IMPROVING VITAMIN D LEVELS IN PREGNANCY AND BREASTFEEDING

The darker winter months mean that some people are at risk of vitamin D deficiency. The government has taken steps to target at-risk groups. Nerys Hairon reports.

The Department of Health is taking steps to encourage pregnant and breastfeeding women to boost their intake of vitamin D during the darker winter months. Healthcare professionals report that increasing numbers of children are presenting with vitamin D deficiency, which can cause seizures and rickets (DH, 2007).

The DH is running a campaign to promote the uptake of vitamin D before and during pregnancy, targeting healthcare professionals including midwives and health visitors, as well as consumers. The move forms part of a wider campaign targeting maternal and infant nutrition. The Scientific Advisory Committee on Nutrition (SACN) has published an update on vitamin D (SACN, 2007).

VITAMIN D STATUS

The main source of vitamin D in humans is considered to result from skin photosynthesis following exposure to short wavelength ultraviolet light. Vitamin D is also found in some foods, such as oily fish, fortified margarines and some breakfast cereals, and there are smaller amounts in red meat and egg yolk.

The major circulating metabolite of vitamin D is 25-hydroxyvitamin D (25(OH)D). Traditionally a plasma 25(OH)D concentration under 25nmol/L has been regarded as an index of suboptimal vitamin D status (SACN, 2007).

Several factors can potentially affect a person’s vitamin D status. These include genetic factors, adiposity and factors that can affect the skin’s synthesis of vitamin D such as skin pigmentation, age, season, latitude, melanin concentration, clothing and the use of sunscreens.

Seasonal variations in vitamin D status are observed in the UK. The 2000–2001 National Diet and Nutrition Survey (NDNS) reported average plasma 25(OH)D concentrations to be highest in July to September and lowest in January to March (see www.food.gov.uk for information on the NDNS).

During the winter people in the UK rely on body stores and dietary vitamin D to maintain adequate levels. In winter months at latitudes of about 52 degrees north (above Birmingham) there is no ultraviolet light of the appropriate wavelength for the skin’s synthesis of vitamin D (SACN, 2007).

LOW LEVELS OF VITAMIN D

The NDNS provides evidence of low vitamin D status in most age groups in the UK, especially in older children and young adults, and in older people in institutions. Young women of childbearing age also have low vitamin D status and are likely to begin their pregnancies with low stores.

Other evidence highlights a greater risk of vitamin D deficiency in population subgroups, particularly infants from black and minority ethnic (BME) groups. The SACN reports that cases of rickets and hypocalcaemia in UK children, predominantly of Afro-Caribbean or South Asian origin, are widely reported but there is no NDNS data for these subgroups.

The DH adds that some research suggests that the incidence of rickets could be as high as one in 100 children in minority ethnic groups. Dark-skinned people do not absorb as much sunlight through the skin and may also wear clothing that limits exposure to the sun for cultural reasons.

SUPPLEMENTS IN AT-RISK GROUPS

The SACN’s update outlines the reference nutrient intakes (RNIs) for vitamin D for certain ages and subgroups. The current
RNI for pregnant and breastfeeding women is 10mcg (400 IU) vitamin D a day (DH, 1998), for the majority of whom supplementation will be needed (SACN, 2007). However, the committee adds that NICE guidance on antenatal care recommended that, in the absence of evidence of benefit, vitamin D supplements should not be offered routinely to pregnant women (NICE, 2003).

But the SACN says that the discrepancy between these recommendations has led to a lack of clarity, and this needs to be resolved to ensure clear guidance can be given to health professionals and the general public.

Referring to the recommendation for pregnant and breastfeeding women to take supplements containing 10mcg of vitamin D a day, the committee stresses that although this advice has been in place for some time, there is concern that it is being overlooked or not implemented by healthcare professionals and the general public.

The DH adds that during the winter months, children under the age of four may also benefit from vitamin D supplements.

Families who are eligible for the Healthy Start scheme can obtain free ‘Healthy Start vitamins for women’ and ‘Healthy Start children’s vitamin drops’ through their GP or health visitor (see www.healthystart.nhs.uk for more information). Some PCTs also sell Healthy Start vitamins to non-beneficiaries of the scheme for a small cost. Other supplements can be bought from most supermarkets and pharmacies. Patients who think they are at risk of vitamin D deficiency are advised to check with their GP, who may use a blood test for diagnostic purposes.

CONSEQUENCES OF VITAMIN D DEFICIENCY

Deficiency of vitamin D results in rickets and osteomalacia. The incidence of rickets in the UK declined from the 1920s onwards due to a variety of factors. However, while these conditions are now reported rarely among the white UK population, there is evidence of significant incidence in UK South Asian and Afro-Caribbean groups (SACN, 2007).

There is also recognition of a high prevalence of low vitamin D status among older people, particularly those who are living in institutional settings. However, the committee points out that there are currently no population-based estimates of incidence and it is likely that many cases do not reach clinical attention.

In addition, a low vitamin D status has been associated with a range of diseases, including osteoporosis, several types of cancer, cardiovascular disease, tuberculosis, multiple sclerosis and type 1 diabetes. Research in these areas is developing, and the SACN says that further work is needed before firm conclusions can be drawn.

WARNING ON SUN EXPOSURE

The DH explains that it takes only 15 minutes’ exposure of the arms, head and shoulders in the sun each day during the summer months to produce sufficient vitamin D for good health. However, it advises people to enjoy the sun safely and to take precautions to prevent sunburn. Most people in the UK should obtain enough vitamin D through sunlight during their daily routine without long periods of exposure to sunlight.

Once vitamin D requirements are met, further exposure to sunlight will not result in any additional health benefits – but it will increase the risk of developing skin cancer (DH, 2007).

CONCLUSION

The SACN concludes that a significant proportion of the UK population have low vitamin D status, which increases their risk of vitamin D deficiency. The committee reiterates that all pregnant and breastfeeding women should consider taking a daily supplement of vitamin D.

For details on the committee’s conclusions and recommendations on vitamin D (see below).