

ORIGINAL ARTICLE

Mothers' perception and management of abdominal colic in infants in Enugu, Nigeria

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Abstract

Background: Abdominal colic is common in infants but generally harmless. The exact aetiology is unknown but it has been associated with vicious cycle of crying and swallowing of air by the infant. The excessive crying associated with it can result in a lot of distress for family members creating unnecessary panics. We sought to find the perception and management of abdominal colic by mothers in Enugu.

Objective: Objective of this study is to determine the perception and 'home management' of abdominal colic in infants by mothers in Enugu, south-east Nigeria and the factors associated with them.

Materials and Methods: A cross-sectional survey involving 177 mothers that presented with their infants at the pediatric outpatient clinic of the University of Nigeria Teaching Hospital, Ituku Ozalla, Enugu between June and November 2011. A pretested questionnaire was used after obtaining their consent.

Results: A total of one hundred and seventy-seven mothers participated in this study. They were aged 20 to 60 years with mean age of 34 ± 7.3 years. Most of them (99.4%) believed that babies can have abdominal colic. While 41.3% attributed no problems to colic, the rest believed that it causes loose/greenish stools (12.4%), fever (16.4%) and vomiting (9.6%) etc. Most of the mothers (87.7%) do apply medications for colic which range from paracetamol (33.1%), Gbomoro (16.2%), teething powder (15.4%), salt water (13.2%), Buscopan (7.7%) and gripe water (4.6%).

Conclusions: Mothers attribute symptoms of childhood illnesses to abdominal colic. This may have led to unnecessary and sometimes harmful management. There is need for health education of mothers and potential mothers.

Key words: Abdominal colics, enugu, infants

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Introduction

Infantile colic is a syndrome characterised by excessive, unexplained paroxysmal crying in an otherwise healthy baby. Colic is noted to occur in about 25 percent of babies.^[1] It mainly manifests as an acute abdominal discomfort with intense spasmodic cramping, but since colicky babies cannot describe exactly what distresses them, it is hard for parents to know the precise cause of their distress. Infantile colic is most common in the first few weeks to four months of an infant's life.^[1] Although many may experience this for a longer period.^[2-3] A baby cries excessively if the baby does so for more than three or more hours per day, more than three times per

week and more than three month period.^[2-5] The cry has been typically described as a high-pitched scream, occurring mainly in the late afternoon or evening but may occur at any time.^[1] Cries arising from colic are very intense and hard. It is usually difficult to calm the baby down. The feet are curled; fingers clenched, and the abdominal muscles are tightened, which is what usually happens at the time of recurrence of colic.

Many theories have been suggested to explain this entity ranging from food hypersensitivity or allergy^[6] and immaturity

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of gut function or gut dysmotility^[6] to behavioural hypotheses including inadequate maternal-infant interaction and maternal anxiety.^[6] Three main theories of single causes are also reviewed by Carey *et al.*;^[7] they include feeding, psychosocial environment, and problems in the infant. However none of these are widely accepted. The role of gut microflora in the aetiopathogenesis of colic has been reported too.^[8] The linking of colic to organic causes has changed its interventions which include the use of wider range of pharmacological agents such as antispasmodic.^[9], defoaming agents,^[3] gut hormone antagonists and herbal medicines. Majority of Nigerians are known to use and consult traditional medicine for healthcare because of poverty and poor enlightenment. Based on this, herbal medicines are commonly used in childhood illnesses and even in managing colic.^[10] The use of probiotics in the management of colic has been documented in some series.^[11]

This study sorts to assess the perception and 'home management' of abdominal colic in infants by mothers in Enugu, south-east Nigeria and the factors associated with them.

To the best of our knowledge, there is a dearth of published work on this issue in the area and in Nigeria in general. It is hoped that this study may shed more light on mothers approach to abdominal colic and how best it can be handled.

Materials and Methods

Study area

The study was carried out at the Children's Outpatient (CHOP) of the Paediatrics Department of the University of Nigeria Teaching Hospital (UNTH) Ituku-Ozalla, Enugu, Nigeria. UNTH is a referral centre for various health centers in Enugu state and environs. The Paediatrics Department comprises the children's outpatient clinic (CHOP), the children emergency room (CHER), the general ward, and the new born special care unit (NBSCU). The children's outpatient clinic runs every weekday and averages of 480 patients are seen monthly.

Study population

A cross sectional survey of 177 mothers seen at the Pediatric Outpatient Clinic of the University of Nigeria Teaching Hospital, Ituku Ozalla, Enugu between June and November 2011, was done. All mothers attending the pediatric clinic of the hospital with their infants during the study period; and who met inclusion criteria were consecutively enrolled.

Study procedure

A structured self-administered questionnaire was used to collect information from the mothers attending the pediatric outpatient clinic of the hospital with their infants during the study period. In a few cases where the mothers were

illiterate, the questionnaire was administered to them by the investigators.

Mothers whose infants are aged between 0 and 9 months and mothers whose informed consent were obtained are included in the study while mothers with severely ill infants were excluded.

