Int J Endocrinol Metab 2008; 3: 124-126

COMMENT

Complementary and Alternative Treatments for Diabetes Mellitus: Herbal Remedies and Adulteration with Synthetic Drugs

Schatz H

Universitätsklinikum Bergmannsheil, Buerkle-de-la-Camp-Platz 1, D-44789 Bochum, Germany

In the United States of America, more than two thirds of the adult US population are now using complementary or alternative medicine and most of the corresponding remedies are available without a physician´s prescription. [1] As for diabetes, 31% of 502 Canadian patients were found to take alternative drugs[2] and German diabetes patients similarly use a broad spectrum of herbals or procedures such as acupuncture. According to a German study, "Sauerkraut" and its juice top the list, followed by brandy (klarer Schnaps), onion, and different herbal teas. Garlic and even raw snails were also believed to be helpful.[3,4] Garlic and onion were already popular with European diabetes patients in the 19th century; in much of Asia, the traditional remedy was banyan, whereas Chinese, Indians and Australians resorted to karela. Before the advent of insulin, many Europeans also put their trust in baker´s yeast or blueberries, but now cinnamon has emerged as the top favourite in the alternative treatment of diabetes - at least in Germany. Many European pharmacies also offer a preparation derived from bitter melon, a popular Indian vegetable, in order to "to help and ameliorate the metabolism" in diabetes. According to the manufacturer, a well known Swiss pharmaceutical company, the preparation´s potency derives in part from flavinoids and saponins. Altogether, more than 400 herbals with varying efficacy in lowering blood sugar levels have been described in the past.

Correspondence: Helmut Schatz, Universitätsklinikum Bergmannsheil, Buerkle-de-la-Camp-Platz 1, D-44789 Bochum, Germany
E-mail: helmut.schatz@ruhr-uni-bochum.de

This article addresses two issues: The use of herbal and other alternative remedies, and the adulteration of such preparations with synthetic drugs.

In remote or economically weak regions, herbal and other remedies may indeed be helpful and their use by local traditional medicine is therefore justified. However, this does not hold for Germany. In its statement on cinnamon and other herbal preparations, the German Diabetes Association recommended not to use such products.[5,6] The spectrum and the level of active ingredients in a plant preparation may vary substantially from year to year, depending on climate and other factors, and are often difficult to standardize. An additional reason for avoiding such products is the fact that type-2 diabetes is difficult to treat even with approved pharmaceuticals and that herbal preparations, particularly

when taken without the physician´s knowledge, may interfere with therapy in unpredictable ways. Many herbals are well known to modify the pharmacok-inetics and pharmacodynamics of other drugs, such as warfarin, sedatives, antide-pressants and antidiabetic agents.[7] Finally, and most importantly, herbal remedies have generally not been tested for long-term toxicity or tumorigenesis, a compulsory precondition for the licensing of any pharmaceutical in Germany and most other developed contries. In order to bypass this important safeguard, pharmacies in Germany and other countries often market herbal products as "nutritients" or "food additives".

Ayurvedic medicine is now widely accepted even in Europe and the USA, because it is considered to be "softer" and "more gentle" than Western medicine. Yet it can be rather harsh and a far cry from "wellness medicine". For example, it may recommend encasing a patient up to the neck in a sweat box and then heating the box until the pain becomes unbearable. It may also involve procedures for inducing repeated vomiting. H. P. T. Ammon, one of the most knowledgeable experts on Far-Eastern traditional medicine, has described and illustrated these and other Ayurvedic practices. [8] Kulambil Padinjakara et al. describe two English diabetic patients of Indian origin, who switched from classical antidiabetic treatment to herbal preparations without their physician´s knowledge. They had bought these preparations in India, where they had been told that they were effective against diabetes according to Ayurvedic medicine. One of the patients was even ordered to stop all his "Western" antidiabetic medication, including injections, when taking the "herbal" preparations - a potentially dangerous advice.[9]

