

Herbal Approaches Used to Treat Diabetes in Dominica

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Introduction

Diabetes Mellitus is a disorder that results in abnormally high blood glucose, or blood sugar levels. There are many treatment options for people with the disease; however, in order to manage the disease sufferers must understand diabetes, what treatment options are available, and what the treatment regimens entail. This paper combines both research and experience, which translates into everyday advice for people living with diabetes and provides insights into the problems faced by those who deal with diabetes on the island. Dominica provides an excellent case study in which these factors can be examined.

General Information on Diabetes

Diabetes is sometimes referred to as the silent disease because its symptoms are not always apparent. It is said that only half the people who suffer from the disease know they have it. There are however, some physical symptoms associated with chronically high blood sugar levels that can lead physicians to suspect the presence of diabetes. They include: excessive thirst and dry mouth, frequent urination with large volumes of urine, unexplained weight loss, increased appetite, exhaustion, blurred vision, recurring infections that are slow to heal, abdominal pain, nausea, and dry, itchy, skin (McCool and Woodruff, 1999).

Symptoms may appear gradually or may come up suddenly during any stage of life. In some cases, symptoms may not appear at all.

The three different types of diabetes are type 1, type 2, and gestational diabetes. Type 1 diabetes, called juvenile onset diabetes or insulin-dependent diabetes, is a condition in which the pancreas produces little to no insulin. Less than 10% of people with diabetes have type 1 (McCool and Woodruff, 1999). It is more common in children and adolescents. Normally, the onset of type 1 is swift and severe. The only treatment for people with type 1 diabetes is the use of insulin injections. Without insulin, they will die.

Type 2 diabetes is far more common. It is called non-insulin dependent diabetes because people who have this condition still produce insulin and can often control their blood sugar without taking insulin injections. This condition is known as insulin resistance.

Gestational diabetes is recognized and diagnosed during pregnancy usually after the 24th week. Although gestational diabetes usually abates after delivery, women who have this condition are at a higher risk of developing diabetes later in life.

Two of the strongest risk factors for developing diabetes are obesity and lack of exercise (McCool and Woodruff, 1999). Positive changes in nutrition and exercise are often all that are needed to keep diabetes in check. Being overweight encourages the development of diabetes because as your body accumulates excess fat, your cells become increasingly resistant to the effects of insulin; so the pancreas must secrete more and more insulin in order to remove glucose from the bloodstream. As insulin resistance progresses, blood insulin levels become chronically elevated, and this can lead to diabetes (McCool and Woodruff, 1999). Another critical factor is family and gestational history. African American, Hispanic, and Native Americans are among those most at risk for

developing diabetes and an immediate family member with the disease can also greatly increase the risk of developing the disease (McCool and Woodruff, 1999).

Nutrition and exercise also have a huge affect on the severity of diabetes. A healthy diet will maintain blood glucose levels as close to normal as possible, and help achieve healthy blood cholesterol and triglyceride levels. It can also prevent long-term complications such as kidney disease, cardiovascular disease, and nerve damage and improve overall health through optimal nutrition.

Proteins have two roles in treating diabetes: first, proteins cause a feeling of fullness and satisfaction and second, a meal that contains both proteins and carbohydrates has a gentler effect on blood sugar than an exclusively carbohydrate-rich meal (McCool and Woodruff, 1999). It should be noted that 10-20 percent of calorie intake should come from protein (McCool and Woodruff, 1999). People with diabetes may include some sugar in their diets without adversely affecting their blood sugar but sugar intake should be kept to a minimum. A relatively high-carbohydrate, low-fat diet in which carbohydrates make up 55 to 60 percent and fat 20 to 30 percent of calories promotes weight loss. Unrefined, high-fiber carbohydrate foods should be chosen. Finally, fat is a concentrated source of calories that has more than twice the calories of carbohydrates or proteins. If a person consumes more calories than are burned, the excess will be stored as fat. Fat should make up less than 30 percent of caloric intake and consumption of saturated and trans fats should be kept to a minimum.

