Cardiovascular diseases (CVD) are a major public health concern, responsible for approximately 17 million deaths worldwide, of which 80% occur in developing countries. It is estimated that in 2030, 23.6 million people will die from CVD.

Many risk factors are recognized as responsible for the onset and progression of CVD: hypertension, dyslipidemia, obesity, metabolic syndrome, diabetes and inflammation; however, non-pharmacological therapeutic strategies such as dietary modifications can help reduce these risk factors.

The number of research studies with functional foods has increased. A food item is recognized as functional when, beyond its basic nutritional functions, it produces beneficial health effects. Many food items have received attention because of their effects on cardiovascular health. Some examples are chocolate, berries, garlic, red wine, oil seeds (nuts, walnuts, and flaxseed).

In this issue of the International Journal of Cardiovascular Sciences, in the manuscript entitled “Chocolate Effects on Endothelial Function of Patients with Acute Coronary Syndrome”, the authors observed that dark chocolate intake increased the flow-mediated vasodilation of the brachial artery in patients with acute coronary syndrome. However, the researchers did not analyze the mechanisms by which chocolate promoted some beneficial effect on endothelial function. The study was conducted on a small sample of patients and, in addition, it is important to emphasize that the intake of 100 grams of chocolate per day may represent a significant increase in the total calorie value of the diet. However, these results are important because, in fact, several studies have shown that the presence of flavonoids in cocoa has a cardiovascular protective effect. Buitrago-Lopez et al. showed, through a systematic review and meta-analysis of randomized clinical trials, that chocolate intake reduces cardiovascular risk.

Another group of foods that has been sought by the population are the berries, such as raspberry, blueberry, strawberry and goji berry. These fruits are rich in vitamins (A, C, E and B complex), minerals, phenolic compounds (ellagic and gallic acid) and flavonoids (catechins, quercetins and anthocyanins) which provide these fruits with anti-inflammatory and antioxidant properties and seem to be able to reduce serum cholesterol. In fact, a study using ellagic acid in the diet of mice with atherosclerosis showed some reduction in the thickness of lesions in the aorta and increased nitric-synthese oxide activity.

Red wine and grapes are also extensively studied because resveratrol, a polyphenolic compound found in these foods have high antioxidant power. Tomé-Carneiro et al. observed that individuals with high risk of CVD receiving, for one year, grape supplement enriched with resveratrol showed reduced C-reactive protein levels and tumor-alpha necrosis factor, as well as increased levels of interleukin-10 (anti-inflammatory). However, the effects of resveratrol are much more promising in animal studies and these results are not always translated into clinical studies.

Oil seeds are a source of polyunsaturated fatty acids, antioxidants, vitamins and minerals and many studies have shown a wide range of beneficial cardiovascular effects. Ma et al. in a meta-analysis, showed an association between intake of nuts and reduced risk of coronary artery disease (CAD). The dose-response
analysis indicated that the risk of CAD decreased by 5% for each serving eaten in a week. A greater protective effect for CAD was found when the intake was more than two servings per week. The study by Goyal et al. showed evidence of the beneficial effects of flaxseed (rich source of omega-3 fatty acids) in the reduction of total cholesterol, LDL and triglycerides.

The bioactive compounds are naturally present in small quantities in food and their main actions are: antioxidant activity, modulation of detoxification enzymes, stimulation of the immune system, reduced platelet aggregation, reduced blood pressure and modulation of the cell protective system Keap1/Nrf2.

Healthy eating has been recognized, for a long time, as a protective factor for CVD; currently, research studies have evolved significantly and showed that functional foods, that is, foods rich in antioxidant compounds, confirm the benefits of many foods for the cardiovascular system. Thus, healthy eating with the incorporation of functional foods should be encouraged. However, the large number of studies with different doses and methodologies hinders the establishment of a consensus, a recommendation and appropriate dosing about the supplementation of functional foods and compounds. Further controlled studies are required to clarify this issue.

Potential Conflicts of Interest
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