In the "Charaka Samhita" from 600 B. C., which compiles Ayurvedic medical knowledge, diabetes symptoms are described in the chapter "Prameh", which deals with urinary conditions. The patients were already grouped into two forms, which correspond exactly to the modern WHO classification of type-1 and type-2 diabetes: The first form included slim and young patients, and the second middle-aged and obese ones, who ate large amounts of good food and were physically not very active. The recommended treatment was "walking for many hours" and "digging holes into the earth" - a surprisingly modern advice. However, herbal and other proposed forms of ancient "pharmacotherapy" - often bitter-tasting and astringent preparations - have proved to be rather ineffective.[2]

It was thus surprising that Kulambil Padinjakara et al. found "Ayurvedic preparations" remarkably effective in controlling blood glucose levels. This was particularly true of case 2, for which the HbA1c decreased from 8.3 to 6.9%. An analysis of these two samples revealed that both contained the sulfonylurea glibenclamide. Similar findings have been made with "herbal" drugs prepared and sold in Europe, some of which contained metformin. The abovementioned authors discuss at length the widespread adulteration of herbal remedies with synthetic antidiabetic agents in Southeast Asia and document this fact with references from the literature. In Taiwan, up to 23.7% of all "Chinese herbal preparations" dispensed in hospitals were found to contain at least one synthetic ingredient.[10]

This article is not a wholesale condemnation of herbal or natural medications, but a warning against the hazards posed by their frequent adulteration. This hazard will undoubtedly not go away in the future. Nature is full of active substances. Many of them have been used or will help to treat sick people. Digitalis and salicylates are well-known examples. Also metformin was developed from the French lilac Galea officinalis, which monks used centuries ago for the treatment of glucosuria. The most recent entry in the list of antidiabetic natural products is exenatide, an analogue of glucagon-like peptide-1 found secreted in the saliva of the Gila monster, a reptile living in the deserts of Arizona. The product, Byetta®, has been li-

censed by both the American and the European authorities, the FDA and the EMEA, because its efficacy and safety had been extensively tested over many years. This must be the way to deal with natural products before we administer them to patient

Received: 08.10.2008 **Accepted**: 10.10.2008

References

1. Barnes PM, Powell-Griner E, McFann K, Nahin RL: Complementary and alternative medicine use among adults: United States, 2002. Adv Data 2004; 343: 1-19
2. Ryan EA, Pick ME, Marceau C, Use of alternative medicines in diabetes mellitus Diabet Me. 2001; 18:242-5.
3. Wicklmayr M: Hausmittel zur Behandlung des Diabetes mellitus. Diab Prax 1980. 4: 10
4. Mehnert H: In: Typ-2-Diabetes. Medicon Verlag München 2002. p. 64
5. Schatz H, and the Committee for Pharmacotherapy of the German Diabetes Association. 2004. www. deutsche-diabetes-gesellschaft. de/Aktuelle Stellungnahmen
6. Schatz H and Ammon HPT: Zimt und andere pflanzliche Produkte in der Diabetestherapie. In: Diabetologie kompakt, Helmut Schatz,ed. 4th Edition Thieme Verlag Stuttgart - New York 2006. p. 190-191
7. Sood A, Sood R, Brinker FJ, Mann R, Loehrer LL, Wahner-Roedler DL: Potential for interactions between dietary supplements and prescription medications. Am J Med 2008; 121: 207-211
8. Ammon HPT: Die Ärzte der Maharadschas. In: Heilwissen versunkener Kulturen, Gisela Graichen, ed. Econ Verlag München 2004. pp. 82-135.
9. Kulambil Padinjakara RN, Ashawesh K, Butt S, Nair R: Herbal remedy for diabetes: Two case reports. Exp Clin Endocrinol Diabetes, in press
10. Huang WF, Wen KC, Hsiao ML: Adulteration by synthetic therapeutic substances of traditional Chinese medicines in Taiwan. J Clin Pharmacol 1997. 37: 344-350