

Changes in Asthma Symptoms and Bedwetting in a Four Year Old Child Receiving Chiropractic Care: A Case Report

ALI POSTLES, HEIDI HAAVIK TAYLOR and KELLY HOLT

ABSTRACT: *Objective:* This article describes and discusses changes in asthma, bedwetting and allergy symptoms in a four-year-old child receiving chiropractic care. *Clinical Features:* A four-year-old child diagnosed with asthma and a history of allergies, bedwetting and disrupted sleep presented for chiropractic care. *Intervention and Outcome:* The child received spinal and cranial adjustments based on Sacro Occipital Technique (SOT) protocol. After 32 weeks of chiropractic care the child no longer had asthma symptoms, bedwetting had ceased and a positive change in other presenting symptoms was noted. *Conclusion:* There are a growing number of case reports that describe improvements in childhood problems such as asthma and nocturnal enuresis in children receiving chiropractic care. Thus far clinical trials have failed to provide sufficient evidence to support the potential link between improvements in these childhood problems and chiropractic care. Further study is required to investigate the role chiropractors may play in caring for children with these disorders.

INDEX TERMS: ASTHMA; CHIROPRACTIC; CASE REPORTS (PUBLICATION TYPE); NOCTURNAL ENURESIS.

Chiropr J Aust 2010; 40: 34-6.

INTRODUCTION

Asthma is a chronic inflammatory disease of the lungs characterized by a reversible airway obstruction, bronchial swelling and production of thick mucus.¹ These changes in respiratory function are due to a hyperactive response to certain allergens and irritants in the environment.¹

New Zealand has one of the highest prevalence rates of asthma in the world with approximately 30% of New Zealand children and adolescents having asthma at some stage in their lives.² In a country of a little over four million people the financial burden of asthma is over (NZD) \$800 million per year.³ In the US over 13 percent of children are diagnosed with asthma during their lifetime with an estimated 6.7 million American children currently affected by asthma.⁴

Asthma is associated with a rapid deterioration in health status, with airway obstruction, coughing and wheezing.⁵ Between 20-50 hospitalisations per 10,000 asthmatic children occur due to asthma each year, with approximately 0.5 deaths per 100,000 population occurring annually due to asthma in people aged 5-34 years.^{3,4}

Diagnosing asthma can be difficult due to the variable nature of the disease and because respiratory symptoms such

as coughing and wheezing are common in children who do not have the disease.⁶ Asthma is generally diagnosed based on symptom patterns, clinical assessment and family history. Asthma is suspected when wheezing occurs frequently, wheezing and coughing are induced by activity, cough is particularly common at night during periods without viral infection, symptoms persist after the age of three and a variety of environmental factors make the symptoms worse.⁶

Nocturnal enuresis, better known as bedwetting, is defined as "the involuntary loss of urine at night, in the absence of organic disease, at an age when a child could reasonably be expected to be dry (by consensus, at a developmental age of five years)."⁷ Bedwetting is associated with a host of additional problems for the suffering child, as these children may experience parental disapproval, sibling teasing and repeated treatment failure, which may lower self esteem.^{7,8} There is evidence that children who wet the bed are at increased risk of emotional and physical abuse.⁷ Conventional management of enuresis includes behavioural therapy, alarm therapy and pharmacologic therapy.⁸ However, there is still a lack of evidence to support the efficacy of these conventional approaches.⁸ Consequently, there is a need to further investigate alternative treatment options for these children. There are a growing number of case studies that indicate chiropractic care may be of benefit for children suffering nocturnal enuresis.⁹⁻¹⁴ Although this evidence is weak, a recent Cochrane review of alternative treatments for nocturnal enuresis did conclude that chiropractic care may help children with enuresis.⁷

There are a growing number of case reports and a few controlled trials that suggest chiropractic care can improve the symptoms for children with asthma and/or nocturnal enuresis.^{1,7,9-18} The purpose of this article is to add to this growing body of empirical evidence by describing the improvements in asthma symptoms, bedwetting and other

Ali Postles, Senior Intern, New Zealand College of Chiropractic, Auckland, New Zealand.

