Food that requires caution when consumed with medications

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Introduction

What comes to mind when you think of Japanese iconic food?

In addition to *sushi, onigiri, ramen, gyoza, udon* noodles, *okonomiyaki* and many other dishes, *natto*, fermented soybeans, should be also an integral part of Japanese food culture. *Natto* is either loved or hated because of the sticky texture and distinctive smell, but it is now recognized as healthy fermented food and found in supermarkets in the US and Europe. *Natto* has a long history. Sen no Rikyu, a famous tea master in the Sengoku period (late 15th to late 16th century), is said to have served *natto* in tea ceremonies. However, *natto* can affect medications. The effects of drugs may be reduced or increased by interactions with not only other medications but also food and supplements. This is why we pharmacists ask patients about health food products or supplements they use as well as other drugs they take before dispensing prescribed drugs. In this article, I will talk about food and supplements that affect medications.

St. John's wort (Hypericum perforatum)

St. John’s wort is distributed mainly in Europe and Central Asia.

It is often prescribed as an antidepressant in Europe, but it is readily available on the market as health products in Japan. Health food products containing St. John’s wort can reduce the effects of certain drugs. These drugs include immunosuppressants (e.g., ciclosporin and tacrolimus), cardiac stimulants (e.g., digoxin), bronchodilators (e.g., theophylline), anticoagulants (warfarin), and oral contraceptives.

When a patient has already been taking a drug with a health food product containing St. John’s wort, abrupt discontinuation of the product may rapidly intensify the effect of the drug and cause side effects. To prevent this, the consumption of the health food product needs to be reduced gradually before it is discontinued. Do not use your own judgment when reducing it. Make sure to consult a physician or a pharmacist.

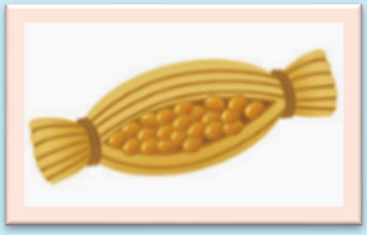
Grapefruit juice

Drugs such as immunosuppressants (e.g., ciclosporin), hyperlipidemia drugs (e.g., simvastatin), and antihypertensives (e.g., nifedipine) may interact with grapefruit juice, which may intensify effects of the drugs or cause side effects. There are more drugs you should avoid taking with grapefruit juice. Grapefruit juice contains a substance that inhibits drug metabolizing enzymes, which is considered to slow the metabolism of drugs and thereby intensifying their effects or causing side effects. It is said that grapefruit pulp also contains this enzyme-inhibiting substance and that caution is needed when not only drinking the juice but also eating the pulp.

⚓ Tidbits ⚓

A drug is broken down in the body by the process called metabolism. The metabolism requires enzymes. In particular, an enzyme called cytochrome P450 (CYP) plays an important role. This enzyme is involved in an increase or decrease in the effect of a drug taken with another drug or food. When the function of CYP is inhibited, the effect of a drug is intensified. This is called enzyme inhibition. In contrast, enhancing the function of CYP is called enzyme induction, which reduces the effect of a drug. There are various types of CYP. Typical CYPs include 3A4, 2C19, 2D6, 2C9 and 1A2. St. John's wort mainly induces CYP3A4 and CYP1A2, which accelerates drug metabolism and reduces the effect of the drug. Grapefruit juice inhibits the function of CYP3A4 and intensifies the effects of drugs.

Natto



There is a drug that interacts adversely with *natto*. It is warfarin, which inhibits blood coagulation to prevent blood clots from forming. As *natto* contains plenty of vitamin K and bacillus subtilis natto that produces vitamin K in the large intestine, it reduces the action of warfarin to inhibit blood coagulation. If patients are taking warfarin, they need to avoid eating *natto*. Just like *natto*, chlorella and green juice contain a lot of vitamin K and therefore patients are told to avoid them, too. Green and yellow vegetables are also rich in vitamin K. Green juice and chlorella food, which are made from condensed vegetables, likewise reduce the effect of warfarin. The effects of *natto* are considered to last several days. Patients must be careful about consuming *natto*, chlorella and green juice while taking warfarin.

⚓ ⚓ Tidbits ⚓ ⚓

As an alternative to warfarin, new anticoagulants called DOACs (direct oral anticoagulants) are recently available. (The indications may differ.) These drugs act without vitamin K intervention. If you cannot live without *natto*, it may be a good idea to ask your doctor or pharmacist whether it is possible to change to one of these drugs.

Take home message

Food and supplements considered healthful can affect medications. Eating food or supplement a lot hoping to improve your health could affect the effect of a drug you are taking. There are many other combinations besides the above. Taking an antibiotic with milk or other calcium-rich food can prevent absorption of the drug, which may hinder the treatment of an infection. Theophylline, a medication to treat asthma, is affected by caffeine contained in coffee, black tea, green tea and other drinks. It may intensify the effect of the drug and cause severe side effects. Taking a drug with alcohol could also intensify the effect of the drug and cause severe side effects. Drugs can be risks. Drugs will benefit your health if used properly but it can pose great risks if not. Some food and supplements increase risks posed by drugs. If you have any concern, consult professionals, such as physician and pharmacist, and use medications and supplements properly to promote your health.