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Infantile Colic in Less than 1 Year Old Infants: Prevalence, Characteristics and Risk Factors, A Population-Based Study

Parichehr Tootoonchi

Associate professor of pediatrics, Pediatric department. Faculty of Medicine, Tehran Medical sciences, Islamic Azad University, Tehran. Iran

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Abstract

Background: *Infantile colic (IC) is a very common disorder in infancy which is a benign, self- limiting condition, however is very worrisome for the parents. In definition, it characterizes by persistent and inconsolable crying occurs in an infant who is usually healthy. The underlying cause of IC still is unclear.*

Material and Methods: *For determining prevalence, characteristics and risk factors of IC in infancy, a cross-sectional study designed in south of Tehran, capital of Iran. This study has performed in 450 infants. Each one of the infant's mothers has undergone an interview for filling the pre-structured questionnaire by trained personnel. The questionnaire included the infants' characteristics such as, age, sex, maternal age, type of consumed milk, time of beginning of supplemental food, the infant delivery type, birth order, gestational age or birth weight, atopy in the infant, history of allergy in the infant's father, mother or siblings, history of IC in the siblings, maternal age, and education as well as continuous crying or fussiness without any etiology. In infants with IC, the age onset or abate for IC, average duration of each episode, the average frequency of each episode per day, the relation of each episode to infant's feeding, sleep or burping and the methods have been used for relieving the colic episode have been asked from the infants' mothers.*

Results: *The prevalence of IC was 55%. Based on Wessel criteria, 10% of the cases involved with IC. Besides, it occurred in males more than females (58%). 70% of the cases happened in less than 6- month- old infants. 72% of the cases started IC less than 1 month of age and 40% of the colic episodes abated less than 4 months of age. Average duration of each colic episode has taken less than 10 minutes in most of the infants (44%) and average frequency of colic episode mostly occurred less than 3 times per day (60% of cases). Although, coddling was the most effective method for relieving the colic bouts (86%), consuming drugs were effective in 78% of the cases and 22% of the cases didn't respond to any method or drug. History of colic in the siblings was positive in 23% of cases.*

Conclusion: *Despite most of our findings are in consistent with the results of other research, it sounds that the prevalence of IC is high in our population. With regard to the type of our study and reliance of the data on the mothers' recall, performing perspective population-based studies with using daily diary notes due to colic episodes in infants highly recommended.*

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***Corresponding author**: Parichehr Tootoonchi, Associate professor of pediatrics, Pediatric department. Faculty of Medicine, Tehran Medical sciences, Islamic Azad University, Tehran. Iran.

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Introduction

Infantile colic (IC) is a common benign self-limited condition occurs in early infancy; however, it causes high grade of anxiety and distress in the care givers and is a frequent reason of consultation with pediatricians. There are famous diagnostic criteria for infantile colic proposed firstly by Wessels as the Wessels "Rule of 3," which is bouts of fussiness and crying that last at least 3 hours a day for 3 or more days a week for over 3 weeks. Recently, Rome IV criteria revised this definition to "recurrent and prolonged periods of crying, fussing or irritability" reported by caregivers that occur without obvious cause and cannot be prevented or resolved' in infants < 5 months. The prevalence of IC is varied between 5 -20%. The IC diagnosis is clinical after taking a thorough history and doing a complete physical examination to rule out any other organic diseases. The most important management strategy for treatment is parental education and reassurance as well as explanation about the natural history of the condition. Moreover, as far as knowledge is concerned, there is no absolute management or interventional method for preventing or treating this disorder. Generally, IC abates during the first 3-4 months of life [1-9].

Material and Methods

For determining prevalence, characteristics and risk factors of IC in infancy, a cross-sectional study designed in south of Tehran, capital of Iran. Primarily, 5 health centers have selected from 33 health centers randomly. Then, 90 infants who have attended in each health centers for performing growth monitoring, health care or vaccination have selected conveniently. Each one of the infant's mothers has undergone an interview for filling the pre-structured questionnaire by trained personnel. The questionnaire included the infants' characteristics such as, age, sex, type of consumed milk, time of beginning of supplemental food, the infant delivery type, birth order, gestational age or birth weight, history of atopy in the infant, history of allergy in the infant's father, mother or siblings, history of IC in the siblings, maternal age and educational level. When the infant has positive history of crying or fussiness, the following questions have been asked: existence of each of these symptoms during colic episode included abdominal distension, flushing the face, and/or continuous crying or fussiness without any etiology. Besides, the age onset for IC, average duration of each episode, the average frequency of each episode per day, the relation of each episode to infant's feeding, sleep or burping, and the age for IC abates as well as the different methods used for relieving the colic episode have been asked separately from mothers.

