REVIEW ARTICLE

The Chiropractic Care of Infants with Colic: A Systematic Review of the Literature

Joel Alcantara, DC,[1,2,3#] Joey D. Alcantara, DC,[4] and Junjoe Alcantara, DC[3]

Purpose: To perform a systematic review of the literature on the chiropractic care of patients with infantile colic.

Methods: The following databases were interrogated: MANTIS [1965-2010]; Pubmed [1966-2010]; Index to Chiropractic Literature [1984-2010]; EMBASE [1974-2010]; AMED [1967-2010]; CINAHL [1964-2010]; Alt-Health Watch [1965-2010], and PsychINFO [1965-2010]. Inclusion criteria were manuscripts addressing the chiropractic care of infantile colic published in the English language.

Results: Our systematic review of the literature revealed 26 articles meeting our inclusion criteria. These consisted of three clinical trials, two survey studies, six case reports, two case series, four cohort studies, five commentaries, and four reviews of the literature. Our findings reveal that chiropractic care is a viable alternative to the care of infantile colic and congruent with evidence-based practice, particularly when one considers that medical care options are no better than placebo or have associated adverse events.

Conclusions: Chiropractic care is an alternative approach to the care of the child with colic. We encourage more research, both quantitative and qualitative, in this area of pediatric care.

Key words: chiropractic, infantile colic

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INTRODUCTION

A common definition of colic comes from Wessel and colleagues'[1] "rule of 3": "crying during at least three hours per day on at least three days of at least three weeks . . . " There are other definitions of colic but common to all is excessive crying on the part of an infant that causes a great deal of distress, particularly for first-time parents. The occurrence of infantile colic in the population varies and ranges from 10% to 40% depending on the study methodology, the population, and the definition of infantile colic used.[2-5] Excessive crying in infants is a serious problem and has negative consequences for both the parents and their child. Levitzky and Cooper[6] found mothers experiencing both physical and psychological symptoms in response to their infant's colic. Thoughts and fantasies of aggression and even infanticide occurred at times during their infant's colic episodes. Abuse is a concern in these situations such as slapping, hitting, or shaking the baby.[7,8] Not surprisingly, marital tension and social disruption within the family and poor sleeping habits and frequent temper tantrums on the part of the child were reported, even well past the course of the child's colic symptoms.[9,10] Our review of the literature indicates that medical interventions are generally ineffective, and that the potential for harm from pharmaceutical interventions motivates parents to seek alternative care approaches.[11,12] Of the practitioner-based alternative therapies, chiropractic is the most popular for children.[13] In the care of infants with colic, the chiropractor has a significant role to play with direct hands-on chiropractic care (i.e., chiropractic spinal manipulative therapy [SMT] and adjunctive therapies) as well as in the role of health educator and parent counselor. In the interest of and to inform evidence-based practice, we performed a systematic review of the literature on the chiropractic care of children with infantile colic.

METHODS

We performed a systematic review of the literature using the following databases: MANTIS [1965-2010], Pubmed [1966-2010], Index to Chiropractic Literature [1984-2010], EMBASE [1974-2010], AMED [1967-2010], CINAHL [1964-2010], Alt-Health Watch [1965-2010], and PsychINFO [1965-2010]. The authors independently reviewed the title and abstracts of all articles generated from the electronic database search, from the reference lists of relevant articles and other data sources subsequently retrieved. The full manuscript of reports relevant to the chiropractic care of children with colic were retrieved by applying the following eligibility criteria: (1) The manuscript was of a primary investigation/report (ie, case reports, case series, case control, randomized controlled trials (RCTs), and survey or surveillance studies) published in a peer-reviewed journal in the English language; (2) part or all of the study population involved patients 18 years or younger; and (3) the topic involved the chiropractic care of a patient with colic. Key words used were colic, infantile colic, cry baby, excessive crying, and related words as appropriate in the context of chiropractic care incorporating the Boolean operators (ie, AND, NOT, and OR). Additionally, chiropractic journals (ie, *Journal of Manipulative and*

1 International Chiropractic Pediatric Association, Media, PA
2 Life Chiropractic College West, Hayward, CA
3 Private Practice of Chiropractic, San Jose, CA
4 Private Practice of Chiropractic, Calgary, AB, Canada
This study was funded by the International Chiropractic Pediatric Association (Media, USA) and Life Chiropractic College West (Hayward, CA)
Corresponding Author. Address:
International Chiropractic pediatric Association Research, 327 North Middletown Drive, Media, PA 19063
e-mail: dr_jalcantara@yahoo.com

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Physiological Therapeutics, Journal of the Canadian Chiropractic Association, Clinical Chiropractic, The Chiropractic Journal of Australia, and the *Journal of Clinical Chiropractic Pediatrics*) were hand searched for the last five years for possible relevant materials. The gray literature was also searched as well as the bibliography lists of all retrieved articles and relevant studies.

The authors independently extracted data using a structured form. The key data extracted were: type of publication (ie, case report, RCTs, etc), subject characteristics (ie, age and gender), diagnosis, type of SMT/technique employed, as well as findings of interest (ie, outcome). Any discrepancies between reviewers with respect to the extracted data were discussed and resolved by referring to the original report. The information gathered forms the basis of our narrative review.

