Prevention of heart diseases: the remarkable effect of olive oil and red wine

Richard Béliveau

Translated from Le Journal de Montréal, July 31, 2017

A study shows that increased consumption of hydroxytyrosol, a phenolic compound found in large quantities within virgin olive oil and red wine, is associated with a significantly decreased risk of cardiovascular diseases and of premature death.

It is now well-established that the **Mediterranean diet** significantly decreases the risk of cardiovascular diseases, even in people who have already had a heart attack (secondary prevention) as well as in the general population (primary prevention).

For example, the randomised clinical study PREDIMED (PREvención con DIeta MEDiterránea) showed that adoption of a Mediterranean diet rich in extra-virgin olive oil was associated with a decrease of about 30% in the risk of cardiovascular events, even though the population studied had several well-documented risk factors for these diseases (diabetes, hypertension, overweight, smoking or elevated cholesterol-LDL)[1].

MEDITERRANEAN POLYPHENOLS

The Mediterranean diet includes several food sources known to exert positive effects on cardiovascular health (vegetables, fruits, nuts, beans, whole grains, fish), but virgin (or extra-virgin) olive oil and red wine have become the subjects of particular attention due to their elevated contents of polyphenols with anti-inflammatory and antioxidant properties.

One of these polyphenols, hydroxytyrosol, is particularly interesting because the free and conjugated forms (secoiridoids) of this molecule can represent up to 70-80% of the total polyphenol content of virgin olive oil. Hydroxytyrosol is also present in large quantities in red wine and biologically active concentrations of this molecule have been detected in blood following moderate consumption of red wine.

Since several clinical and epidemiological studies have shown that consumption of polylphenol-rich olive oil and of wine were associated with diminished risk of cardiovascular events, it thus seemed probable that these benefits were due, at least in part, to the presence of the polyphenols in these two elements which form the base of the Mediterranean diet.

LIFE EXPECTANCY

To explore this possibility, the researchers behind the PREDIMED study randomly selected 1851 urine samples obtained from the participants in their study and measured their contents of hydroxytyrosol as well as of its metabolized form (homovanillyl alcohol). They then looked for any link between these measured concentrations and the incidence of cardiovascular events (heart attack, stroke, cardiovascular mortality) as well as total mortality which they had monitored during their study.

They initially noted that the urinary levels of hydroxytyrosol and its metabolite were strictly correlated with the dietary supplies of virgin olive oil and red wine, which confirms that these foods were the principal sources of the polyphenol.

Even more interesting, this approach allowed them to observe that the participants who showed the highest levels of metabolized hydroxytyrosol (>20 mmol/L) had a risk of cardiovascular diseases that was 56% less than in those with lower hydroxytyrosol levels[2]. This protective effect means that people who consume the most hydroxytyrosol live on average nearly ten years longer after age 65, including six years without developing cardiovascular events. It's remarkable!

There is thus no doubt that a Mediterranean type diet, including the use of virgin olive oil as the principal fat and moderate consumption of red wine, leads to extremely positive effects on cardiovascular health. This is particularly important for people who are at high of cardiovascular events (family history, dyslipidemia, diabetes and hypertension) and who can also profit from the protective effects for significantly diminishing their risk of premature death.

(1) Estruch R et al. Primary prevention of cardiovascular disease with a Mediterranean diet. N. Engl. J. Med. 2013;368:1279-1280.

(2) De la Torre R et al. Protective effect of homovanillyl alcohol on cardiovascular disease and total mortality: virgin olive oil, wine, and catechol-methylation. Am. J. Clin. Nutr. 2017;105:1297-1304.

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