INFANT FEEDING

This module is about infant feeding

OBJECTIVES

After completing this module you should:

- Be able to recognise and advise on common breastfeeding problems, and signpost mothers to other HCPs as appropriate
- Revise the differences between the various types of infant formulae used in babies with Cow's Milk Protein Allergy (CMPA)
- Revise the differences between CMPA and lactose intolerance in terms of incidence, symptoms and types of formulae used
- Know which types of formulae have less of an evidence base to support their use

"How should I feed my baby? Is breastfeeding difficult? And what about bottles, how will I know how much to feed or how often? And either way, how will I know my baby is getting enough?" All of these questions, and many more, will be running through the mind of every expectant parents. Especially so with first-time mums, but not exclusively, since occasionally the whole experience of infant feeding can be stressful and prompt questions of how to do things differently next time round. Young mothers can be frequent visitors to the pharmacy, and as such represent a great opportunity to build valuable relationships as well as bringing in repeat business that will long outlast the baby-feeding years. There is no shortage of information out there for them, but there is still a need for some confident face-to-face advice to help alleviate worries and provide reassurance.

Whether a mum chooses to go with breast or bottle, our role is to be her advocate and support her in whatever choice she has made.

Breastfeeding

Firstly, let's consider breastfeeding. We know the World Health Organisation currently recommends exclusive breastfeeding until a baby is six months old, but any period of breastfeeding will still have benefits for both mother and baby. Historically, our breastfeeding rates have been relatively low compared with other regions of the UK. Figures from the last UK Infant Feeding survey in 2010 are now outdated, but more recent data is available for Northern Ireland in the report 'Breastfeeding on the Island of Ireland', published by the Institute of Public Health (IPH) in Ireland in 2015[1].

Encouragingly this found that breastfeeding rates in NI had risen from 40% to 45% over the previous decade. Although 45% seems low compared to the 63% quoted in the 2010 UK study, it is worth pointing out that the UK figures included babies who received even a single breastfeed in hospital, whereas the IPH data is a measure of the percentage of babies still being breastfed upon hospital discharge, which is arguably a truer reflection of actual numbers.

Because relatively few mothers opt for breastfeeding, those who do can sometimes find it difficult to get advice from within their family or peer group. While the old adage that 'it takes a village to raise a child' may well be true, the fact is that most of the village are feeding their babies in a different way, and so advice on how to deal with common problems can be harder to come by. In the pharmacy, we can help with some of these.

"Is my baby getting enough milk?"

Explore first of all why this question is being asked. It can help to reassure that for the first month, while milk supply is being established, feeding 8-12 times daily is quite normal. It may also be reassuring to mention that feeds will become less frequent, and often shorter, as the baby gets older, which can be welcome news to a tired new mum. Also, breastfeeding takes time, and while it is difficult to define what is 'normal' because every baby is different, newborns can nurse for up to 15-20 minutes on each side (though sometimes less), so it can help to ask the mother how long she is feeding for before changing sides. Breastmilk starts off as quite watery foremilk to satisfy thirst, before changing in consistency to thicker hindmilk, with a higher fat content that satisfies hunger for longer. This means that changing sides too soon can mean the baby only getting the foremilk, so they may get hungry again much sooner than would otherwise be the case.

That said, many health professionals advocate watching the baby instead of the clock. A satisfied baby will come off the breast when they have had enough. If they have had 6-8 wet nappies and are settled and content between feeds and gaining weight, then it is very likely that they are getting enough milk. If a mother is still worried, she should speak with her midwife if within the first 14 days or health visitor after that, who will be able to provide 1-1 advice and assess technique etc.

Engorgement

Breasts feeling lumpy or hard is normal as long as milk is flowing normally. With engorgement, breasts can be hot and painful, and it can be difficult to feed due to the nipple being stretched flat. The only solution to this is to drain away excess milk by feeding or expressing with a pump or by hand to relieve the pressure. Hot compresses can also help. The problem usually resolves once milk production adjusts to the baby's needs, but if problems persist then help may be needed to assess latch and technique.

Blocked milk duct

This is characterised by a localised red, painful lump, and is the result of milk not being emptied. This can be due to poor positioning of the baby (pressing on the duct), tight clothing or underwired bras. Milk itself is the cause of the blockage and must be cleared in order to relieve pressure. Gentle massage and hot compresses can help, as can checking latch and positioning, and wearing a suitable nursing bra.

Cracked nipples

This can be the result of baby not latching on deeply enough. The end

of the nipple should be near the back of the mouth for comfortable feeding. If there is no infection, an effective treatment is some breastmilk applied at the end of a feed. If there is any discharge, referral is necessary. If bacterial infection is suspected, fusidic acid 2% cream may be prescribed for use after every breastfeed for 5-7 days, and if there is a localised fungal infection, miconazole 2% cream applied after every breastfeed for 2 weeks.