Heidi Haavik Taylor, BSc (Chiro), PhD, Director of Research, New Zealand College of Chiropractic, Auckland, New Zealand

Kelly Holt, BSc (Chiro), PGDipHSc, Researcher, Research Department, New Zealand College of Chiropractic, Auckland, New Zealand.

Conflict of Interest: There were no funding sources for this study and no conflicts of interest have been identified.

Editors note: As there was a conflict in the referees decisions it was determined that a single case study is acceptable.

childhood disorders in a four year old patient while receiving chiropractic care.

CLINICAL FEATURES

A four-year-old boy presented to a private chiropractic practice with asthmatic symptoms including coughing, wheezing and difficulty breathing. These symptoms first occurred when the child was teething and through the years had varied in frequency, timing and intensity. Each episode was triggered by unknown factors and was not related to physical exertion.

In March 2008, the child was experiencing increasing episodes of difficulty breathing and was at that stage diagnosed by the family general practitioner with mild intermittent asthma. The general practitioner prescribed a Seretide inhaler (combination corticosteroid and bronchodilator known as Advair in the USA) to be used twice daily and a Ventolin inhaler (β_2 -adrenergic receptor agonist) to be used as a backup for the relief of acute asthma symptoms. The mother followed this prescription for two weeks before deciding to seek alternative care. She feared that her son would follow the same path as her older daughter, who was placed on asthma medications at a young age and was experiencing regular chest infections, flu symptoms and regular, severe asthma symptoms.

A thorough history was taken which included preconception, pregnancy, and birth history up until present day. The mother reported an abnormally fast labour (25 minutes) and at three months of age the child was dropped resulting in a fractured skull and a loss in motor skills for 24 hours. No long term effects from this accident were reported. As well as the asthma, the child presented with interrupted sleeping patterns accompanied by snoring and regular bed-wetting.

Physical examination included neurological screening, surface electromyography and thermography scans and a chiropractic examination based upon Sacro Occipital Technique (SOT) protocol.

INTERVENTIONS

The child was adjusted using SOT protocol including blocking and cranial techniques. Consistent findings were category II on the right, with vertebral subluxation findings at the T3, T7 and T9 spinal levels. The category listing was corrected with child sized pelvic blocks and the thoracic segments were adjusted using an Activator adjusting instrument. The child's initial care plan involved two visits per week for the first eight weeks. Following a reassessment at eight weeks the plan of care was modified to weekly visits. This frequency continued for the following 24 weeks. The child was adjusted at every visit and progress examinations were performed regularly throughout the 32 weeks of initial care.

OUTCOMES

Two months after beginning care the mother reported her child's asthma had become asymptomatic. During this time there were two reported incidences where, after a knock to the child's head, the wheezing and difficulty in breathing had returned. On both occasions the Ventolin inhaler was used in the evening after the knock and the following day the child received a chiropractic adjustment. On both occasions

symptoms ceased following the combined intervention approach.

Besides the improvements in asthmatic symptoms, the mother reported that the child's snoring had stopped immediately after commencing chiropractic care and the child's bedwetting had ceased six weeks into the chiropractic care plan. The mother also described a positive change in the child's behaviour and she commented that he had recovered more quickly from an episode of the common cold. By 32 weeks of care the child no longer used asthma medication on a regular basis.