RESULTS

Our systematic review of the literature revealed 26 articles meeting our inclusion criteria. These consisted of three clinical trials,[14-16] two survey studies,[17,18] six case reports,[19-24] two case series,[25,26] four cohort studies,[27-30] five commentaries,[31-35] and four reviews of the literature.[36-39]

The clinical trials on infantile colic with chiropractic SMT involved the following. In a randomized clinical trial, Wiberg et al[14] examined the response of subjects under chiropractic care (N = 25) versus those given dimethicone (N = 16), a commonly prescribed medication for colic. Based on parental daily diary for hours of crying, the subjects in the chiropractic group did significantly better. Olafsdotir et al[15] examined subjects randomized to a chiropractic SMT group (N = 46) versus a no-treatment group (N = 40). The parents were blinded to the type of care their child received and in addition to a daily diary of hours of crying, they were asked to rate their child's response to care as "getting worse," "no improvement," "some improvement," "marked improvement," and "completely well." Essentially, the investigators found the subjects in both groups responded similarly leading Olafsdottir et al[15] to conclude that, "Chiropractic SMT is no more effective than placebo in the treatment of infantile colic." Browning et al,[16] in a randomized clinical trial, examined the response of subjects to chiropractic SMT (N = 22) versus occipitosacral decompression treatment (N = 21). The children were crying an average of more than three hours per day for at least four of the last seven days. By the end of the first week of the trial, the average number of hours of crying was reduced by an average of 2.1 hours/day in the SMT group and 2.0 hours/day in the occipitosacral decompression group. By the end of two weeks, the number of hours of sleep had increased in both groups: 1.7 hours/day in the SMT group and 1.0 hours/day in the occipitosacral decompression group. Four weeks after initiation of the study, 82% of the SMT group, and 67% of the occipitosacral decompression group had resolved colic.

One of the first to document in the peer-reviewed literature on the possible effectiveness of chiropractic care in infantile colic was Nilsson.[17] In a retrospective uncontrolled questionnaire, Nilsson examined the presenting complaints, number of visits, change in patient symptoms, and number of days required to achieve positive changes in children presenting to multiple chiropractic practices (N = 10). Based on the response of 189 of 200 parents, the most popular presenting complaint was colic (N = 132). A majority of the parents indicated perceived effectiveness on the part of chiropractic with 70 of the 189 deemed "cured" while 48 improved and 12 were reported as "unchanged." No child was reported as "worse" with chiropractic care. Hestbaek et al,[18] in a survey of chiropractic clinics in Denmark to characterize the care of patients 18 years or younger, found that babies 0 to 4 months of age were the most common pediatric patients and infantile colic was the most common presenting complaint.

With respect to case reports, Pluhar and Schobert[19] described the care of a 3-month-old female suffering from colic in addition to sleep interruption and poor appetite. The patient was medically diagnosed and prescribed Levsin and Semithicone, which provided only temporary effectiveness. Following a trial of full-spine chiropractic adjustments, the patient's symptoms improved based on direct observation and parental reports. Cuhell[20] described the care of a 12-day-old male with colic and excessive intestinal gas. An initial trial of chiropractic care resulted in limited success. The addition of nutritional supplementation and continued chiropractic care resulted in resolution of the child's symptoms. Van Loon[21] presented the care of a three-month-old male with medically diagnosed colic. Medical care consisted of change in his infant formula to a soy-based formula followed by a change to evaporated milk with water and finally to corn syrup and boiled water with no improvement. The patient's crying became so severe that his mother presented him to an emergency facility on two consecutive days. Blood work and chest X-ray examination were unremarkable and a prescription of Pedialyte was not helpful. The patient received chiropractic adjustments along with craniosacral therapy with positive outcomes. Killinger and Azad[22] presented the care of an 11-month-old male with severe, complicated, late onset infantile colic. At 5½ months of age, lancing was performed to facilitate dentition. Following surgery, the patient began to develop severe digestive problems, severe constipation, developmental delays, and restless sleep. Upper cervical specific chiropractic adjustments directed at the atlas resulted in positive outcomes. Sheader[23] described the care of an infant with symptoms of colic and breastfeeding difficulties. The patient presented with a rash, excessive crying, shaking, screaming, and vomiting during and after feeding. Commercial baby formulas were tried but were unsuccessful and resulted in constipation. The formula Nutramigen was prescribed resulting only in a mild rash, but the crying, shaking, and screaming continued. The patient responded positively to chiropractic adjustments focused to the upper cervical spine. Hewitt[24] described the care of an eight-week-old female described by her mother as a "fussy, high maintenance" baby. The child suffered from increased gas, difficulty falling asleep, and a strong preference for nursing on the right breast. Chiropractic examination revealed cervical spine and cranial dysfunctions. Care provided utilized Diversified Technique and cranial therapy. Following five visits over a three-week period, the infant no longer was irritable, went to sleep easily, was able to turn her head more fully to the right, and nursed well on both breasts. Long-term follow-up six months later revealed the child with continued good health.

Leach[25] described in a case series presentation the care of two infants with pediatrician-diagnosed infantile colic. The interven-