

Infantile Colic: Incidence and Effectiveness of Conventional Therapy

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Abstract

Introduction: Infantile colic is defined as excessive crying for more than three hours a day at least three days a week for one week or more in an otherwise healthy baby. It is most frequently observed in neonates and infants aged two weeks to four months.

Objective: To assess the incidence of infantile colic and effectiveness of conventional therapy.

Materials and Methods: This was a prospective cross sectional study of 50 cases carried out in Paediatric out patient department in Combined Military Hospital (CMH) Ghatail during the period of September 2010 to August 2012. Data recorded including demographics, clinical presentations, management and the outcome of therapy.

Results: Out of the total 50 patients, 24(48%) were male and 26(52%) were female. Male:Female=1:1.08. Babies delivered vaginally suffered more 32(64%), full term delivered babies 33 (66%) suffered more than that of gestational age group <37 wk. Non-exclusive Breastfed (Formula fed, combination of breastfed and formula fed) babies having more incidence of colic 31(62%). Maximum patients 26(52%) had history of cry 4-5 hours per day. Motion (Rocking, bouncing, walking etc) 18(36%), change of diet 14(28%) were considerable satisfactory treatments.

Conclusion: Since it is a self limiting condition, conventional therapy should be tried for instant relief.

Key-words: Infantile colic, Incidence, Effectiveness of therapy.

Introduction

An infant is not supposed to be quiet even if completely healthy. Crying is one of the few ways in which an infant can express his or her emotions and one of the most powerful means of communication¹.

Infantile colic is a condition in which an otherwise healthy baby cries or screams frequently and for extended periods, without any discernible reason. The condition typically appears within the first month of life and often disappears, often very suddenly, before the baby is three to four months old, but can last up to 12 months of life².

Persistent infant crying is much more than a parenting nuisance. Crying and the exhaustion associated with it can trigger serious problems, such as relationship stress³, breastfeeding failure⁴, shaken baby syndrome (also known as abusive head trauma- the leading cause of child abuse fatalities)⁵, postpartum depression (affecting 10-15% of new mothers and many new dads)⁶, excess visits to the doctor/emergency room (1 in 6 children are brought to the doctor/emergency rooms for evaluation of persistent crying)⁷, unnecessary treatment for acid reflux^{8,9} and maternal smoking¹⁰. Crying and exhaustion may also contribute to Sudden Infant Death Syndrome (SIDS) and suffocation (from agitated babies flipping onto their stomachs, concerned parents placing fussy babies on the stomach to sleep, tired parents falling asleep with their baby in unsafe places- like couches or beds with bulky covers)¹¹, infant obesity¹², maternal obesity¹³ and even automobile accidents¹⁴.

This study in addition to its 50 patients undertook a systematic review of all conventional therapies for infantile colic. The goal of this study was to present the findings in a coherent and systematic way so that practitioners can evaluate each potential therapy in terms of its proven benefits and risks as well as the rigor with which it has been evaluated.

Materials and Methods

This was a prospective cross sectional study and was carried out in Paediatric out patient department in Combined Military Hospital (CMH) Ghatail during the period of September 2010 to August 2012.

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A total 50 patients diagnosed as infantile colic were studied. Colic was defined according to modified Wessel's criteria as episodes of fussy crying that lasted 3 or more hours a day and episodes that lasted for 3 or more days in the week before enrollment in the study. Upon agreement to enter into the study, a detailed history was taken from the patient's attendant. Data recorded including demographics, clinical presentations, laboratory investigation reports and management. All the patients were followed up regularly in Paediatric out patient department.

Results

The youngest patient of this series was 3 weeks of age. Male 24(48%) and Female 26(52%); Male:Female =1:1.08. Maximum patients (48%) fall in 1-3 months age group (Table-I).