Discussion

This case study reports significant improvements in asthma symptoms, bedwetting, allergies and snoring in a four year old boy while receiving chiropractic care. It adds to the growing number of case reports and case series that suggest chiropractic care may be beneficial for at least some children suffering from these childhood disorders.^{1,7,9-16,18}

A number of mechanisms have been postulated that may explain the beneficial effects of chiropractic care reported in patients suffering from asthma.^{1,9,19} These mechanisms may include an increased mobility of the thoracic spine and cage, improved neuromuscular control of respiratory muscles and improvements to aberrant reflexogenic mechanisms associated with neurogenic inflammation that may be caused by vertebral subluxations.^{1,19} Of interest was the child in this case study suffered two recurrences of asthma that appeared to be related to trauma to the head or neck. On both occasions symptoms ceased following chiropractic care and the use of the Ventolin inhaler. Bachman and Lantz described a similar pattern of exacerbation in asthma symptoms relating to trauma that ceased following a chiropractic adjustment in a young child.⁹ It must be noted however that asthma symptoms are often variable over time⁵ which is one reason that case reports are considered to be low on the hierarchy of evidence when assessing the efficacy of an intervention for people suffering from conditions such as asthma.²⁰

Most clinical trials investigating the effects of chiropractic care on patients with asthma have thus far reported inconclusive results and systematic reviews have suggested that there is insufficient evidence to support or refute the use of chiropractic care for patients suffering from asthma.^{19,21} One of the challenges when performing a clinical trial to study chiropractic care is the inability to adequately blind study participants.²¹ Chiropractic care involves more than just the provision of a spinal adjustment. Behavioural and lifestyle advice may be offered, exercises may be prescribed, nutritional information may be given and various other interventions and modalities may be involved in the entire clinical encounter.¹⁹ A number of the clinical trials performed to date may reflect the effect of spinal manipulative therapy alone on asthma and neglect the overall chiropractic clinical encounter which may be equally important to the outcome of the trial.^{19,21}

Medications, such as inhaled corticosteroids, prevent asthma exacerbations but they are unlikely to have a beneficial long-term effect on the natural history of asthma.⁵ However, up to 60% of children using inhaled corticosteroids may be afflicted by one of their adverse side effects.²² Side effects

ASTHMA A CHIROPRACTIC CASE STUDY

POSTLES • HAAVIK TAYLOR • HOLT

associated with long term inhaled corticosteroid use include osteoporosis, tooth loss due to low bone mineral density, cataract formation, dysphonia, oral candidiasis, pharyngitis and chronic sore throats.²²⁻²⁴ Therefore, if effective low risk, non-pharmacological strategies can be identified that may help asthma sufferers this may provide a significant advance in asthma management and prevention.²¹

Besides the improvement in asthma symptoms that occurred in this patient the child's mother also reported that he ceased wetting the bed six weeks into the chiropractic care plan. Although the patient in this case was too young to be diagnosed with nocturnal enuresis it is interesting to note that there may be some correlation between beginning chiropractic care and the cessation of bedwetting. This potential link is supported by a number of case reports,^{9,10,12-14,18} but like asthma, experimental evidence is lacking to validate this link.^{7,25,26}

Conclusions

Despite the inconclusive results published so far in clinical trials investigating the effects of chiropractic care on people suffering from asthma and enuresis the growing number of published case studies and case series suggests further research needs to be conducted in this area. Future clinical trials should investigate the overall chiropractic clinical encounter on patients suffering from childhood disorders and novel research approaches should be considered in order to overcome methodological and ethical issues that hamper the ability of researchers to study an unproven care modality that is difficult to blind in a randomised controlled trial.^{19,21}

ACKNOWLEDGEMENTS

The authors would like to extend their gratitude to Dr Samantha Culley for sharing the information within this case as well as her time for clarifying and ensuring all details within the report specific to the case were accurate.