Data analysis

Data was analyzed using SPSS version 19. An initial frequency count of all variables was done and represented in tables. The mean and ranges of all the variables were calculated. Chi-squared test was used to test for significant association of the categorical variable (mothers' age group) and being worried about abdominal colic in the infant. The Level of significance was set at $P = 0.05$ and 95% confidence interval reported where indicated.

Ethical considerations

Ethical clearance for the study was sought from the Ethics and Research Committee of the University of Nigeria Teaching Hospital. A written informed consent was sought from mothers or from caregivers.

Objective of this study is to determine the perception and 'home management' of abdominal colic in infants by mothers in Enugu, south-east Nigeria and the factors associated with them.

Results

Demography

One hundred and seventy seven mothers with mean age of 34 ± 7.3 years (range 20-60 years) were enrolled into this study. The age group of the mothers is shown in Table 1.

One hundred and seven (60.5%) of the respondents had some form of tertiary education that ranges from ordinary national diploma, higher national diploma and first degree. The rest had senior secondary education (26%), post-graduate degree (5.1%), primary education (4.5%) and no formal education (1.1%) while (2.8%) gave no response. The main occupation engaged by these mothers was civil service (30%), trading (21.1%), schooling or unemployed (16.5%), health care providers (10%) and teaching (9.4%). A minority were bankers, hair dressers, architects, lawyers and clergy. The mean number of children per mother was 3 ± 1.7 and the mean age of the last child per mother was 3 ± 2.2 years.

Perception of abdominal colic

Almost all the participants (99.4%) believed that young infants do experience abdominal colic at some point in their lives. Most of them (91.6%) believed that colic occur between 0 and 3 months. Eighty-five respondents (48%)

believed that colic occur at nights while 17.5%, 7.3%, 5.6% and 4.5% thought it occurs every time, afternoons, evenings and mornings respectively. The rest did not know the exact timing of colic. One hundred and fourteen (83.2%) of the 137 respondents were worried about abdominal colic in their infants, Younger mothers appear to worry more about abdominal colic in infants than older mothers although this difference was not statistically significant ($P = 0.21$) as shown in Table 2.

Seventy-three mothers (41.3%) did not think that abdominal colic's are associated with other medical problems. However, 16.4%, 14.7% and 12.4% thought abdominal colic in infants are associated with fever, diarrhea and greenish stools respectively as shown in Table 3. Aetiologically, eighty respondents (45.2%) said they don't know the cause of colic in infants; 20.3% thought it is due to malaria while 11.3% believed it is a normal physiological process.

Management of abdominal colic

One hundred and forty seven (73.1%) respondents had used some form of medications to treat colic at some point while 30 (17%) do not use medications at all. Among those that use medications, the most commonly used substances were Paracetamol 43 (24.3%), "gbomoro" 21 (11.9%), teething powder 20 (11.3%), salt water 16 (9.0%), buscopan 10 (5.6%), gripe water 6 (3.4%) Table 4.

Discussion

Infantile colic is a challenging disturbance with a high occurrence reported worldwide.^[7] In this study 99.4 % of the mothers admitted that their infants have colic. This is similar to 82.7% noted by Kazeem *et al.*^[12] High level of education of the mothers (as shown in our study, where half the mothers attended tertiary institution) may explain why they are able to identify this colic without attributing it to other disease. It is noted, from this study, that majority of the mothers believe that colic occur at night than day time. It is important to note that some of these mothers are working class mothers and self-employed who normally keep their babies with house helps or in day care centers, only to pick them in the evening, and thus could not give appropriate account of what happen to their children.^[13] Colic in babies could occur at any time of the day, though some study noted that it is common at evening time.^[3]

Most of the mothers in our study, believed that colic occur between 0 and 3 months. This is similar to one study where it was noted to occur from first week of life and ends at about the age of four months.^[14] From this present study, younger mothers worry more about colic than older ones. Successful management of colic by these older mothers in their previous infants with colic, have given them the knowledge and mastery on colic, thus reducing fears and worries.^[14]

Some caregivers believe that colic are associated with other symptom such as diarrhea, fever and vomiting. These symptoms are not associated with colic and could be attributed to other diseases like malaria, gastroenteritis and even sepsis. These assertions could make them to mistake these symptoms as normal and delay taking their babies

Table 1: Age distribution of the participants

Age (years)	Frequency (%)
20-29	36 (20.3)
30-39	73 (41.2)
40-49	24 (13.6)
50 and above	5 (2.9)
unknown	39 (22)
Total	177 (100)

Table 2: Relationship between maternal age and frequency of worrying about colic's

Mother's age (years)	Abdominal yes	Colic no
20-29	33 (94.3)	2 (5.7)
30-39	59 (80.8)	14 (19.2)
40-49	18 (75)	6 (25)
50 and above	4 (75)	1 (25)
Total	114 (100)	23 (100)

$\chi^2=4.57$, $df=3$, $P=0.21$ N/B: This number (137) was those that responded to a section in the Questionnaire, if their babies had colic or not. Forty gave no response

Table 3: Problems associated with abdominal colic's

Symptom	Frequency (%)
None	73 (41.3)
Fever	29 (16.4)
Diarrhea	26 (14.7)
Greenish stool	22 (12.4)
Vomiting	17 (9.6)
Reduced appetite	8 (4.5)
Cough	1 (0.6)
Constipation	1 (0.6)
Total	177 (100)