Mastitis

This is characterised by a red, hot swollen area usually on one breast only, often with a burning pain, especially during feeding. Unlike a blocked duct however, there are flu-like symptoms such as increased temperature and muscle aches and pains. It can come on very quickly and may be mistaken for flu. GP referral is important, as mastitis with systemic treatment requires antibiotic treatment with Flucloxacillin 500mg qid, or if penicillin allergic, erythromycin 250-500mg qid, both x 10-14 days. Ibuprofen can help, and may be prescribed, but is not licensed for OTC sale during breastfeeding. Paracetamol may be sold and will provide some relief. A hot compress will also help by encouraging milk to flow.

Thrush

This may follow a course of antibiotics for either mother or baby. There is severe pain, often described as shooting or stabbing, to the point where latching on is almost unbearable. Nipples may be white after feeding and if cracked, will not heal. Without prompt diagnosis and treatment this is a condition that will almost certainly lead to premature cessation of breastfeeding due to severe pain. Mother and baby need treated simultaneously, with oral fluconazole 300mg stat and 50-100mg daily for 10-14 days for the mother, and nystatin or miconazole oral gel (if over 3 months) for the baby.

Support

A useful place to signpost mums to is breastfeeding.org, a local NI-based website. Mother and baby groups and even online forums can provide much-needed peer support for a new mum. 'Breastfeeding in Northern Ireland' is a very large and active local Facebook group which may also be helpful. In the pharmacy, stocking breast pads and pumps may make breastfeeding mums feel more welcome and perhaps more likely to ask for advice if they are having difficulties.

Formula feeding

Bottle feeding is currently the most common method of infant feeding in NI.

Formula milks are mostly based on modified cow's milk (although some are based on soya, or goat's milk), with additives e.g. vegetable oils, vitamins, minerals and fatty acids. The macronutrient content (fats, carbohydrates and energy) and micronutrients (vitamins, minerals) are specified in current legislation, with a new requirement due to come into force in Feb 2020 which says that the long chain polyunsaturated fatty acid DHA (omega-3) must also be added. Most manufacturers have already implemented this.

The two main types of protein in breastmilk are whey and casein. Whey is more easily digested and is the type of protein contained in the liquid part of milk when it curdles. 60% of breastmilk protein is made up of whey protein. Casein is the type of protein in the solid part of curdled milk and makes up the remaining 40% of breastmilk. Casein protein remain in the stomach for longer, and hence are slower to digest. Cow's milk is 80% casein and 20% whey. The whey: casein ratio in 'first' infant milks is more closely aligned to that of human breastmilk (60:40), which makes these formulae generally easier to digest, especially for new-born babies.

Hungry milks have a higher percentage of casein than standard first milk. Casein takes longer to digest so it can help babies feel fuller for longer. These milks are used to help to delay the onset of early weaning.

Bottles should be made up with water at 70oC, or about 30mins after a kettle has been boiled. The exact number of level scoops should be used according to the manufacturer's instructions, and the feed used within two hours. If this is not practical, a number of bottles may be made up at one time and cooled down by holding it under a running tap and stored in the fridge at 5°C. These can be heated in warm water directly before use (never in a microwave), and used within 24 hours.

See packs for preparation instructions as some product instructions may vary.

Follow-on milks

The main difference between follow-on milks and first infant / hungry milks is that they have a higher iron content. Babies are born with a natural store of iron which begins to deplete around 6 months. As babies are usually beginning to wean at 6 months there are only taking very small amounts of food and may not be eating enough iron rich food at this stage. Parents can choose to move to a follow-on milk at 6 months which contains higher levels of iron that standard first milks.

These milks are for babies over 6 months, and as such they may be advertised direct to the public. UK law prohibits the advertising of milks intended for babies under 6 months directly to the public, and so they cannot be the subject of any promotional offer such as multibuys, money-off coupons or any sort of discount.

Cow's Milk Protein Allergy (CMPA)

Cow's milk protein allergy affects approx. 2-7.5% of babies[2], although NICE states that up to 15% show symptoms of an adverse reaction to it. >

> CMPA can induce both acute IgE immunoglobulin-mediated reactions (within 2 hours) e.g. rash or urticaria, wheeze, vomiting, and also non IgE-mediated reactions which are more delayed, e.g. mild-moderate eczema, reflux.

Management of the allergy necessitates the complete removal of CMP from a baby's diet. For the breastfed infant, this means that the mother must follow a strict milk-free diet, and because of this, she also needs to take supplements containing 1000mg calcium and 10 micrograms of vitamin D daily. Bottle-fed infants need a formula which contains no cow's milk, and there are two main options available to achieve this[3]:

Extensively Hydrolysed Formula (eHF)

In these milks the protein causing the allergy is broken up into smaller fragments (peptides) that are less likely to illicit an immune response. Aptamil Pepti and SMA Althera are whey-based eHF milks and Nutramigen and Similac Alimentum are casein-based ones. 90% of babies with CMPA can tolerate these formulae. If a baby is still showing symptoms after 2-6 weeks on an eHF formula, they may be switched onto an amino acid formula.

