



An integrative review of the literature on the chiropractic care of infants with constipation



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ABSTRACT

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Introduction: Constipation compromises the health-related quality of life of children. Chiropractic is a popular alternative therapy for children with constipation. We performed this integrative review of the literature to inform clinical practice.

Methods: Our integrative review of the literature began with an examination of the databases Pubmed [1966–2013], MANTIS [1964–2013] and Index to Chiropractic Literature [1984–2013]. The search terms used were “constipation”, “chronic constipation”, and “bowel dysfunction” in the context of chiropractic. Inclusion criteria involved the care of children 0–18 years old published in the English language.

Results: We found 14 case reports, one case series, and one review of the literature. A number of chiropractic techniques were described with treatment varying according to the diagnosis, chief complaint and age of the patient.

Conclusion: Our integrative review revealed the need for more research and theoretical development on the care of children with constipation.

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1. Introduction

With prevalence estimates ranging from 1% to 80% worldwide [1], constipation is a common problem to those presenting to primary care physicians and gastroenterologists [2]. In a meta-analysis of the literature spanning 34 years (1971–2005), van den Berg and Benninga [3] found the prevalence of functional constipation as ranging from 0.7% to 29.6% in children. Constipation therefore affects a significant proportion of the pediatric population but even more pressing are studies that document their compromised health-related quality of life (HRQoL) in relation to physical complaints and the chronicity of symptoms [4,5]. When the childhood constipation continues into adulthood, their HRQoL is affected negatively with social consequences in 20% of these adults [6].

In the realm of alternative care, parents present their children for care due to chronic recurrent conditions and for health promotion and disease prevention [7,8]. Of the practitioner-based CAM therapies, chiropractic is highly utilized [9] and continually shown to be popular in children's care. These include patients not only diagnosed with constipation but also cancer, neck and back pain, sinusitis, allergies, and headaches to list a few [10,11]. To realize the breath and depth of chiropractic in the care of children with chronic constipation, we performed an integrative review of the literature to inform practice, research and policy.

2. Methods

An integrative review methodology [12] guided our analysis of the literature. Our review sought to identify both empirical and theoretical perspectives in the care of children with constipation. We wanted to characterize the patient population, the nature of their presenting complaint (i.e., possible etiologies, physical examination findings), and the care provided from both the clinical and theoretical framework perspective. Our integrative review began with an examination of the published literature via computer-assisted search using the databases Pubmed [1966–2013], Manual, Alternative and Natural Therapy Index System

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(MANTIS) [1964–2013] and Index to Chiropractic Literature [1984–2013]. The search terms used were “constipation”, “chronic constipation”, and “bowel dysfunction” in the context of chiropractic care. In addition, the Journal of Pediatric, Maternal & Family Health – Chiropractic, Clinical Chiropractic, the Journal of Clinical Chiropractic Pediatrics and the Journal of Canadian Chiropractic Association were hand-searched for additional articles. Study selection criteria included: (1) Manuscripts describing/discussing the care of children (0–18 years of age) with a complaint of constipation without organic cause and; (2) Manuscripts published in the English language regardless of peer-review or not. Full manuscripts obtained were continuously assessed for additional references meeting our inclusion criteria. Abstracts from conference proceedings were not included in this review.

3. Results

The initial search revealed 6 articles from Pubmed, 8 articles from ICL and 29 from MANTIS. Examination of abstracts and full manuscripts for relevance with respect to the inclusion criteria found a total of 16 articles. These consisted of 14 case reports [13–26], one case series [27], and one review of the literature [28] advocating for chiropractic care (Table 1).

A total of 17 children (11 female; 6 males) were described ranging in age from 2 weeks to 8 years. All presented with chronic constipation with the oldest subject suffering from constipation since birth. Medical care consisting of prescribed laxatives (i.e., Miralax) and suppositories, increased fluid intake and a high fiber diet were reported by the parents to be ineffective. Improvement in the subjects' constipation was reported following chiropractic care. Practice variability characterized the chiropractic care with Diversified Technique ($N = 9$) as the most common approach to patient care followed by the Gonstead Technique ($N = 2$) with individuals receiving care with Logan Basic Technique, the Thompson Technique, Laney Technique, Chiropractic Biophysics and Cranio-Sacral therapy (see Table 2). Despite this heterogeneity in technique, a good number of subjects ($N = 9$) were reported to experience bowel movements shortly following their first visit with all patients improving with chiropractic care.

