Medicinal plants for management of diabetes: alternative or adjuvant?

Diabetes mellitus induced-cardiovascular complications are the main cause of death in diabetic patients, and more than 65% of deaths among diabetic patients are due to heart failure and vascular abnormalities (1). Since the discovery of insulin by Banting and Best, insulin therapy has often been an important part of diabetes treatment in patients with diabetes of all types. Although insulin therapy delays some diabetes-related morbidity and complication by reducing hyperglycemia and glycosylated hemoglobin, some secondary complications related to diabetes, including heart disease, nephropathy, and hypertension, remain to be devastating conditions among diabetic patients (2). In addition, insulin-induced lipogenic and cholesterogenic actions as well as increased risk of hypoglycemia lead to devastating and fatal results in patients under long-term insulin treatment (3). Therefore, improved alternative antidiabetic approaches are urgently needed. Recently, herbal drugs have attracted researcher attention as alternative or adjuvant drugs for lowering diabetes-induced complications besides insulin therapy. Multiple lines of evidence have highlighted that the antidiabetic effects of plant/natural products are due to their antioxidant and anti-inflammatory properties (4, 5). Furthermore, an increasing body of evidence has revealed that the diabetes-related deleterious effects are mediated by oxidative stress and inflammation (4, 6). Accordingly, if diabetes-induced complications are mainly mediated via oxidative stress and inflammatory reactions, to overcome the deleterious effects of diabetes, herbal medicines are very good candidates because of their fewer side effects and higher antioxidant and anti-inflammatory properties than synthetic antidiabetic compounds. The article published in this issue of *The Anatolian Journal of Cardiology*, entitled "Ethyl acetate fraction of *Allium hirtifolium* improves functional parameters of isolated hearts of diabetic rats," by Khaleghi has provided evidence that the administration of an ethyl acetate fraction of *Allium hirtifolium* reduces diabetes-induced heart abnormality in rats (7). The results of this study revealed that besides lowering the blood glucose levels, Persian shallot significantly improves baseline and postischemic cardiac functional parameters deteriorated by STZ-induced diabetes in rats. The findings of the present study and several other studies (5) have very well documented that herbal drugs are more affordable and economic and have fewer side effects than synthetic drugs such as insulin for managing diabetes mellitus. However, it is still not very clear whether we can use herbal medicine alone as an alternative to synthetic drugs or as adjuvant drugs along with insulin for the management of diabetes. Further research is still required to elucidate the comprehensive details of issues such as medicinal plant compounds and properties, effective dose of each compound, plants names as originally entered in the database, taxonomic status, and probable side effects.

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