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This CPD module can be used by GPs, Midwives, Health Visitors and Pharmacists

CLINICAL REVIEW:

Alleviating the distress of infantile colic

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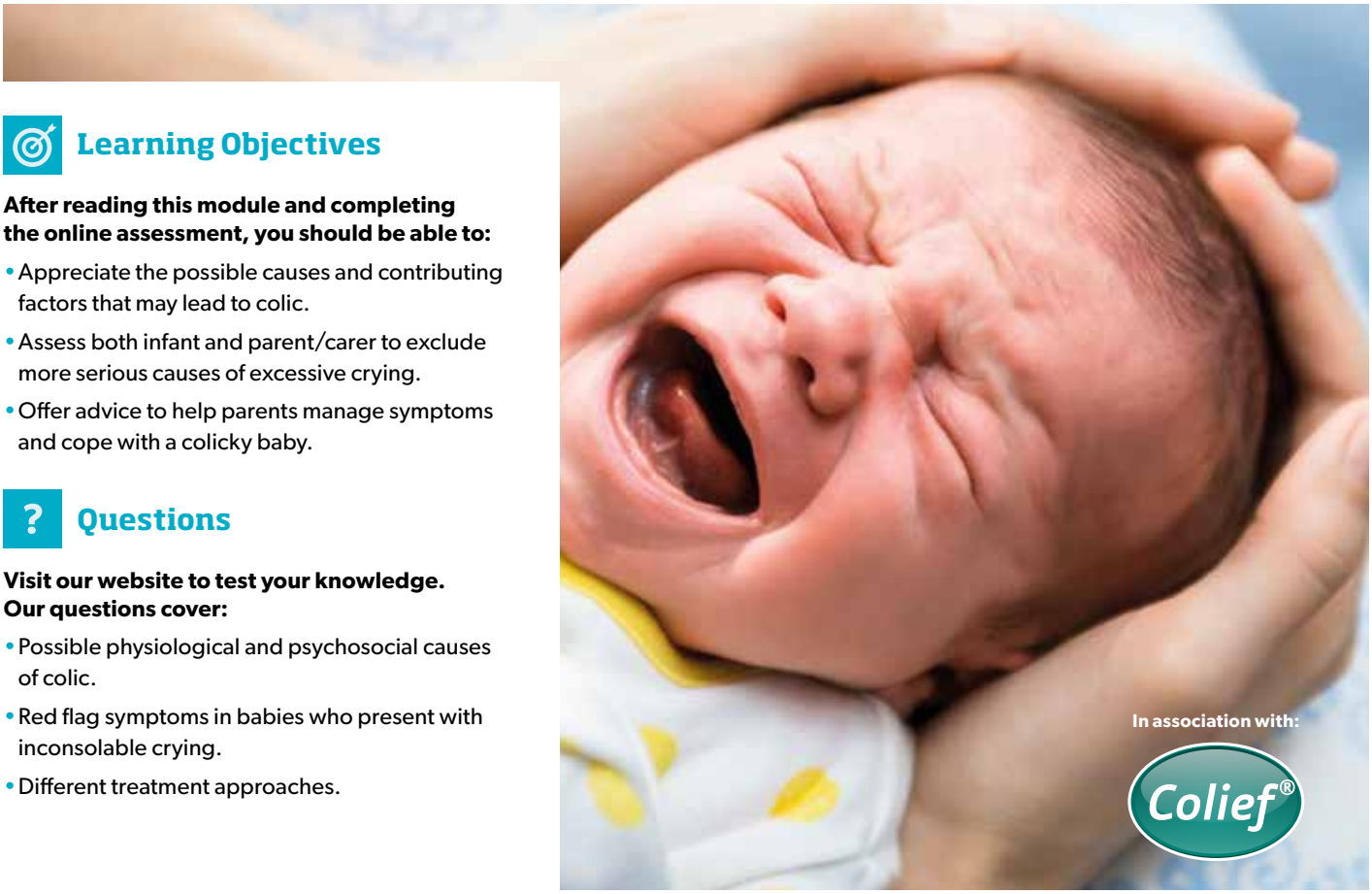

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Learning Objectives

After reading this module and completing the online assessment, you should be able to:

- Appreciate the possible causes and contributing factors that may lead to colic.
- Assess both infant and parent/carer to exclude more serious causes of excessive crying.
- Offer advice to help parents manage symptoms and cope with a colicky baby.

Questions

Visit our website to test your knowledge. Our questions cover:

- Possible physiological and psychosocial causes of colic.
- Red flag symptoms in babies who present with inconsolable crying.
- Different treatment approaches.

