HEALTH

The Largest Ever Clinical Study on Vitamin D Shows We're Wrong About One of Its Main Benefits

"We have created another pseudo-disease."

TIM SPECTOR, THE CONVERSATION 9 SEP 2018

We are still in love with vitamins a century after they were discovered, with half the US and UK population taking a supplement.

Vitamin D – the sunshine vitamin – is the favourite and is believed to have the most proven benefits.

Governments, including the UK government, have said that the evidence for vitamin D's health benefits is so overwhelming that every adult should take it as a supplement for at least six months of the year.

It was first used to cure rickets in Victorian children living in urban poverty and is now routinely given to prevent and treat brittle bone disease (osteoporosis) and fractures.

It has been associated with a reduced risk of over a hundred common diseases in observational studies, ranging from depression to cancer.

The largest ever clinical study on the benefits of vitamin D in preventing fractures is now reported in the BMJ, with over 500,000 people and around 188,000 fractures from 23 cohorts from many countries.

As vitamin D levels are strongly influenced by genes, the researchers used genetic markers for vitamin D blood levels (called Mendelian randomisation or MR) to avoid the normal biases of observational studies, such as confusing cause and consequence of disease and the effects of other related health behaviours (so-called "confounders").

The results showed no association between vitamin D levels over a lifetime and the risk of fracture. This latest study contradicts the UK government's recent view, but not a host of earlier clinical trials.

In 2014, a review and meta-analysis of 31 vitamin D supplement trials found no effect on all fractures. Much of our strong belief in the benefits of vitamin D came from studies of supplements in care homes in the 1980s, which were never replicated and were probably flawed.

In a more recent meta-analysis of 33 randomised trials of over 50,000 older adults, supplementation with calcium or vitamin D had no effect on the incidence of fractures. There were also no clear benefits on muscle strength or mobility.

So, if all the data points to vitamin D failing to prevent fractures, why worry about all the people with low blood levels of the vitamin? Vitamin D deficiency has become a modern epidemic with a fifth of the UK and US populations reported to have low levels. Will they be more susceptible to other diseases and cancer?

No consensus on deficiency

There is little agreement on what vitamin D deficiency is. Deficiency levels are arbitrary with no international consensus and confusion caused by different units in the US. A "normal" level can vary from 50 to 80 nanomole per litre of blood, but recent studies suggest 30nmol is quite enough.

While clinical deficiency (<10nmol) is often clear cut, wrongly labelling millions of people as vitamin D deficient causes stress and over-medicalisation. Most people assume calcium and vitamin D are safe, and the more you take the better. My clinical practice changed when studies showed calcium supplements, as well as being ineffective against fractures, may cause heart disease. Prescriptions are now dropping.

Vitamin D is fat soluble, so high levels can build up in the body. While recommendations for supplements are usually with modest doses (10 micrograms or 400 international units (IU)), these will inevitably be overdone by some people taking other sources in cod liver oil tablets or in fortified milk, orange juice or bread. More worrying, people increasingly buy high-dose supplements of 4,000-20,000IU on the internet.

Patients with very high vitamin D blood levels (over 100nmol) are becoming routine in my clinic and elsewhere, and toxic overdoses are increasingly being reported. Several randomised trials have shown that patients with high blood levels or taking large doses of vitamin D (above 800IU) had an unexpected increased risk of falls and fractures. Vitamin D is far from safe.

It can no longer be recommended for use in other conditions; the vast majority of the positive published studies in 137 diseases were reviewed as spurious. It was widely believed that vitamin D supplements prevented cardiovascular disease, but meta-analyses and large-scale genetic MR studies have ruled this out.

Pseudo-disease

We have created another pseudo-disease that is encouraged by vitamin companies, patient groups, food manufacturers public health departments and charities. Everyone likes to believe in a miracle vitamin pill and feels "they are doing something".

Vitamin D, despite its star status, would not be called a vitamin today, as the doses needed are too large, the body can synthesise it from skin, and it is a steroid precursor. Instead of relying on this impostor, healthy people should get vitamin D from small doses of sunshine every day as well as from food, such as fish, oil, mushrooms and dairy products.

We should also trust that thousands of years of evolution would cope with a natural drop in vitamin D levels in winter without us snapping our limbs. About half the population take vitamins daily, despite zero benefits, with increasing evidence of harm. The worldwide trend of adding unregulated vitamins to processed food has now to be seriously questioned.

While vitamin D treatment still has a rare medical role in severe deficiency, or those bed bound, the rest of us should avoid being "treated" with this steroid for this pseudo-disease and focus on having a healthy lifestyle, sunshine and importantly save your money and energy on eating a rich diversity of real food.

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