Commentary

Herbal Drugs in Cardiovascular Diseases

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Herbal Drugs in CVD’s

Cardiovascular diseases (CVDs) are significant and growing problem worldwide, that occur almost equally in men and women. CVDs is a term that include a number of linked pathologies such as coronary heart disease (CHD), cerebrovascular disease, peripheral artery disease, rheumatic and congenital heart disease, and venous thromboembolism [1]. According WHO cardiovascular disease take lives of 17.9 million people every year, what represents 31% of all global deaths [2]. The main risk factors for these disorders include smoking, psychosocial factors, excessive alcohol consumption, lack of regular physical activity, high levels of low-density lipoprotein cholesterol, hypertension, diabetes, abdominal obesity, as well as lack of fruit and vegetable consumption. Nowadays, there is increasing evidence of the role of dietary factors and herbal medicines in the prevention of CVDs and the possibility of their use in therapy, in addition to the treatment of cardiovascular risk factors with pharmacological agents and the use of antithrombotic agents [3,4].

Plant extracts have been used for medical purposes for many years and their usage continues nowadays. For example, Chinese herbal medicines are widely used in China and have long been a powerful method to treat diseases. Dong et al. reviewed positive roles of Chinese herbal medicines not only in treatment of cancer, nervous system, respiratory, infectious but also in the treatment of cardiovascular diseases [5]. It is estimated that around 25% of currently commercialized medicines are derived from plants used in traditional medicine. To the most common herbal medicaments belong acetylsalicylic acid (aspirin) extracted from derived from Salix alba (willow bark), ephedrine derived from Ephedra sinica, digitoxin derived from Digitalis purpurea and Digitalis lanata, reserpine from Rauwolfia serpentina [6,7].

However, all medicines, especially those derived from herbs, can hide damaging effects that sometimes exceed the benefits. Although many of herbs have an impact on the biological mechanisms associated with the cardiovascular system, there is still a lack of more clinical studies on their effects. In some research studies, the potentially relevant side effects are described, including the increased risk of interactions between the herbal and conventional cardiovascular drugs. They could alter the pharmacokinetics of cardiovascular drugs and influence their metabolism as well as their distribution. Doctors should always assess the use of herbal medicines in patients and discuss with them the potential benefits and side effects [7]. Some of the possible negative cardiovascular effects caused by herbal medications are summarized in the study of Liperoti et al. [7] and also in the study of Tachjian et al. [8]. They reported,
that for example garlic (potentially used in hypertension, during problems with high cholesterol) and ginkgo (used in treatment of cognitive disorders) could reduce platelet function, what may result in increased risk of bleeding when used together with aspirin and anticoagulant agents. Hawthorn, which is used in congestive heart failure and hypertension, can increase the concentration of digoxin in the blood, which increases the risk of arrhythmias, and potentiates action of cardiac glycosides and nitrates. Licorice used in treatment of cirrhosis, cough, sore throat, infections, ulcer increased risk of hypokalemia, increases blood pressure and may potentiate digoxin toxicity. Salvia miltiorrhiza significantly decrease the binding of warfarin to serum albumin, subsequently leads to increasing free drug concentrations in vivo, what leads to an increased risk of bleeding. St. John’s wort (effective in treatment of depression) can induce cytochrome activity, reduce the effectiveness of the medicines metabolized with these enzymes including warfarin. Usage of St. John’s wort also increases heart rate and blood pressure and decreases digoxin concentration.

Green tea, used to improve cognitive performance, mental alertness, weight loss, and as diuretic agent, contains small amounts of Vitamin K, what lead to decrease of the warfarin effect. Grapefruit juice, used for weight loss, and to promote cardiovascular health increases effects of statins, calcium-channel blockers, or cyclosporines [7,8]. Tabassum and Feroz summarized the list of 49 plants with possible effect on hypertension, many of them are common (e.g. ginger, garlic, soybean, cocoa bean or sesame) and some are ubiquitous to the tropical rain forests (e.g. Musanga cecropoides) [9]. Silva et al. pointed out beneficial effect of plant metabolites, such as essential oils which are primarily rich in terpenes and phenylpropanoids. They highlighted their vasorelaxant, hypotensive, antiplatelet aggregation, antidiabetic and antidyslipidaemic properties, as well as protective properties against ischemia/reperfusion injury and heart hypertrophy [10].

In short, many studies confirm the potential benefits of herbal supplements to the cardiovascular system. Some studies also describe the side effects of plant compounds and the potential interaction between plant medicines and conventional medicines. Scientific research into the effects of plants must be linked to modern medicine, and current information on the medical or side effects and interactions of the largest community of health professionals needs to be disseminated. Further research is needed to confirm whether the herbal medicine will be effective and safe for the prevention or treatment of heart disease.

Conflict of Interest

The authors declare no potential conflict of interest.

References