3-Step CPD

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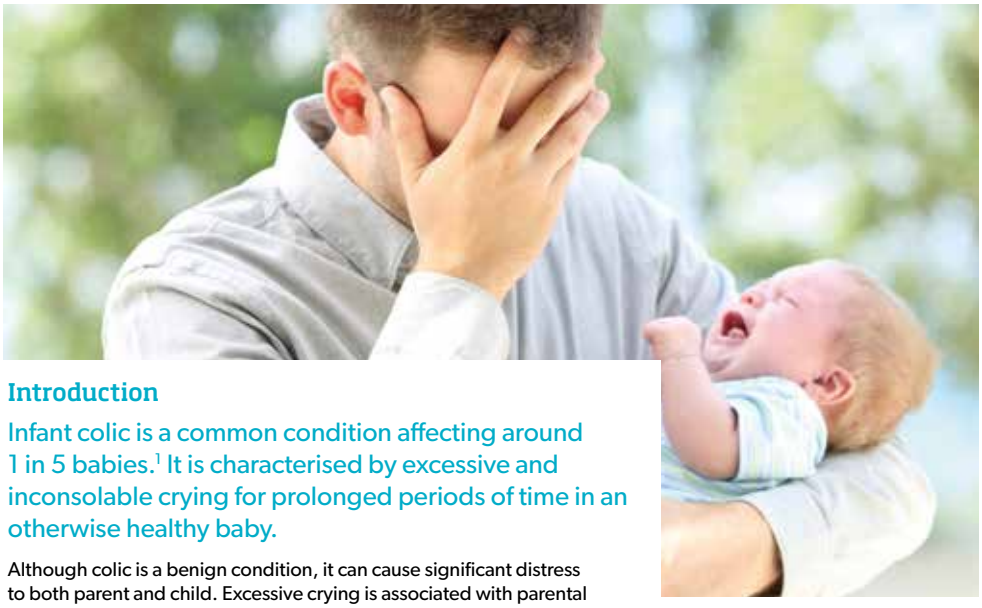
Date of Publication: September 2018



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Introduction

Infant colic is a common condition affecting around 1 in 5 babies.[1] It is characterised by excessive and inconsolable crying for prolonged periods of time in an otherwise healthy baby.

Although colic is a benign condition, it can cause significant distress to both parent and child. Excessive crying is associated with parental exhaustion, anxiety and depression[2] and may contribute to physical abuse of an infant.[3]

Despite the high prevalence of infant colic and several decades of research, its cause remains unknown.

This CPD module brings you up-to-date with the latest thinking on the possible causes of colic, its diagnosis and current management guidelines.

Colic is common but self-limiting

Although there is wide variation in the reported occurrence of colic,[4] a recent review of published evidence estimates the likely worldwide prevalence to be approximately 20%.[1] It affects both sexes equally and shows no correlation with feeding method (breast versus bottle feeding).[1,5]

Colic usually begins in the first few weeks of life, peaks at around six weeks, and resolves by three to six months of age.[5] A meta-analysis of 28 diary studies of 8,690 infants found that colic was more frequent in the first 6 weeks of age (17-25%) than at 8-9 weeks (11%) and 10-12 weeks (0.6%).[6] Mean duration of fussing and crying also reduced over time, from 117-133 minutes in the first 6 weeks to 68 minutes by 10-12 weeks.[6]

Diagnostic criteria focus on the nature of crying

Until recently, the standard diagnostic criteria for colic was the 'rule of three': crying more than three hours per day, more than three days per week for longer than three weeks. The latest diagnostic criteria (Rome IV) has shifted focus from an arbitrary amount of crying to the excessive and inconsolable nature of the crying.[7] The term 'paroxysmal' has also been removed from the criteria, as there is insufficient evidence to suggest that the crying of a baby with colic differs in sound or begins more abruptly when compared to 'normal' bouts of crying.[7]

Parents typically report that crying episodes follow a predictable daily pattern, occurring in the late afternoon or evening and lasting several hours.[5,8] Other signs and symptoms of colic include redness of the face, clenched fists, drawing-up of the knees or arching of the back.[8]

The precise cause of colic remains a mystery

The pathogenesis of colic is poorly understood, but several possible causes and contributing factors have been suggested. These can be broadly grouped into physiological and psychosocial causes.

