**Vitamin D and the new-born breastfed Infant**

**Introduction**

The Scientific Advisory Committee on Nutrition [SACN] in their 2016 “Vitamin D and Health” report, as a precaution, recommended a change to their previous advice on Vitamin D for the exclusively breastfed infant from birth (SACN 2016).

The committee now recommends a “Safe intake” of Vitamin D of 8.5-10 microgrammes, suggesting that breastmilk alone may not be sufficient for sustaining optimum Vitamin D plasma levels in the newborn. The 2016 report states that “it is difficult to achieve the Reference Nutritient Intake [RNI]/Safe intake from natural foods alone.” (SACN 2016 S.42 pg xv)

This was then reiterated in their latest report, “Feeding in the First Year” (SACN 2018)

The change of advice may concern some practitioners who support women to exclusively breastfeed for around the first six months of life, as recommended by both the World Health Organisation and Public Health England (WHO 2003, PHE 2016). Implicit in this advice is the possible mixed message of exclusive breastfeeding being sufficient for adequate growth vs the need for supplements.

This article aims to examine the conclusions of both Reports and any implications for Specialist Community Public Health Nursing [SCPHN] practice.

**What is Vitamin D and why is it important to health?**

Most vitamins can be categorised as a group of organic compounds which are essential for normal growth and are required in small quantities in the diet because they cannot be synthesised by the body.

Vitamin D, often referred to as the sunshine vitamin, is different. Vitamin D is **mainly** synthesised in the skin by the action of sunlight containing UVB radiation. Clearly, in some circumstances, this way of obtaining sufficient Vitamin D to regulate calcium and phosphorous metabolism to promote bone health is insufficient. In the UK, the main dietary source of Vitamin D is from foods of animal origin, fortified foods and supplements.

Commonly, the amount of Vitamin D obtained from sunlight exposure is thought to be around 90% (Holick et al 2004). In the case of an exclusively breastfed baby, most, if not all of their Vitamin D intake would normally be via their mothers breastmilk alone, as young babies are not encouraged to be exposed to direct sunlight. NHS Choices state “Keep babies under the age of six months out of direct sunlight, especially around midday.” (NHS Choices)

Therefore, any change in advice that suggest that infants may require a supplement to their diet if solely breastfed requires careful consideration so as not to undermine the overall public health message that breastmilk has far superior health advantages over any Infant formula.

By Law, all Infant formula sold in this country requires the addition of 2microgrammes per 100kcals of Vitamin D (ESFA2014). This often is derived from sheep’s wool (Birkle 2009). The 2016 SACN committee’s advice for a Vitamin D supplement includes infants whose intake of Infant Formula is less than 500mls per day. This would normally be for an older infant who is being introduced to solid foods and thus taking less Formula, but it could be interrupted to include the new-born Formula fed infant, as their nutritional requirements can be less than 500mls per day. The safe intake level recommendation for a breastfed infant seems to be based on this recommendation for Infant formula. To miss quote Oscar Wilde, “Breastmilk imitates Infant formula, far more than Infant formula imitates Breastmilk.”

[“*Life imitates Art far more than Art imitates Life” from his 1889 essay, The Decay of Lying.* Oscar Wilde 1889]

“Breast is Best”, first coined by Penny and Andrew Stanway in 1978, was a memorably catchy slogan but is no longer thought helpful for the promotion of breastfeeding (Stanway 1978). Human milk, being species specific, is up until now, all a human infant is thought to require for optimal growth for around the first 26 weeks of life (DH 2003). Therefore, Specialist Community Public Health Nurses (Health Visitors) when supporting new mothers, may find promoting Human milk for Human infants more helpful.

Health benefits of breastfeeding for mother, infant and society have long been recognised (Victora et al 2016), and it has become increasing evident that NOT breastfeeding can have adverse health outcomes for mother, infant and society (Renfrew 2012). Sadly, alongside this emerging evidence of the long term health gains of breastfeeding and adverse health outcomes of not breastfeeding, very few infants in this country receive JUST their mothers breastmilk for the DH recommended length of time, some estimates are as low as just 1% of the population (Bolling 2007,McAndrew 2012)

Health Visitors have always been used to working with dilemmas and uncertainty, tailoring their advice to fit individual and family circumstances. However, some families may find the “Safety in the Sun” public health message at odds with the advice regarding moderate exposure to the sun in order to synthesis Vitamin D. Similarly, new families are advised that breastmilk is all their baby needs for the first six months, but now, according to SACN, they may need an additional supplement.

**So what has prompted this change of advice?**

Data related to Vitamin D status in the new-born infant who will be breastfed appears limited, or as SACN describe, insecure (SACN 2016).