Amino Acid formula (AAF)

These are for the remaining 10% of babies whose symptoms do not resolve on an eHF, and who require the peptides to be broken up further, into amino acids. AAFs are quite expensive and are more likely to be needed for babies who have multiple allergies or a family history of CMP. Examples include Neocate LCP, Nutramigen Puramino and SMA Alfamino.

CMPA usually resolves over time, and in most cases has completely resolved by 3-5 years. Guidance on how to gradually introduce food with increasing amounts of CMP in a controlled manner is laid out in the Milk Ladder4, and this process is managed by a paediatric dietician. Parents should introduce cow's milk back into their child's diet under medical advice.

Lactose intolerance

This is usually transient and often follows an episode of gastroenteritis, during which there is a reduction in lactase activity for a period lasting from a few days up to a few weeks. True lactase deficiency is extremely rare. Unlike CMPA, symptoms are usually limited to the gastrointestinal tract, e.g. diarrhoea, abdominal pain, flatulence and bloating.

The 3 main types of lactose intolerance are: Congenital – an extremely rare condition where babies are born with a genetic defect resulting in the absence of the lactose enzyme.

Primary – a genetically inherited condition uncommon before 2-3 years of age, normally becoming apparent after 5 years of age.
Secondary – a temporary, more common, condition caused by damage to the gut (where lactase is produced) e.g. following gastroenteritis. Usually resolves after a few weeks once the gut heals.
If a baby has been diagnosed with temporary lactose intolerance breastfeeding mothers should be encouraged to speak to a healthcare professional about a lactose free diet. Babies who are bottle fed are usually recommended to move to a lactose free milk for 6-8 weeks. After this time the damage to the baby's gut has usually resolved and they can move back to their usual milk.

Milks for colic and constipation

Types of milk are commonly known as comfort milks and are a specialised formula for the dietary management of colic and constipation. They should only be used under medical supervision. They are nutritionally complete from birth to 6 months and can be used as part of a weaning diet from 6 months.

Anti-reflux (AR) formulae

It's perfectly normal for a healthy baby to bring up a small amount of milk during or shortly after a feed. This is known as regurgitation or posseting. Reflux is more frequent and can occur with symptoms such as persistent crying, irritability, back arching and sleep.

Latest guidelines recommend:[5]

1. Reviewing the feeding history
2. Avoid overfeeding
3. Thicken feeds
4. Breastfeeding mums should be encouraged to continue.
5. If there has been no improvement, consider 2-4 weeks of a protein hydrolysate or amino
6. acid based formula or, in breastfed infants, elimination of cow's milk in maternal diet.
7. If there is no improvement the patient should be referred to a paediatric GI.

There are thickened milks available that are suitable for the dietary management of reflux such as Cow and Gate and Aptamil AR and SMA staydown and Enfamil AR.

Cow and Gate instant carobel is a thickener that can be used in expressed breastmilk, standard formula or used as a paste before during and after breastfeeding.

The NI Infant Feeding Guidelines has further information on all of the above and can be accessed via the nutrition section of the NI Formulary website.

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ASSESSMENT: Upon completion of the test your answers will be scored and if you are successful you will be issued with your CPD certificate.

***Downloadable PDF of this module is available online the Scottish Pharmacist Website for your records**

Vitamin D

Finally, a note on the sunshine vitamin. Current advice is that all babies under 1 year receive 8.5-10micrograms of vitamin D daily. Those who are receiving 500ml or more of formula will already be receiving this, but those who are getting less, or who are partially or exclusively breastfed will require a supplement, available over the counter as drops.

Once a baby is six months old, and up until they are five years, daily vitamin A, C and D supplements are recommended (unless they're having 500ml or more of formula each day).

1. Breastfeeding on the Island of Ireland: https://www.publichealth.ie/document/iph-report/breastfeeding-island-ireland
2. Incidence of cow's milk protein allergy, BMJ 2016: https://bjgp.org/content/66/651/512.2
3. CKS: Cows' milk protein allergy in children: https://cks.nice.org.uk/cows-milk-protein-allergy-in-children#!scenario:1
4. The Map Guideline Milk Ladder: http://ifan.ie/wp-content/uploads/2014/02/Milk-Ladder-2013-MAP.pdf
5. Paediatric Gastroesophageal Reflux Clinical Practice Guidelines: Joint Recommendations of the North American Society for Paediatric Gastroenterology, Hepatology, and Nutrition and the European Society for Paediatric Gastroenterology, Hepatology, and Nutrition (2018), Journal of Paediatric Gastroenterology and Nutrition, 66; 3, 516-554.