Physiological mechanisms are based on the assumption that crying is caused by pain in the abdomen. These mechanisms are related to the transient immaturity of the intestine and include:

- abnormal bile acid levels and composition, impairing the absorption of fat and other nutrients[9]
- alterations in the gut microbiome[9]
- immature gut motility[9]
- intolerance to cow's milk protein or lactose[5]

A recent study of 55 infants found a link between melatonin circadian rhythms and infantile colic.[10] Melatonin circadian rhythms begin around the third month of life, typically the same time that colic symptoms start to decrease. However, this was a small a study and further research is needed to understand the hormone's role in colic.

Psychosocial factors – such as family tension, parental anxiety, inadequate parent–child interaction, overstimulation of the child or misinterpretation of crying – may also play a role in colic.[11,12] However, it is not clear whether these factors are the cause of the excessive crying or a consequence of it.

It has also been suggested that colic is a normal developmental phenomenon for some babies, reflecting part of the normal distribution of infant crying.[7,12]

The impact on parent and child can be significant

Colic can be deeply distressing for parents and carers, leading to stress, anxiety, sleep deprivation and depression. Possible effects include an increased risk of:

- postpartum depression: inconsolable infant crying of more than 20 minutes a day has a stronger association with maternal depressive symptoms than overall daily fussing and crying.[2]
- child maltreatment: excessive crying may be a factor in triggering physical abuse.[3]

Colic can also lead to premature cessation of breastfeeding or premature weaning onto solid foods.[11]

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All our online CPD modules are developed in partnership with a team of leading academics, so you can be sure the module you've chosen is credible, referenced and up to date. All information by HPA is in line with guidance from the NHS, NICE and Royal Colleges, as well as Unicef's Baby Friendly Initiative.

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Table 1. History and examination of infant and parent/carer[11]

	CHILD	PARENT/CARER
HISTORY	• Crying (pattern, duration, frequency, tone/pitch, influencing factors) - it may be helpful to suggest parents keep a cry diary • Birth gestation/trauma, conditions or congenital abnormalities that may affect feeding (e.g. ankyloglossia, cleft lip/palate) • Birth weight, weight gain, general health/behaviour • Red flag symptoms: e.g. apnoeic episodes, cyanosis, respiratory distress, bile-stained or projectile vomiting, blood in stools • Associated symptoms such as reflux, constipation or rash • Feeding: pattern, duration, timing in relation to crying, winding technique, other foods/fluid given • Use of pacifier/dummy • Sleep routine/pattern	• Parental responses to crying, coping strategies, impact on family • Associated insomnia, stress, anxiety, depression or post-natal depression • Beliefs, concerns and expectations about infant crying, feeding and sleep • Support available (family, health visitor, social worker) • Atopy or allergies • Alcohol and smoking • Problems with breastfeeding • Maternal diet if breastfeeding (e.g. excessive caffeine) • Complications during pregnancy, birth or post-partum
EXAMINATION	• Suitability of clothing to maintain appropriate body temperature • Signs of fever, dehydration or raised intracranial pressure • Weight and serial measurements of weight gain/loss • Rash or signs of itch that may cause discomfort • Oral anatomy, oral Candida infection or nasal congestion that may affect sucking/swallowing • Muscle tone, neurological maturity, behaviour • Signs that may suggest maltreatment (e.g. bruises, petechiae)	• Interaction with infant • Handling of infant • If breastfeeding problems, examination of nipples and breasts

Each case should be assessed thoroughly

A wide range of conditions can present in a similar way to colic, so careful assessment is crucial. Symptoms are typically non-specific, so it is important to establish that the baby is otherwise healthy. Assessment should include a detailed history and examination of both infant and parent/carer, summarised in Table 1.[11]

Although an underlying organic cause is identified in less than 5% of children who present with inconsolable crying,[6] signs of organic disease can be non-specific in infants. A diagnosis of colic should therefore be made after first excluding other possible causes.[5] These are summarised in Table 2.[11]

Parental reassurance and support are key

As there is no cure for colic, treatment focuses on helping parents to get through this challenging period in their baby's development.[13] Parental reassurance and support are the mainstay of treatment: reassuring parents that colic is benign and self-limiting,[5,8] and directing them to support resources, such as NHS Choices, NCT and self-help group Cry-sis.[11]

Self-help strategies, such as looking after their own well-being, seeking additional support and resting when possible are important.[11] Advice to take regular breaks during a crying episode, swapping with a partner or friends and family can also help to reduce stress and anxiety.[11,13]

Parents/carers should consult their GP if symptoms haven't improved after 4 months, if symptoms suddenly get worse or if their baby doesn't grow or develop at the expected rate.[11]