Findings

In this cross-sectional study, 450 less than 1- year infants have studied. The prevalence of IC was 55% (248 cases). IC happened more frequently in males than females (58% versus 42%) (Table1). Moreover, low birth weight (6.5%) or premature babies (8%) have involved less than normal birth weight (93.5%) or term babies (92%) with IC. Most of the cases were firstborn (59%). Frequency of breast feeding was high (86%) among cases involved with IC. Supplemental food in 50% of the involved infants has started before 6 months of age. Furthermore, 23% of the involved infants had positive history of IC in their siblings. Percent of the delivery method was almost the same in infants with IC (49% vaginal versus 51% cesarean section). 87% of the mothers of cases were in the 20-35year-old category and most of them (56%) had diploma or higher education level. History of atopy was positive in 94 babies (38%), however, the history of allergy in the cases' fathers, mothers or siblings was low (12%, 18%, 3% respectively) (Table 1). Generally, there was significant statistical relation between IC and history of atopy in the cases (p value <0.001), however, no other infants' characteristics has shown this significant relation with IC.

Table 1: The Frequency and Percent of the Characteristics in the Involved Infants

Infant Characteristic	Number	Percent	Infant Characteristic	Number	Percent
Age			Atopy in the infant		
<2 months	42	17	Yes	94	38
2-3 months	67	28	No	154	62
4-6 months	60	24	Allergy in the infant's mother		
7-9 months	41	16	Yes	45	18
10-12 months	38	15	No	203	82
Sex			Allergy in the infant's father		
Male	144	58	Yes	29	2
Female	104	42	No	219	88
Gestational age(week)			Allergy in the infant's siblings		
<37	20	8	Yes	7	3
=>37	228	92	No	241	97
Birth weight(gram)			Birth order of the infant		
<2500	16	6.5	1	145	59
=> 2500	232	93.5	2	75	30
Feeding milk			=>3	28	11
Breast milk	213	86	Maternal age		
Mixed	35	14	20 year	25	10
Age of starting supplemental food			20-35 year	215	87
<6 months	125	50.4	>35 years	8	3
=>6 months	123	49.6	Maternal education		
History of colic in the siblings			Illiterate	20	8
Yes	57	23	Primary school or high school	88	36
No	189	77	=>Diploma	140	56
Infant's delivery method					
Vaginal	122	49			
Cesarean section	126	51			

With regard to colic episode characters in the cases, 72% of the cases started IC less than 1 month of age and 40% of the colic episodes abated less than 4 months of age (Table 2). In 44% of the infants, average duration of each colic episode has taken less than 10 minutes and average frequency of colic episode mostly occurred less than 3 times per day (60% of cases). Colic episode started following feeding in 52% of cases and the infant's sleep was interrupted by the colic in 41% of the infants (Table 2). The Wessel criteria were fulfilled by 10% of the cases.

Table 2: The Frequency and Percent of Colic Episode Characters in the Cases

Colic Characteristics	Number	Percent
Age of colic onset		
<1 month	179	72
=> 1 month	69	28
Starting of colic episode following feeding		
Yes	131	52
No	117	48
Interrupting the infant's sleep with colic		
Yes	102	41
No	146	59
Age of colic abate		
<2 months	30	12
2-3 months	69	27
4-6 months	29	12
7-9 months	5	2
Not yet	115	47

Lots of different methods have been tried by the mothers to relieve the colic episode in the infant (Table 3), however, not all the methods were effective in all the infants. Coddling or performing infant's burping by the mother was effective in 86% or 5% of the cases respectively. Consuming drug (such as Simeticone drop, Grippe mixture, or Dicyclomine) or using other methods (such as sleeping the infant in prone position, warming or massaging the infant's back or belly, as well as taking orally mint extract) were effective in 78% and 32% of the infants respectively. 84% and 30% of the cases have got rid of the colic episode by gas or stool passage as well as consuming dextrose water respectively (Table 3). Generally, according to the mothers' report 13% of the infants haven't respond to any type of the above methods.