Exercise is an essential part of a healthy lifestyle. It enhances the quality of people's lives by increasing energy levels and building endurance, strength, and cardiovascular output (McCool and Woodruff, 1999). People with diabetes can benefit

by exercising regularly. For example, exercise improves blood sugar control, weight control, and results in better body composition, and cardiovascular functioning. Exercise is a good outlet for stress.

Epidemiology of diabetes in Dominica

Dominica is said to have a high percentage of citizens afflicted with diabetes; however, sources supporting this statement are inconclusive. Data from 1999-2003 suggests that the west coast has a higher rate of new cases per year. It is interesting to note that east coast villages of Castle Bruce, La Plaine, Marigot, and even Grand Bay all have very low numbers of new cases. In comparison, the west coast villages of Portsmouth, Roseau, and St. Joseph have more new cases per year with Roseau registering the highest number of new cases (Fig 1). This could be because it is the capital city and is where health care is more readily available for diagnosis. Regardless of geographic location females make up 70.3% of the population's cases of diabetes according to the 2004 census (Fig 2).

The available data lead to several questions. What type of diabetes is more prevalent, type 1 or type 2? Why is Roseau's number of cases so much higher? Is percentage of cases higher in Roseau than in smaller cities? How easy is it to register a case of diabetes? Why does the east coast seem to have a lower rate of disease? As shown there are many holes in the data. There are many aspects that require further investigation.

Figure 1:

**NEW CASES DIABETICS REGISTERED
AT THE HEALTH DISTRICTS
DOMINICA**

HEALTH DISTRICT	1999	2000	2001	2002	2003
Castle Bruce	6	7	10	7	13
Grand Bay	25	13	24	20	19
La Plaine	13	4	15	14	12
Marigot	7	29	21	15	21
Portsmouth	20	25	13	37	43
Roseau	58	38	82	46	82
St. Joseph	54	29	27	17	14
Total	183	145	192	156	204

Figure 2:

**DIABETICS REGISTERED AT HEALTH CENTRES
As At April 2004 - DOMINICA**

Health District	Male	Female	Total	%male	% female
Castle Bruce	23	50	73	31.51	68.49
Grand Bay	65	165	230	28.26	71.74
La Plaine	42	122	164	25.61	74.39
Marigot	96	212	308	31.17	68.83
Portsmouth	88	246	334	26.35	73.65
Roseau	285	691	976	29.20	70.80
St. Joseph	69	122	191	36.13	63.87
Total	668	1608	2276	29.75	70.25

Herbal Approaches to Diabetes Therapy.

For thousands of years herbs have been used as a form of medicine to treat many diseases. Only organic living substances can replace cells that have been used up through the body's metabolism. Herbalists believe that nature provides a bounty of fruits, vegetables, grains, and nuts for food; it therefore stands that nature should also supply remedies for diseases (Caesar, 1997). The African, Indian, and Chinese cultures have played a major part in teachings on how to treat diseases with herbs. In recent years there has been an increased interest in uses of herbal medicines.

Our widespread use of packaged, brand-named medicines to help us combat everything from the common cold to heart disease has seldom led us to believe that plants could be involved. In modern Western medicine, herbal treatments are seen as quaint relics of the past and next to useless when it comes to treating serious illnesses; however, one in four of all prescription drugs dispensed contain ingredients derived from plants (Lewington, 2003).

Plant chemicals are employed in three main ways in Western medicine. The first is by incorporating them directly into medicines and medications, the second uses chemical compounds as blueprints or starting points for the manufacture of new or synthetic drugs and medicines, and the third uses plant chemicals as tools to help us understand physiological and pharmacological mechanisms, especially in drug development and testing (Lewington 2003).

An herb's effectiveness is based on a gradual action to restore the natural balance of bodily functions. These actions are slow and gradual; therefore, in order for herbs to

produce a lasting beneficial effect, they must be taken for several weeks. A healthy diet, sufficient exercise, and proper rest are all the body needs to fight diseases. Several plants known for use in herbal treatment regarding diabetes can be found in appendix A. A glossary of terms and instructions on herbal preparation can be found in appendix B.

