

Effectiveness of Massage Therapy for Treatment of Infantile Colic

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Abstract

Background: To compare modes of administration of massage therapy for management of infantile colic.

Methods: This prospective study included exclusively breast fed infants less than 4 months of age and diagnosed as cases of infantile colic. Patients were randomly assigned to receive a standard massage either during colic episode (group A) or as daily care (group B) or no intervention at all (group C). Change in mean duration of crying (minutes/day) was primary outcome while weight gain and number of patients showing 50% reduction in crying time were secondary outcomes.

Results: A significant reduction of crying time was observed only in group A compared to other two groups ($p < 0.005$) on day 7, 14 and 21 of therapy. Majority of patients (90.3%) in group A showed 50% reduction in basal crying time. Patients in group A showed better weight gain compared to group B and group C but this was not significant (p value = 0.385).

Conclusion: Massage therapy is better than no intervention for colic.

Key Words: Massage therapy, infantile colic

Introduction

Infantile colic is one of the most common ailments of early age and a frequent cause of excessive crying in infants 3 weeks to 3-4 months of age.¹ Infantile colic also causes parental anxiety.² The term colic refers to paroxysms of irritability and excessive crying lasting for a total of three hours a day and occurring on more than three days for one week in otherwise healthy infants according to Rome III criteria.³ It helps to relieve infantile colic by stimulation of digestive system and intestinal motility to get rid of trapped gas relieving colic. It stimulates melatonin secretion and rest-activity rhythms in full-term infant thus helping to relax infants and urge them to sleep.⁴

Infantile colic is easily recognized but its pathological basis is not completely understood.⁵ The postulated etiology includes food hypersensitivity or allergy, immaturity of gut function and dysmotility, and

certain infantile behavior problems like inadequate maternal-infant bonding, maternal anxiety and difficult infant temperament. Hormone changes and maternal smoking as well as alterations in the gut microflora, have been implicated⁶.

Mothers frequently use various home remedies to eliminate colic in their infants. Massage therapy is one of many interventions which is non-pharmacological alternate to traditional medicines for management of infantile colic.⁷ It is known that massage therapy helps to strengthen mother to infant bonding and as well as relaxes babies.⁸ It has shown positive results in cerebral palsy, autism, prematurity and asthma.^{9,10} A few studies have been conducted to assess the efficacy of this modality for infantile colic with variable results.⁹⁻¹¹ Majority of studies looked into effect of massage therapy administered during an episode of crying and colic. Massage has been compared with no intervention or alternate therapies like herbal tea, hydrolyzed formula or crib vibrators.^{12,13}

Patients and Methods

This prospective randomized controlled study was conducted at general paediatrics outpatient clinic of POF Hospital Wah Cantt from September 2011 to December 2012. All the exclusively breast fed infants 1-4 months of age and fulfilling Rome III criteria for diagnosis of infantile colic were eligible to enter the study.³ Exclusion criteria included history of birth anoxia, congenital defects and disorders, any coexisting illness, low birth weight, developmental delay, prematurity, failure to thrive and use of interventions other than massage for treatment of infantile colic. All the infants enrolled in the study were randomly assigned to three groups. Group A received standard massage therapy at every diaper change for five minutes. Group B received same standard massage therapy for same duration only during the colic episode and in group C no intervention was done. Duration of crying was noted for 3 days before starting the massage therapy for every infant enrolled and the average was taken as base line duration of crying. Every infant included in the study had total three once weekly follow up visits at day 7, day 14 and day 21 after starting standard

massage therapy. A change in the daily mean duration of crying from baseline to day 21 in the three groups was compared as the primary outcome. Secondary outcome compared was the number of children in each study group demonstrating 50% reduction in mean duration of crying at the end of study period and weight gain in this duration (Table 1).¹⁴

Table 1: Standard massage therapy¹⁴

Before initiation	Drizzle one teaspoon of oil on hands and rub them together. Undress baby, but leave the diaper on loosely. Place the baby on his back on a flat surface.
Part: 1 2 minutes	Place one palm under the baby's chin, with fingers pointing toward baby's shoulder. Draw hand down baby's chest, and into the diaper area. The stroke should be smooth and firm enough to feel the "dip" when your hand leaves the ribcage. As one hand is around the belly button, place the opposite hand under the chin and stroke downward, so that hands are making circles over the baby, with one hand always stroking.
Part: 2 1 minute	Baby is still flat on his/her back. Place the baby's heel up next to bottom by bending his knee sharply. Move the leg, still sharply bent, until the top of the thigh rests against the tummy. Get both legs in this position. Grab the baby's ankles and gently straighten the knees gradually until his legs are straight. Repeat many times.
Part: 3 2 minutes	Using your fingers/palm circle the belly button in a clockwise motion.