“Safe Intakes” values rather than “Reference Nutrient Intakes” [RNI] values are therefore used. Safe intakes are described as taking a precautionary approach, and defined as “*judged to be at a level or range of intake at which there is no risk of deficiency, and below a level of where there is a risk of undesirable effects”* (DH1991) whereas the more commonly used RNI value represents the amount of nutrient that is likely to meet the needs of 97.5% of the population.

In the UK, a serum/plasma 25(OH) D concentration <25nmoll/L is used to indicate a risk of vitamin D deficiency (DH 1998).

Data presented by Lennox et al and used in the SACN 2018 report suggest that only 6% of breastfed infants had a serum/plasma 25(OH)D concentration <25nmol/L and none of these infants were younger than 4 months (Lennox 2013). Therefore, the extent of Vitamin D deficiency in the new-born and the possible reason for this change in advice remains unclear. The Lennox survey also indicated that the proportion of infants receiving Vitamin supplements was less than 14%. From the data, it also remains unclear the proportion of those 14% of infants that receive their Vitamin supplements from the government backed scheme, “Healthy Start” although there appears to be some encouraging statistics for the uptake via this scheme (McAndrew 2012).

**History of supplementation**

The Welfare Food Scheme, put in place during the Second World War to ameliorate some of the effects of food shortages, has metamorphosed through a number of government initiatives over the intervening years, to the current scheme, “Healthy Start” brought in by the Labour government in 2006 (DH2006). At the heart of these reforms was still the philosophical stance of protecting the nation’s infants nutritional status. The “Healthy Start” voucher scheme has an emphasis on addressing inequalities in health, through a means tested system of eligibility.

Vitamin D drops, in the strength advised, and without Vitamin A and Vitamin C for new-borns are not available through this scheme. Families can only buy Vitamin D Drops suitable for new-borns, thus an inbuilt potential to fail to address access for all.

In addition, the terms of reference for the 2018 report includes an assessment of risk of chemical toxicity arising in the infant diet (SACN 2018). The committee included evidence in their report from the Committee on Toxicity 2013 report concerning Vitamin A (COT 2013). This second committee recommends a tolerable upper limit level [TUL] of 200microgrammes RE/kg bw/day. Average intakes reported in the Lennox survey were that at least 2.5% of infants were above this at all ages (Lennox 2013). Therefore, there is an argument to be had around level of risk of excess Vitamin A. Low income families, eligible for Healthy Start Vitamins, may be tempted to use these (containing Vitamin A as well as Vitamin D and C) for their new-born breastfed infant.

**Implications for SCPHN practice.**

Successive Infant feeding surveys (from 1975 -2010) have indicated an increase in women initiating breastfeeding (McAndrew 2012). However, evidence from these same surveys indicate many women discontinue breastfeeding, and discontinue before they had initially planned to. The UK continuation rates remain very low in comparison with other high income countries. Perhaps even more shocking is the evidence from the Lennox report that 75% of children 4 months to 18 months (many of whom must be the infants who are not being breastfed) had parent reported intakes that exceeded the estimated average requirements for dietary energy. Clearly this is of concern in the current climate of rising childhood obesity rates.

The author agrees with the 2018 reports’ recommendation of greater focus on reducing attrition rates of breastfeeding and supporting women to make informed choices as to how to feed their babies. However, given the known data around breastfeeding, the known reasons why women give up, and the current low rate of vitamin supplementation, suggesting the need for an earlier supplement of Vitamin D may not be the right focus to address these concerns for the Nation’s children, and their long term health.

SCPHN’s as leaders of the Healthy Child Programme and politically aware could serve their populations best by implementing measures to support more women to breastfeed for as long as they wish, not necessarily always suggesting they go out and buy Vitamin D supplements.

Conclusion

SACN’s remit has been to assess the risks and benefits of foods to health by evaluating the scientific evidence and then make dietary recommendations. These recommendations have always been applicable to the UK’s general, healthy population. As the committee states, “they are not intended as guidance for clinical practice and are not applicable to individual care” (SACN 2016). Additionally, SACN’s remit is also to assess the possible risks that may be associated with implementing particular recommendations; e.g., potential risk of adverse impacts on other health outcomes. The author would conclude that, given the very low rates of breastfeeding in this country, any suggestion or suspicion that human milk may be required to be supplemented with a manufactured addition needs to be viewed with caution, particularly in the light of such paucity of data. New families need to be fully supported to make informed decisions regarding supplementations and to be offered individualised health advice. Perhaps a greater imperative for the public’s health, is to support women better, to allow them to breastfeed for as long as they wish, without a blanket precautionary recommendation for supplementation.

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