Table 4: The various substances used in managing abdominal colic's by mothers

Substances	Frequency (%)
Paracetamol	43 (24.3)
"Gbmoro"	21 (11.9)
Teething powder	20 (11.3)
Salt water	16 (9.0)
Buscopan	10 (5.6)
Gripe water	6 (3.4)
Antibiotics	4 (2.3)
Herbal concoctions	4 (2.3)
Others (anti-helminthic, coconut water, antacids etc)	6 (3.4)
No drugs used.	30 (16.9)
No response	17 (9.6)
Total	177 (100)

to the hospital. This could lead to increase mortality and morbidity.^[15] On the other hand a good number of parents do not think abdominal colic's are associated with other medical problems. This shows that a significant proportion of these mothers are enlightened on colic, however majority of them are older mothers who had had experience on this event. In the light of this, health education about colic in babies during ante-natal visits and vaccination clinics should be encouraged to help enlighten the care givers about this condition.

Home base management of colic was commonly practiced by mothers. Many of the care givers gave paracetamol to their babies. The reason for this is that it gives the caregivers the feeling of 'Doing something'. They also believe that paracetamol makes the child to rest and sleep and enables the families have peace.^[16]

Buscopan a homatropine methylbromide (an anticholinergic) was prescribed to 7.7% of infants in this study. The use of anticholinergics for infantile colic has been reported.^[17] Evidence-based medicine has however shown a clear benefit of these drugs in the treatment of excessive crying in infants.^[9] The reported side effects in infants are of great concern^[18] which may limit their use.

The use of herbal concoctions in management of childhood illnesses have been reported both in developed and developing countries.^[19] However the one commonly used by caregivers in this study is 'Gbomoro'. This is an herbal medication which contains mainly chloroquine, lactose and ascorbic acid.^[20,21] It has been hypothesized that when given to infants with colic, it relieves them of pain. Pharmacological and toxicological studies are necessary so as to determine the safety of this herbal medication in infants.

Gripe water has been in use for treating colic over a century with little or no response.^[22] This may explain the 4.6% of mothers that were involved in its self-medication. It has been stipulated that the alcohol content of gripe water provides a soothing effect,^[23] the bicarbonate provides a neutralizing effect to the gastric acid,^[22] and the carminative in the plant extract causes the soothing of the infant in the presence of excess gas in the lumen that may cause pain.^[24] These treatments are however not entirely harmless,^[25] therefore proper dose has to be scientifically determined. Though majority of mothers did not attribute colic to any disease, yet a good number of them used something to treat abdominal colic. This is not surprising as no caregiver worth his salt will sit put and watch his child in pain and/or discomfort without doing anything.^[26] The use of native concoctions for infants with colic may be viewed as a common practice among mothers of different culture and tribes in Nigeria but the types of herbal medicine used may likely differ. For instance "Ororo Ogiri" was the mostly used herbal medicine in a particular study.^[12] It is derived from

putrefied *Cucumeropsis mannii* (melon) seeds which are used as a local food seasoning amongst the Yoruba tribe in Nigeria. When dissolved in water and taken by adults, it relieves indigestion by causing excessive flatulence.^[22] Its use in the treatment of infantile colic was based on the hypothesis that it removes the excess intraluminal gas in the infant by causing flatulence. Hepatic encephalopathy and death from the use of herbal preparations (*Allium sativum* L. and *Allium asalonium* L) containing naphthalene tablets has been reported by some workers.^[22] There are other documented harmful effects of this herbal preparations.

Kazeem and colleagues^[12] noted that laying the infant on the abdomen, early response to the child while crying, giving the infant a gentle soothing motion and avoidance of over-stimulation are acceptable psychosocial methods of managing infantile colic. They also stipulated that, applying hot water bottle to the abdomen of the infant has been reported to relieve rectal spasm to aid easier passage of flatus.^[12] Although parents must be cautioned about the use of this method as they stand the risk of causing burn to the infants' abdomen.

Although colic is not detrimental to an infant's health, it can place tremendous stress on the family. No effective cure for this disorder is known. Researchers have investigated a wide variety of therapies, including formula changes; pharmacotherapy and infant positioning maneuvers, but study results have been conflicting, controversial and inconclusive.^[12] At present, behavioral management, supportive counseling and parental reassurance are the mainstays of treatment. By formulating an effective individualized management plan, the family physician can help assist parents through the trying period of infantile colic.^[27]

Conclusion

Mothers attribute symptoms of childhood illnesses to abdominal colic. This may have led to unnecessary and sometimes harmful management. Health education about colic at children outpatient, vaccination clinics and public health campaign are warranted. Efficacy, potency, dosage and toxicity of the traditional herbal medicines need to be established scientifically before they are used in infants.

Recommendation

Infantile colic is not harmful, unnecessary and sometimes harmful management should be avoided. Health education about colic is warranted.

Limitation

This is a hospital based study and so may not show all the details on this topic, a community based study will improve this work.

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