Table-I: Age and Sex distribution (n=50)

Age(Months)	Male	Female	Total	%	M:F
<1	04	05	09	18	1:1.08
1-3	06	05	11	22	
3-6	08	10	18	36	
6-9	02	04	06	12	
9-12	04	02	06	12	
Total	24	26	50	100	

Babies delivered vaginally suffered more 32(64%), full term delivered babies 33(66%) suffered more than that of gestational age group <37 wk. Incidence of colic was less in low birth weight babies 12(24%). Dietary history shows Non-exclusive Breastfed (Formula fed, combination of breastfed and formula fed) babies having more incidence of colic 31(62%)(Table-II).

Table-II: Comparison of potential predictors of infantile colic (n=50)

Factors		Patients (n)	%
Mode of Delivery	Vaginal	32	64
	Cesarean	18	36
Mother's Age	? 19 years	11	22
	20-35 years	25	50
	> 35 years	14	28
Gestational age at birth	≥ 37 wk	33	66
	< 37 wk	17	34
Birth Weight	≥ 2500 g	38	76
	< 2500 g	12	24
Birth Order	First born	34	68
	Later born	16	32
Mode of Feeding	Exclusive breastfed	19	38
	*Non-exclusive breastfed	31	62

*Non-exclusive Breastfed=Formula fed, combination of breastfed and formula fed

Maximum patients 29(58%) had history of cry 3-4 hours per day (Table-III).

Table-III: Duration of crying (n=50)

Duration of crying	Number of patients	(%)
3-4 h/d	29	58
4-5 h/d	19	38
> 5 h/d	02	04

Multimodal treatment was offered. Among them motion (Rocking, bouncing, walking etc) 18(36%), change of diet 14(28%) were considerable satisfactory measures (Table-IV).

Table-IV: Positive response to treatment (n=50)

Positive response to treatment	Patients	(%)
Motion (Rocking, bouncing, walking etc.)	18	36
Drugs (Antihistamin, simethicone, phenobarbital)	05	10
Change of diet	14	28
Pacifier or water (Oral gratification)	02	04
Warmth to abdomen	02	04
Pressure to abdomen	05	10
Increased caloric intake (25% Glucose)	01	02
Enema / Glycerine suppository	03	06

Discussion

The medical definition of colic is a healthy baby with periods of intense, unexplained fussing/crying lasting more than 3 hours a day, more than 3 days a week for more than 3 weeks¹⁵. However, many doctors consider that definition, first described by Dr. Morris Wessel, to be overly narrow and would consider babies with sudden, severe, unexplained crying lasting less than 3 hours/day as having "colic" (so-called "non-Wessel's" colic)¹⁶.

In some study incidence of infantile colic affecting as many as 16% to 26% of newborn children in the first months of life¹⁷ which was 20% in this study. The cumulative incidence rate of colic in the first 3 months of infancy was 48% in this study. This rate defined the occurrence of colic using the criteria proposed by Wessel, which are the criteria for diagnosis of colic in infants, which has gained most acceptance¹⁸. This study showing no difference regarding gender for colic presentation is in accordance with most other reports¹⁹. A birth weight of <2500g or a cranial circumference of <35cm are in one study associated with a higher risk of developing infantile colic²⁰. This is contradictory to this

result, where incidence is more in birth weight \geq 2500g. Some studies showed a higher risk of firstborns getting infantile colic¹⁹ while another study, showed no increased risk. In this study the incidence was higher (68%).

Maternal age has in different studies either no correlation with the risk of having an infant with colic or results in an increased tendency for mothers younger than 25 and older than 35 to have a greater risk²¹. It does not correlate with this result. Most possible cause may be this study group, who are from military background; where many of these couples complete their family before 35 years of maternal age. In a study the incidence of colic is more in babies delivered vaginally¹⁹ which is similar to this study.

In Recife, a study showed that children fed exclusively at the maternal breast have a three times less chance of presenting colic when compared with non-breastfed children²². Here Non-exclusive breastfed babies suffered more (62%) than that of exclusive breastfed babies.

