Do vitamin D limits require an update?

A meeting on vitamin D, chaired by Ian Gibson, MP, attracted an international group of scientists. **Lin-Nam Wang** reports

The British public should be outraged at the restrictions placed on vitamin D, said Reinhold Vieth, professor in the department of nutritional sciences and the department of medicine and pathobiology, University of Toronto. In the UK, vitamin D tablets that deliver a maximum daily dose of more than 10µg (400 IU) either require a prescription or must be sold under a pharmacist's supervision. Professor Vieth believes that the general public should be allowed free access to higher supplementary doses of the vitamin.

Official UK policy (eg, advice from the Food Standards Agency) is that most people should obtain all the vitamin D they need by eating a varied and balanced diet and through exposure to the sun. Pregnant or breast-feeding women and older people should consider supplementation with 10µg daily. In contrast, according to the National Academy of Sciences (US), older people require 15µg daily. These North American recommendations are matched on the Continent, Professor Vieth said, and he went on to ask why the British do not need vitamin D when Americans do.

It can be difficult to get direct evidence of links between vitamin D and diseases, such as multiple sclerosis, diabetes and prostate cancer. Many studies are epidemiological and others, such as retrospective studies, involve asking people about aspects of lifetime exposure to the sun. "Assessing outdoor exposure is not easy and recall can be a problem, especially in elderly people," said Richard Strange, professor of clinical biochemistry, Keele University Medical School, Staffordshire, who has researched the hypothesis that low ultraviolet radiation exposure leads to increased prostate cancer risk. Such studies do not prove the hypothesis but they are supportive. And it is now recognised that other organs, in addition to the kidneys, are able to produce calcitriol.

Although the links between vitamin D deficiency and various diseases have been questioned, the "proven part of the vitamin D story" is that the supplement can prevent osteoporotic fracture, Professor Vieth said. However, he called a daily dose of 10µg "a drop in the bucket" in terms of osteoporosis prevention. Professor Vieth cited research suggesting that just three pills of vitamin D a year, each containing 100,000 IU, could decrease fracture risk (*PJ*, 8 March, 2003, p324). One of the co-authors of that study was Sir Richard Doll and Professor Vieth likened the vitamin D story to smoking — it took many years to convince people that smoking was harmful, despite the availability of evidence, and it may take as long to convince people that vitamin D supplements could be beneficial, he said. "Smoking is easy to deal with compared with vitamin D — it is easier to tell people not to do something," he added. Professor Vieth commented that because vitamin D is such a cheap vitamin no one makes any money on it.

Professor Vieth questioned the use of public health messages. "What is the quality of the evidence? There is no debate. If you are worried about osteoporosis, take at least 800 IU (20µg) of vitamin D," he said. However, even this recommendation may be conservative. According to Michael Hollick, professor of medicine, physiology and biophysics, Boston University Medical Centre, it is now estimated that 1,000 IU of vitamin D a day is needed to satisfy the body's requirement and maintain circulating concentrations of calcidiol of at least 30ng/ml. There is a great need to increase our awareness of vitamin D nutritional status and its health implications, Professor Hollick said.

A further problem, according to Professor Vieth, is that we are stuck with old documents, which he described as "millstones around our necks". And he called for a mandate to the Expert Group on Vitamins and Minerals to re-assess the evidence for vitamin D.

Could pharmacists be giving out the wrong sun protection message?

It has been suggested that the UK Sunsmart campaign, which encourages people to "always cover up" is killing more people than it is saving because of the possible association between vitamin D deficiency and various diseases, as well as poorer prognosis in terms of cancer treatment. Two speakers presented opposing views.

According to Oliver Gillie, a medical journalist and author of a report "Sunlight robbery", Sunsmart should be abandoned. Dr Gillie said that the advice aims to prevent skin cancer but evidence indicates that skin cancer is associated with sunburn rather than normal exposure to the sun. He pointed out that the Sunsmart advice was similar to guidelines adopted in Australia and was "entirely unsuitable to the British Isles". Instead, Dr Gillie proposed a new policy, which he has called "Sunsafe". This includes the following guidance:

- Sunbathe safely without burning, everyday if possible
- The middle of the day (in the UK) is a good time for sunbathing
- Children benefit from sun exposure as long as special care is taken that they do not burn

Brian Diffey, professor of medical physics, University of Newcastle, defended Sunsmart. He argued that the evidence remains insufficient to advocate a public policy of deliberate sun exposure as a means of reducing the population burden of chronic disease. "Getting a dose of ultraviolet radiation is not like popping a pill. It is a hugely complex aspect. What may be more attractive is to look at secondary prevention of vitamin D deficiency," he said. Encouraging people to undertake more outdoor activity could also combat obesity. Professor Diffey believes it would be "incredibly irresponsible" to change the current policy. Banning Sunsmart would encourage a more cavalier attitude and more skin cancer, he said, and suggested that vitamin D deficiency be addressed through supplements.

In addition, it may not be reasonable to expect people to modify their lifestyle to get more sun exposure. "We live in a time-poor society and on average, we spend 14 minutes a day outside," he explained.

It is not appreciated that most (80–100 per cent) of our vitamin D comes from exposure to sunlight, said Michael Hollick, professor of medicine, physiology and biophysics, Boston University Medical Centre. Factors that affect the amount of sun exposure include latitude, weather and skin type. Richard Strange, professor of clinical biochemistry, Keele University Medical School, Staffordshire, warned that encouraging people to increase exposure may be inappropriate if we are not yet sure what levels of exposure are most significant in increasing skin cancer risk. In addition, advice may need to be tailored to individual characteristics, such as level of skin pigmentation.

The Sunlight, Vitamin D and Health meeting, organised by the **Health Research Forum** took place at the House of Commons on 2 November