In addition, we found 5 manuscripts describing children with constipation as a secondary complaint. Killinger & Azad [41] described the care of an 11-month-old male with a chief complaint of colic and an associated complaint of severe constipation. The child received upper cervical specific (toggle recoil) technique to the atlas vertebra. Care was provided at 2 times per week for 3 weeks. Following this trial of care, regular bowel movements were reported without the aid of enemas. Gossett [42] described the care of a 13-year-old female with Rett Syndrome. Over the course of 12 weeks of care, the patient had a bowel movement from 1 to 2 times per week to bowel movements per day. The care approach utilized Diversified and Cranial Sacral technique. G  n  reux & Alcantara [43] described the care of a 4 year old male with a chief complaint of facial asymmetry sustained at birth and associated complaints of constipation, hypersalivation, and intestinal gas. Logan Basic, Diversified, and Active Release Techniques were care approaches utilized with a successful outcome with respect to the presenting complaints. Rowell and Stone [44] described intussusception in a 21-month-old female following fluoroscopic radiologic examination. The patient received care consisting of barium enemas and eventual surgery. The patient's abdominal pain, constipation, and lethargy resolved with this care approach. van Poecke and Cunliffe [40] described 33 children receiving care described as the NeuroImpulse Protocol with chief complaints of nocturnal enuresis. Fifteen of the 33 children also presented with constipation. Interestingly, 9 children

with constipation not only resolved in their nocturnal enuresis but also their constipation. Five children did not respond to treatment with their nocturnal enuresis or constipation.

4. Discussion

In order to inform clinical practice, research and health policy, different types of literature reviews have been created. Their comprehensiveness, reproducibility and objectivity of different literature reviews have made them attractive and the method of choice with meta-analysis and systematic reviews being the most popular in chiropractic. For the clinician, combining disparate studies with a critical eye to judge its trustworthiness, its value and relevance in practice is challenging, particularly with research methodologies such as the meta-analysis that may be unfamiliar to the practitioner. The use of a scoring systems to assess methodological quality such as that by Jadad et al. [45] and Downes and Black [46] may facilitate the critical appraisal of the literature but as we pointed out in our systematic review of the literature on chiropractic and asthma [47], scoring systems are arguably flawed, overly simplistic, places too much emphasis on blinding and can have low consistency between different raters. We are painfully aware of this over-reliance on scoring systems in systematic reviews in chiropractic and the lack of critical appraisal by review authors [48–50]. Such errors have led to lack of rigor, contribute to inaccuracy and bias [51] and misinterpretation of the study findings [51–53]. More importantly, such errors have led to failure to capture the breadth and depth of the chiropractic clinical encounter. With the array of perspectives and techniques in chiropractic, the integrative review allows for the varied and disparate perspectives of clinical care in our profession. As made obvious in our methodology, the integrative review allows for the inclusion of diverse methodologies (i.e., experimental versus non-experimental, peer-reviewed versus non-peer-reviewed, theoretical versus empirical data), independent on the evidence hierarchy. As such, this may provide a more comprehensive understanding of the chiropractic care of infants with constipation.

Our integrative review found a great deal of heterogeneity in the approach to patient care. No more than 10 different techniques have been described and as such, comments on the appropriateness of treatment frequencies and duration of care are dependent on the individual history and clinical presentation of each patient as well as the practice choice of the attending chiropractor. This variation in patient care reflects the chiropractic clinical encounter as individualized, personalized and flexible. Despite this heterogeneity, we found a common theoretical framework that makes chiropractic unique and distinct from all other healthcare professions. This common thread posits that changes in the normal biomechanical dynamics (and its associated physiology) of spinal and extra-spinal structures results in altered sensory input to the spine resulting in altered neural integration within motor, sensory and possibly autonomic neuronal pools [54]. Correction of the altered biomechanics via the chiropractic adjustment (commonly referred to by manual therapists as spinal manipulation) results in restoration of function and amelioration of associated symptoms [54,55]. For the clinical scenario of constipation, it is known that the puborectalis muscle, the detrussor muscles of the rectum and the autonomic and somatic nervous systems are involved in the storage and evacuation of fecal material in the rectum. A reflex relaxation of the internal anal sphincter and contraction of the rectal detrussor muscles occurs upon distention of the rectum. With defecation, the puborectalis and levator ani muscles are relaxed. With increased intra-abdominal pressure as a result of straining, feces is evacuated from the rectum. If defecation is withheld, the external anal sphincter contracts until the rectal wall adapts to the distention and

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