Table 3: The Frequency and Percent of Colic Episode Relief Methods in the Cases

Method of Colic relief	Number	Percent
Coddling		
Yes	214	86
No	34	14
Gas or stool passage		
Yes	209	84

No	39	16
Consuming dextrose water		
Yes	73	30
No	175	70
With consuming drug		
Yes	193	78
No	55	22
With performing Infant's burping by the mother		
Yes	13	5
No	235	95
With other methods		
Yes	80	32
No	168	68
Relief with any or all of above methods		
Yes	216	87
No	32	13

Discussion

In this cross-sectional study, 450 less than 1 year old infants have assessed. The prevalence of IC was 55%. This finding is just less than the percent of IC in Turkey (67%), however, it is higher than the percent of IC in reports from Pakistan (21-40%), Indonesia (16.8%), India (16%), Finland (13%), or Italy (9.3%) and very higher than the percent in Sweden (3.5-5%) or Norway (3%). This discrepancy might be explained by the differences in the study design, sampling method, infants' age, IC definition, the method of collecting data and/or location of studied population. Frequency of IC according to Wessel criteria in our study was 10% which is less than the percent in India (18%), Saudi Arabia (22%) or Turkey (28.5%). This difference sounds to be the result of the collecting data in our study, as it was based on the mothers' recall and as expected it was not very accurate according to the duration of each crying episode, the number of days during each week or the number of the weeks. Despite the IC prevalence was more in males than females in this study, there was not a significant statistical relation between IC and sex, similar to the result of other reports [4,5, 10-19].

The prevalence of IC was high in less than 6- month- old cases (70%) similar to the result of other studies [7,10]. Besides, like the results of other reports, IC abated in most of our cases before 7 months of age. According to this study, there was no significant statistical relationship between the babies' birth weight or gestational age alike other reports [10,18,19]. One of the causes of this occurrence might be the few numbers of our low birth weight or premature cases. Unfortunately, the other studies haven't assessed these babies' characteristics as the risk factors for IC. Moreover, despite some reports from other countries expressing breast milk as a protective factor for at least reducing the number of IC episodes, and/ or its duration, we didn't, similar to other studies' results [10,16-19]. It is noteworthy, that more than 85% of our cases were breast-fed. Anyway, it sounds that the effect of the kind of feeding milk on IC is controversy, and require to be confirmed by performing population-based prospective studies. Although, a significant statistical relation was found between IC and history of atopy in the cases, no other research has mentioned this relation in the literature; just a study has shown IC as a risk factor for future occurrence of allergy. Besides, the age of starting thick food as supplemental food has not shown any significant relationship with IC, despite, 50% of our cases have introduced supplemental food before 6 months of age. It might be because most of the IC episodes have abated before 6 months of age in this study. With regard to colic episode characters, most of the cases started after feeding (52%) and 40% of the cases have woken up with colic; these findings are justifiable, as some theories have suggested immature gut as the causative factor for IC and each colic episode is associated with crying and fussiness in infants (by definition) [20-26].

Furthermore, most of the cases' mothers reported that the average duration or frequency of each colic bout is less than an hour (>80% of cases) or less than 3 times a day (60% of cases) respectively, these data are based on the mothers' recall and are not very accurate estimate of these characters and needs to be confirmed with diary note by the mothers. As each colic episode is very stressful for the parents, and usually result in urgent search for medical cares, lots of different pharmacological, physical or physiological methods have tried for relieving the condition, with different degrees of success; of course, it is rational, because the etiology of the event has remained uncertain. Despite some new pharmacological agents such as lactase or probiotics supplements has recommended for IC relief and are under active clinical research, as far as we know, unfortunately the results of the studies are debatable. Though some review studies mentioned that probiotics supplement decrease the infant's crying time; nevertheless, because the FDA has not approved any probiotic product for use as a drug or biological product in infants of any age and lactase products are not available in Iran, these products are not used in infancy in Iran routinely, therefore, they were not contained in our relieving methods for IC in this study. Traditionally, there is an old cultural belief in our people that performing burping by the mother on the infant during or after the feeding is a relieving method for preventing or treating IC, however, the findings have shown that it is a poor method in controlling the IC (5%) similar to another research results (Table 3) [27-33].

