could influence the afferent and efferent function of the bladder and thus chiropractic treatment might be indicated.^{18,19}

Retained primitive reflex — To survive the change from the quiet, protective womb to an overwhelming world of sensory stimuli, the child is equipped with primitive reflexes. These are not only essential for surviving the first weeks of life but they also provide a basis for later voluntary skills. Prolonged primitive reflex activity is said to be a lack of neurologic maturation within the central nervous system and may also prevent the development of postural reflex-

es.²⁰ An important reflex that can be related to (involuntary) urination is the Perez or Pulgar Marx reflex.²⁰ This reflex is elicited when both sides of the spine are stroked simultaneously from neck to pelvis. The response involves flexion of both legs, elevation of the pelvis, lifting of the head, emptying of the bladder and increased bowel movements. The Pulgar Marx reflex should be inhibited by two to three months of age.²⁰ It is found that many children who wet the bed after the age of five have a retained Perez reflex.²⁰ Some research suggests that regular massage of the back could reduce this reflex.^{20,21}

Aims for the future — Future trials should aim for more uniformity in outcome measures using mean number of wet nights after treatment along with long-term follow-up data, up to at least a year post-treatment. Studies, preferably randomized controlled trials, should also clearly distinguish between monosymptomatic and non-monosymptomatic nocturnal wetting and should exclude any organic cause of the enuresis.

Applying the evidence

This family had tried several treatments before presenting to the chiropractor, without improvement. After the anamnesis and the examination procedures, the parents were informed that the articular and myofascial restrictions identified could possibly be consistent with the persistent bedwetting their child experiences (biological plausibility and retained reflex). They were informed with the current research which said that chiropractic treatment was safe²² but unknown whether it could help with incessant nocturnal enuresis.¹⁸ Therefore, I could only recommend a short therapeutic trial to determine whether chiropractic care would be helpful or not in this particular case.

The parents consented to a trial of chiropractic treatment. After two treatments, two dry nights were reported and the child had not experienced any headaches or car sickness since receiving those two treatments. Unfortunately, after the third treatment the girl had wet the bed every night again, possibly because other levels were adjusted compared to the first and second treatment or the dry nights were due to the Hawthorne effect (when the patient modifies their behavior in response to the fact that her parents were watching her) which modified the results. The therapy on the fourth, fifth and sixth appointment consisted of manipulation of exactly the same levels as during treatment one and two. This was done because those first treatments resulted in some dry nights and if bedwetting occurred, a smaller amount of urine was noted. Again, on the fifth appointment one dry night was reported and it was mentioned that if wetting had occurred, the amount of urine had certainly reduced. Even though the same treatment was given for two more sessions no further improvement had been made. The mother nor the child herself reported

any adverse events during or after any of the treatments given. As the trial of seven treatments had ended, both the parents and I decided that further treatment would not be beneficial at this moment. They were convinced that their daughter had to take responsibility for drinking more during the day and that she should go to the toilet more regularly before a bigger improvement could take place. Although it did not completely resolve the problem, the parents were happy with the improvements as well as the fact that their daughter had had no recurrence of headaches or car sickness since the initial two visits.

Conclusion

There was insufficient evidence to apply to this case, so I proceeded, with the parents' consent to treat the persistent bedwetting with chiropractic therapy in a therapeutic trial. As chiropractic manual therapy for children has been shown to be safe, a clinical trial to try to help this family was an appropriate way forward. Further research is required to find out whether chiropractic treatment can be helpful in cases of persistent nocturnal enuresis where no underlying pathology could cause the bedwetting.

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