Results

Majority of children were born through spontaneous delivery (Table 2). Massage therapy was demonstrated to only mother in 92% cases and to both parents in 8%. In majority of cases mother alone gave the massage to baby while in 6.6% cases fathers also participated in the therapy. The mean baseline crying time per day was not significantly different in three study groups (Table 3). By the end of study period some reduction in mean crying time was observed in all three groups. Mean crying time of infants in group A was significantly less when compared to group B and group C respectively as early as day 7 of intervention (Table 4). Infants in group B showed greater reduction in crying time as compared to group C but the difference was not statistically significant (Table 5). On day 21, 28 infants (90.3%) in the group A had 50% reduction in crying time (responders) while 8 infants (26.6%) in group B and 9 infants (25%) in group C were responders (Table 6).

Infants in group A had 350 gm of mean weight gain during the study period. Weight gain was 330 gm and 340 gm in group B and group C respectively. Weight gain in Group A was not significant than other groups (p value 0.385). These results have shown the beneficial role of massage therapy in cases of infantile colic compared to no intervention. Massage therapy, if administered prophylactically at each diaper change, is more effective in relieving colic as compared to massage given during episode of colic.

Table 2: Baseline Characteristics of infants in three study groups

Variable	A (n=31)	B (n=30)	C (n=36)
Gender, male/female	18/13	17/13	21/15
Birth weight, mean, SD, kg	3.26 ± 0.38	3.20 ± 0.38	3.28 ± 0.37
Age at enrollment, mean (range), days	31.0(11-80)	30.5(12-78)	31.5(14-74)
Delivery, spontaneous / caesarean	22/9	24/6	20/16

Table 3: Comparison of mean crying time between group A and group C

Day	Crying time (minutes)			p- Value
	A	C	Difference	
0	244	243	1	0.987
7	204	229	-25	<0.001
14	157	203	-46	<0.001
21	95	177	-82	<0.001

Table 4: Comparison of mean crying time between group A and group B

Day	Crying time (minutes)			p-Value
	A	B	Difference	
0	244	246	-2	0.98
7	204	222	-18	0.005
14	157	196	-39	<0.001
21	95	182	-81	<0.001

Table 5: Comparison of mean crying time between group B and group C

Day	Crying time (minutes)			p- Value
	B	C	Difference	
0	246	243	3	0.983
7	222	229	-7	0.94
14	196	203	-7	0.93
21	182	177	-5	0.753

Table 6: Responders vs. non responders in three study groups

Participants	Responders	Non responders	Total
Group A	28(90.3%)	3(9.7%)	31
Group B	8(26.6%)	22(73.4%)	30
Group C	9(25%)	27(75%)	36

Discussion:

Massage therapy, for infantile colic is a widely used practice.^{15,16} Studies suggest benefits of massage therapy for sleep, respiration, elimination and the reduction of colic and wind. Infant massage is also thought to reduce infant stress and promote positive parent-infant interaction. There are benefits of massage therapy on mother-infant interaction, sleeping and crying, and on hormones influencing stress levels.¹⁷ Mothers reported most benefit from natural therapies like massage and the least from drug treatments.¹⁸ Studies showed that to foster muscle relaxation and strengthen the bones daily massage is universally practiced by mothers.¹⁹⁻²¹

In one such study conducted in Turkey the massage therapy using lavender oil was employed and was found useful.²² In our study however mustard oil was used by mothers, as it is commonly used in our households. Confounding factors like different feeding practices, causes of crying other than colic and use of interventions other than massage were tackled by using them as exclusion criteria in present study. In the absence of an effective pharmacological treatment for colic many researchers have looked into alternative therapeutic options.^{23,24} Studies compared massage with interventions like vibrator therapy, herbal tea and hydrolyzed formula etc.^{11,12,25.}

Studies on massage therapy demonstrated reduction in length of crying time of infants and reduction in colic symptoms.^{13,22} Present study also revealed comparable results, with 90% parents in group A reporting 50% reduction in crying time. However a proportion of this response may be attributed to the natural course of infantile colic which is spontaneous reduction in colic with the passage of time.

Conclusion

Massage therapy administered to healthy breast fed infants as part of routine daily care was more effective in eliminating colic as compared to massage therapy given during a colic episode.

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