The most effective method for relieving the crying or fussiness in the infants was coddling or passage of gas or stool in this study (86% or 84% respectively); unfortunately, these methods have not been assessed in other studies as far as we search the literature. Using other methods (such as sleeping the infant in prone position, warming or massaging the infant's back or belly, as well as taking orally mint extract) or using oral dextrose water were effective in 32% and 30% of the infants respectively (Table 3). Consuming drug (such as Simeti cone drop, Grippe mixture, and/or Dicyclomine) was effective in controlling the crying episode in 78% of the cases based on the mothers' report, however, other reports didn't confirm the effectiveness of these drugs [28,29]. It should be remembered that these findings are a gross estimate of effectiveness of the drugs and based on the mothers' recall, because it is certain that in each episode of colic some of the above methods and drugs might be used together or in tandem at the same time; besides, one drug or method might be relieving IC in one occasion, but not in other occasion; actually, these data need to be asked in detail in a separate questionnaire for obtaining accurate answers.

Conclusion

Despite most of our findings are supported by the results of other reports, it sounds that the prevalence of IC is really high in our population. One of drawbacks of this study is relying on the mothers' recall. Because occurrence of IC is a frequent event in infancy, it is recommended to design and perform prospective cohorts based on diary notes providing by the mothers about the colic episodes characters such as the age of onset and abate, the duration and frequency of each bout, the method or drug result in ending each episode, etc. in order to collecting accurate data.

Conflicts of Interest: The author declares no conflict of interest.

References

1. Wessel MA, Cobb JC, Jackson EB, GS Harris Jr and AC Detwiler, et al. (1954) Paroxysmal fussing in infancy, sometimes called colic. Pediatrics 14: 421.
2. Rasquin-Weber A, Hyman P, Cucchiara S, DR Fleisher and JS Hyams, et al. (1999) Childhood functional gastrointestinal disorders. Gut 45: II60-II68.
3. Vandenplas Y, Abkari A, Bellaiche M, Marc Benninga, and Jean Pierre Chouraqui, et al. (2015) Prevalence and health outcomes of functional gastrointestinal symptoms in infants from birth to 12 months of Age. J Pediatr Gastroenterol Nutr 61: 531-537.
4. Lehtonen L, Korvenranta H (1995) Infantile colic: seasonal incidence and crying profiles. JAMA Arch Pediatr Adolesc Med 149: 533-536.
5. Scarpato E, Salvatore S, Romano C, Dario Bruzzese and Dante Ferrara, et al. (2023) Prevalence and risk factors of functional gastrointestinal disorders: A cross-sectional study in Italian infants and young children. J Pediatr Gastroenterol Nutr 76: e27-e35.
6. Muhardi L, Aw MM, Hasosah M, Ruey Terng Ng, and Badriul Hegar, et al. (2022) A Narra-

tive review on the update in the prevalence of infantile colic, regurgitation, and constipation in young children: Implications of the ROME IV criteria. Front. Pediatr https://www.frontiersin.org/journals/pediatrics/articles/10.3389/fped.2021.778747/full.

