Access to Megadoses of Vitamin D, Insufficient Knowledge of People and Poor Practice of Community Pharmacists, Made a Vicious Circle in the Direction to D Hypervitaminosis in Iran

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One of the fat-soluble vitamins is vitamin D, which plays a role in bone metabolism and has some anti-inflammatory and immune system-modulating properties. Cardiovascular problems, increased risk of cancer and some autoimmune diseases seem to be related to low levels of vitamin D (1).

Dietary sources of vitamin D are limited and this vitamin is mostly produced through exposure of the skin to natural sunlight. Elderly people, pregnant women, people wearing hijab and those who use sunscreens are more vulnerable to its deficiency (2, 3). The high prevalence of vitamin D deficiency in Iran has made health policymakers to recommend treatment with forms containing mega-doses of vitamin D such as ampoules of 300,000 IU and Pearls of 50,000 IU as a simple and feasible method. The most recommended protocol for the deficiency of this vitamin in Iran is 50,000 IU weekly for up to 8 weeks or using a single dose 300,000 IU injection. After that, a monthly maintenance dose of 50,000 units is recommended (4).

According to the official records of the Food and Drug Organization of Iran, the consumption of vitamin D supplements in Iran is significant. Despite Iran's population of about 80 million people, the sale of products containing vitamin D is about 2,460,000,000 pearls of 50,000 IU and 1,900,000 ampules of 300,000 IU in a year (5,6). This high amount of consumption occurred based on media information about the prevalence of vitamin D in Iran (7). Much encouragement to prevent vitamin D deficiency has changed people's attitudes toward use of vitamin D (8).

The widespread encouragement to use vitamin D supplements in the absence of proper information can lead to hypervitaminosis D. For example, after the start of the covid-19 epidemic, many Iranian people started taking mega-dose of vitamin D (50,000 units weekly or every two weeks) with the encouragement of the medical staff in order to strengthen the function of their immune system (9).

A blood concentration of more than 100 ng/ml of 25-hydroxyvitamin D is known as hypervitaminosis D. A cross-sectional study on patients referred to an endocrinology clinic in this country in order to compare the blood concentration levels of 25 hydroxyvitamin D in the subgroups of weekly and biweekly consumers showed the rate of hypervitaminosis to be 18.9% and 4.5%, respectively (9, 10). Also, articles showed the relationship between megadoses of vitamin D and the toxicity of this vitamin (11, 12).

People's easy access to products containing mega-doses of vitamin D along with the lack of public awareness of the need to conduct tests to determine the level of vitamin D before consuming them, the weak activity of pharmacists in providing correct advice to people requesting these products in pharmacy leads to an increase in irrational consumption of vitamin D and an increase in the risk of hypervitaminosis D (13). A study has shown that even community pharmacists' knowledge about how to consume megadoses of this vitamin and poisoning with it is not enough (6).

In conclusion, the possibility of hypervitaminosis of vitamin D is very high. It can be suggested to the policymakers to create limits for the provision of mega-doses of vitamin D3 as over-the-counter products, and also by providing educational packages, suitable maintenance doses of 800 to 1000 units per day in order to reduce the risk of hypervitaminosis.

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