REFERENCES

- Cuthbert SC. A multi-modal chiropractic treatment approach for asthma: a 10 patient retrospective case series. *Chiropr J Aust.* 2008;38:17-27.
- Asher MI, Stewart AW, Clayton T, et al. Has the prevalence and severity of symptoms of asthma changed among children in New Zealand? ISAAC Phase Three. *N Z Med J.* 2008;121(1284):52-63.
- Holt S, Beasley R. The burden of asthma in New Zealand. Wellington: Asthma and Respiratory Foundation of New Zealand (Inc.), 2001 December 2001. 1,22 p.
- Akinbami LJ, Moorman JE, Garbe PL, Sondik EJ. Status of childhood asthma in the United States, 1980-2007. *Pediatr.* 2009;123(Supplement_3):S131-45.
- Martinez FD. Managing childhood asthma: Challenge of preventing exacerbations. *Pediatr.* 2009;123(Supplement_3):S146-50.
- Global Initiative for Asthma. Pocket guide for asthma management and prevention in children 5 years and younger, 2009. 4 p.
- Glazener CM, Evans JH, Cheuk DK. Complementary and miscellaneous interventions for nocturnal enuresis in children. *Cochrane Database Syst Rev.* 2005(2):CD005230.
- Robson WLM. Evaluation and management of enuresis. *N Engl J Med.* 2009;360:1429-36.
- Bachman TR, Lantz CA. Management of pediatric asthma & enuresis with probable traumatic etiology. *ICA Rev.* 1995;51(1):37-40.
- McCormick J. Improvement in nocturnal enuresis with chiropractic care: A case study. *J Clin Chiropr Pediatr.* 2006;7(1):464-5.
- Hawk C, Khorsan R, Lisi AJ, Ferrance RJ, Evans MW. Chiropractic care for nonmusculoskeletal conditions: A systematic review with implications for whole systems research. *J Alternative Complement Med.* 2007;13:491-512.
- Blomert PR. Functional nocturnal enuresis. *J Manipulative Physiol Ther.* 1994 Jun;17:335-8.
- Sweeney A. Resolution of enuresis with chiropractic adjustments in Romania: Two case reports. *ICA Rev.* 1997;53(4):69-74.
- Gemmell HA, Jacobson BH. Chiropractic management of enuresis: time-series descriptive design. *J Manipulative Physiol Ther.* 1989;12:386-9.
- Leboeuf-Yde C, Pedersen EN, Bryner P, et al. Self-reported nonmusculoskeletal responses to chiropractic intervention: A multinational survey. *J Manipulative Physiol Ther.* 2005;28:294-302.
- Bronfort G, Evans RL, Kubic P, Filkin P. Chronic pediatric asthma and chiropractic spinal manipulation: A prospective clinical series and randomized clinical pilot study. *J Manipulative Physiol Ther.* 2001;24:369-77.
- Reed WR, Beavers S, Reddy SK, Kern G. Chiropractic management of primary nocturnal enuresis. *J Manipulative Physiol Ther.* 1994;17:596-600.
- Culbert TP, Banez GA. Wetting the bed: Integrative approaches to nocturnal enuresis. *EXPLORE: J Sci Healing.* 2008;4:215-20.
- Balon JW, Mior SA. Chiropractic care in asthma and allergy. *Ann Allerg Asthma Immunol.* 2004;93:S55-S60.
- Concato J, Shah N, Horwitz RI. Randomized, controlled trials, observational studies, and the hierarchy of research designs. *N Engl J Med.* 2000 ;342:1887-92.
- Hondras MA, Linde K, Jones AP. Manual therapy for asthma. *Cochrane Database Syst Rev.* 2005(2):CD001002.
- Bhalla RK, Taylor W, Jones AS, Roland NJ. The inflammation produced by corticosteroid inhalers in the pharynx in asthmatics. *Clin Otolaryngol.* 2008;33:581-6.
- Wang JJ, Rochtchina E, Tan AG, Cumming RG, Leeder SR, Mitchell P. Use of inhaled and oral corticosteroids and the long-term risk of cataract. *Ophthalmol.* 2009;116:652-7.
- Han E-R, Choi IS, Kim H-K, et al. Inhaled corticosteroid-related tooth problems in asthmatics. *J Asthma.* 2009;46:160 - 4.
- Kreitz BG, Aker PD. Nocturnal enuresis: treatment implications for the chiropractor. *J Manipulative Physiol Ther.* 1994;17:465-73.
- Leboeuf C, Brown P, Herman A, Leembruggen K, Walton D, Crisp TC. Chiropractic care of children with nocturnal enuresis: a prospective outcome study. *J Manipulative Physiol Ther.* 1991;14:110-5.