7. Miller KE (2003) Colic: prevalence, risk factors, and potential sequelae. Am Fam Physician 67: 2005-2006.
8. Wolke D, Bilgin A, Samara M (2017) Systematic Review and Meta-Analysis: Fussing and crying durations and prevalence of colic in infants. J Pediatr 185: 55-61.
9. Management of infantile colic (2013) Drug and Therapeutics Bulletin. BMJ https://dtb.bmj.com/.
10. Didişen NK, Yavuz B, Gerçeker GÖ, Tuğba Albayrak and Meryem Atak, et al. (2020) Infantile colic in infants aged one-six months and the practices of mothers for colic. J Pediatr Res 7: 223-229.
11. Jalal MS , Mehdi SZ, Akber JU, Murtaza Ali Gowa and Carlos Lifschitz (2024) Infantile colic: a survey of physicians in Pakistan. Pediatr Gastroenterol Hepatol Nutr 27: 186-195.
12. Lestari LA, Rizal AN, Damayanti W, Yulianti Wibowo and Chang Ming, et al. (2023) Prevalence and risk factors of functional gastrointestinal disorders in infants in Indonesia. Pediatr Gastroenterol Hepatol Nutr 26: 58-69.
13. Garg P (2004) Prevalence of infantile colic at a secondary level hospital. The Indian Journal of Pediatrics 71: 1039.
14. Gatzinsky C, Sillén U, Thornberg S, Sofia Sjöström (2023) Bowel habits in healthy infants and the prevalence of functional constipation, infant colic and infant dyschezia. Acta Paediatr 112: 1341-1350.
15. Despriee AW, Olsson MägI AC, Småstuen MC, Kari Glavin and Live Nordhagen et al. (2022) Prevalence and perinatal risk factors of parent-reported colic, abdominal pain and other pain or discomforts in infants until 3 months of age - A prospective cohort study in PreventADALL. J Clin Nurs 31: 2784-2796.
16. Fazil M (2011) Prevalence and risk factors for infantile colic in District Mansehra. Journal of Ayub Medical College Abbottabad 23: 115-117.
17. Johnson JD, Cocker K, Chang E (2015) Infantile colic - Symptoms, diagnosis and treatment. Am Fam Physician 92: 577-582
18. Laila SZ, Hasan M (2016) Infantile colic: incidence and effectiveness of conventional therapy. Journal of Armed Forces Medical College Bangladesh 12: 83-87.
19. Talachian E, Bidari A, Rezaie MH (2008) Incidence and risk factors for infantile colic in Iranian infants. World J Gastroenterol 14: 4662-4666.
20. Lucassen P (2010) Colic in infants. BMJ Clin Evid https://pmc.ncbi.nlm.nih.gov/articles/PMC4531337/.
21. West BA, Wonodi W (2025) Knowledge and management practices of infantile colic among mothers attending the paediatric outpatient clinic in port Harcourt, Nigeria. Int J Contemp Pediatr 12: 170-180
22. Sung V (2018) Infantile colic. Aust Prescr 4: 105-110.
23. Kaura S (2025) Frequency of Infant Colic: Cohort Study. Journal of Neonatal Surgery 14: 10091-10100.
24. Hide DW, Guyer BM (1982) Prevalence of infant colic. Arch Dis Child 57: 559-560.
25. Switkowski KM, Oken E, Simonin EM, Kari C Nadeau and Sheryl L Rifas-Shiman et al. (2025) Associations of infant colic and excessive crying with atopic outcomes in childhood and adolescence. J Pediatr 283.
26. Itzkowitz T (2021) What is the underlying cause of infantile colic? The science journal of the Lander college of arts and sciences 14: 34-37.
27. Nau AL, Bassan MS, Cezar AB, Gabriel Assis de Carlos and Mariana Deboni (2024) Lactase for infantile colic: A systematic review of randomized clinical trials. J Pediatr Gastroenterol Nutr 79: 855-862.
28. Sarasu JM, Narang M, Shah D (2018) Infantile Colic: An Update. Indian Pediatr 55: 979-987.
29. Ellwood J, Draper-Rodi J, Carnes D (2020) Comparison of common interventions for the treatment of infantile colic: A systematic review of reviews and guidelines. BMJ Open 10: e035405.
30. Vaz SR, Tofoli MH, Avelino MAG, Paulo Sérgio Sucasas da Costa (2024) Probiotics for infantile colic: Is there evidence beyond doubt? A meta-analysis and systematic review. Acta Paediatr 113: 170-182.
31. Delcourt H, Huysentruyt K, Vandenplas Y (2024) A synbiotic mixture for the management of infantile colic: A randomized trial. Eur J Pediatr 184:

27.

32. FDA News Release (2023) FDA raises concerns about probiotic products sold for use in hospitalized preterm infants. For immediate release https://www.fda.gov/news-events/press-announcements/fda-raises-concerns-about-probiotic-products-sold-use-hospitalized-preterm-infants.
33. Kaur R, Bharti B, Saini SK (2015) A randomized controlled trial of burping for the prevention of colic and regurgitation in healthy infants. Child: health, care development 41: 52-56.