At first glance, a gastrointestinal (GI) theory of colic seems logical because fussy babies often: grunt/pass gas/double-up/cry after eating; have noisy stomachs; improve with tummy pressure, warmth or massage; may improve with pain medication (e.g. paregoric, also referred to as tincture of opium) However, 85-90% of colicky babies have no evidence of GI abnormality²³. Today, it is fairly well established that there are a variety of causes of colic symptoms, the most common of which include: stomach gas (due to poor burping), intestinal gas (pocketed in the intestinal tract), neurological overload (the overwhelmed and overstimulated baby that becomes exhausted) and even a muscular type of colic (perhaps due to muscle spasm and birth trauma).

Unclear aetiology, diffuse criteria for normal crying and no known relief-giving, safe and effective treatment make it difficult for health staff meeting parents who are seeking help for infantile colic. There are no clear management guidelines for the treatment of infantile colic and no evidence-based cures²⁴. Complementary and alternative medicines often are advocated for infantile colic, yet there has been no synthesis of the evidence to inform current practice about their use²⁵.

Over the past 15 years, many thousands of fussy babies have been given medicine in the belief that their colic was caused by painful acid reflux, so-called gastro-esophageal reflux disease (GERD). From 1999-2004, the use of a popular class of liquid antacid (proton pump inhibitor, or PPI) in young children increased 16 fold²⁶.

Simethicone, a safe, over-the-counter drug for decreasing intraluminal gas, has been promoted as an agent to decrease colicky episodes. A randomized, placebo-controlled, multicenter trial concluded that treatment with this agent produces results similar to those of placebo. Two other RCTs found no benefit for treatment with simethicone. Systematic reviews of studies using anti-cholinergic drugs in the treatment of colic found them to be more effective than placebo. The most commonly used agent is dicyclomine²⁷. Current evidence suggests that dietary modifications may reduce colic in only a very small minority of infants²⁸. Change of diet shown improvement in 14 cases (28%) in this study.

In an NIH funded pilot project by researchers at Penn State University, 80 new mothers were taught the "5S's." Breastfeeding mothers taught this method reported that their babies had significantly increased sleep (30-45 min/avg) and significantly reduced trend to obesity at 1 year of age (when combined with simple dietary advice)¹². The "5 S's" approaches are:

1. Swaddling²⁹ (safe swaddling carefully avoiding overheating, covering the head, using bulky or loose blankets³⁰ and allowing the hips to be flexed)³¹;
2. Side or stomach (holding a baby on the back is the only safe position for sleep, but it is the worst position for calming a fussy baby);
3. Shhh sound (making a strong shush sound near the baby's ear or using a CD of womb sound/white noise)³²;
4. Swinging the baby with tiny jiggly movements (no more than 1" back and forth) always supporting the head and neck³³;
5. Sucking (Letting the baby suckle on the breast, your clean finger or a pacifier).

This study proved the effectiveness of the above measures. A study on Premature Infant Pain Profile scores and crying time indicate poorer effects of expressed breast milk compared with 25% glucose during heel lancing³⁴. In this study 01 (2%) patients shown improvement with 25% glucose. Persistently fussy babies with poor weight gain, vomiting more than 5 times a day, or other significant feeding problems should be evaluated by a healthcare professional for other illnesses (e.g. urinary infection, intestinal obstruction, acid reflux)³⁵.

Conclusion

Babies are just getting accustomed to this world and, as they grow older, their colic will eventually subside. Their digestive systems will learn how to function well. In the first three months of life, babies are not well-equipped to calm themselves. Self-calming is a skill that develops slowly over time and at different rates in children. Infant colic is not an inconsequential disorder, it may have disastrous effects on the baby and the family. Education about how to cope with the situation and utilise extended family help as well as social services, combined with a trial of dietary modification, may be better treatment than initially trying medications for the baby.

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