Soothing techniques may be helpful

Despite the characteristic inconsolable nature of the crying, it may be possible to reduce colic symptoms by trying different soothing techniques, as some babies may respond better to some techniques than others. Parents may find some of the following helpful.[3,11-14]

- Holding the baby during crying episodes
- Wearing baby in a sling
- Gentle motion, such as rocking, pushing them in a pram or going for a drive
- Background noise, such as the vacuum cleaner, hairdryer or washing machine
- White noise
- A warm bath
- Baby massage
- Reducing stimulation

Pharmaceutical treatments may help some children

Several over-the-counter products are available that may help some children with colic. Although there is insufficient evidence to recommend their use, these products are unlikely to be harmful.[11,13] Treatments include the following.

Lactase drops – lactase is an enzyme that helps to break down lactose in the milk, making it more easily digestible.

Simeticone drops – these help to release bubbles of trapped air in the baby's digestive system.

Probiotics – there is some evidence that *Lactobacillus reuteri* can reduce crying in breast-fed babies,[15] though there is insufficient evidence to support their use.

Summary

Infant colic, while self-limiting and benign, can cause significant distress to parents and carers. The non-specific nature of symptoms requires careful assessment, and diagnosis is based on the exclusion of other more serious causes. Simple reassurance and advice on effective coping strategies are important in reducing parental stress and anxiety. Other treatment options are available, although there is insufficient evidence to recommend their use.

Table 2. Differential diagnoses for infant colic[11]

Gastrointestinal	• Anal fissure • Constipation • Cow's milk protein allergy • Gastro-oesophageal reflux disease (GORD) • Pyloric stenosis • Intussusception or volvulus
Infection	• Meningitis • Urinary tract infection • Otitis media • Neutropenic sepsis
Neurological	• Hydrocephalus
Trauma	• Corneal abrasion (e.g. scratch from infant's nails) • Accidents • Child maltreatment
Discomfort	• Skin rash or irritation (e.g. nappy rash, eczema) • Hunger or dehydration • Excessive heat or cold

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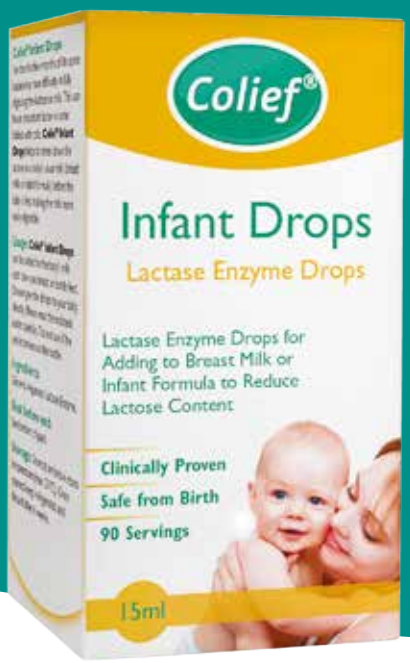
Colief® Infant Drops: The original scientifically-proven colic treatment

Scientifically proven and the UK's most prescribed treatment for colic, Colief Infant Drops have been trusted by parents and healthcare professionals alike for almost 20 years.



Although the exact cause of colic is unknown, one cause may be temporary lactose intolerance: this happens when babies are unable to fully digest the lactose in milk, resulting in discomfort and extended periods of crying. The lactase enzyme in Colief Infant Drops works to break down lactose into glucose and galactose, reducing the amount of lactose in milk, making it easier for babies to digest. They are suitable for use from birth, whether babies are bottle or breastfed. A trial of Colief Infant Drops allows parents to rule out temporary lactose intolerance in babies with colicky symptoms.

"Along with non-pharmacological treatments such as baby massage, over the counter treatments such as Colief Infant Drops can be informally recommended to parents on a trial basis, of around one week, when discussing ways to soothe a colicky baby," said Dawn Kelly, member of the Colief Expert Panel and former health visitor.

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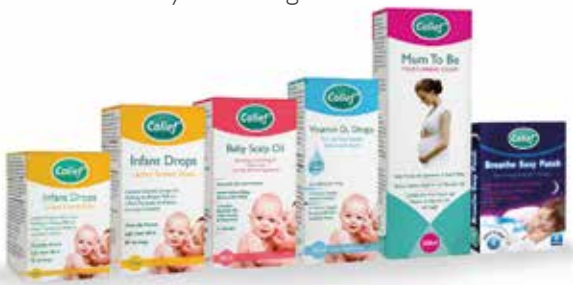

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