Conclusion

There is hope that one day a cure will be found for diabetes but in the meantime there is a need for practical approaches. Each person presents a different set of factors so no one set of recommendations will work for everyone. Knowledge about the disease and risk factors is the key. Given the above, both western and naturalist approaches have much to offer. These are preliminary observations of diabetes in Dominica and more research could be conducted and examined.

Appendix A

Plants known for use in herbal treatment for diabetes

1.) Family: AMARANTHEAEAE Genus: *Achyranthes aspera*

Common name: Man-Better-Man

It can be prepared as a general infusion.



2.) Family: APOCYNACEAE Genus: *Catharanthus roseus*

Common name: Periwinkle

It can be prepared as a general infusion.



3.) Family: CECROPIACEAE **Genus:** *Cecropia schreberiana*

Common name: Bois Canon

It can be prepared as a general infusion.



4.) Family: ASTERACEAE **Genus:** *Chaptalia nutans*

Common name: Dandelion

It can be prepared as an infusion, decoction, poultice, bath, juice and salad.



5.) Family: EUPHORBIACEAE **Genus:** *Euphorbia prostrata*

Common name: Paille Terre

It can be prepared as a general infusion.

(Photo not available)

6.) Family: VERBENAACEAE **Genus:** *Lantana camara*

Common name: Ti Baume

It can be prepared as an infusion and syrup.



7.) Family: CUCURBITACEAE **Genus:** *Momordica charantia*

Common name: Pomme Coolie

It can be prepared as an infusion and cold extract.



8.) Family: RUBIACEAE **Genus:** *Morinda citrifolia*

Common name: Noni

Noni can be prepared by peeling or cutting into pieces. Put it into any container with a lid. Let stand for two to three days then strain and drink.



9.) **Family:** EUPHORBIACEAE **GENUS:** *Phyllanthus tenellus*

Common name: Gwen Anba Fey

It is not said how this is prepared.



10.) **Family:** VERBENACEAE **Genus:** *Stachytarpheta jamaicensis*

Common name: Veven

The method pf preparation is add 1 oz veven to 1and 1/2 pints distilled water. Infuse for 20 minutes, strain, and one wine glass 3-4 times daily. One hour before meals.



Sources

- 1) Caesar, Disciple 1997. The Healer Is Here. Fieldfare Publications. Cambridge England. 75pages.

- 2) McCool, Martha and Woodruff, Sandra 1999. My Doctor Says I Have a Little Diabetes. Avery Publishing Book. Garden City Park NY. 137pages.

- 3) Ms. Warrington (2004). Personal communication.

- 4) Springfield Herbarium Database. Archbold Tropical Research and Education Center. Springfield Plantation Guesthouse. P.O. Box 456 Roseau, Commonwealth of Dominica. W.I.

Appendix B

Glossary*

1. **Cold Extract:** Use double the amount of herbs as for an infusion and allow the mixture to stand for 12-24 hours. Strain and the mixture is ready for use. May be refrigerated. Directions for use are the same as for infusions.
2. **Decoction:** Decoction is the method of preparation when you want to extract primarily the mineral salts and bitter principles of a plant. Make sure to always strain before drinking. Directions for taking are the same as for infusions.
1. **Infusion:** An infusion is a beverage made like a tea by combining boiling water with the plants and allowing steep to extract their active ingredients. The usual amount is from 1 oz plant part to 1 pint of boiling water. Allow this to steep for 10-20 minutes, by which time most of the volatile oils of the plant will be extracted. Make sure to use a tight fitting lid to minimize evaporation. Strain the infusion into a cup. An infusion can be taken warm or cold.
4. **Poultice:** Used to affect skin areas with moist heat. Bruise or crush the medicinal parts of the plant to a pulpy mass and heat it up. Fresh plants are best. The plant part should be aided by an adhesive substance, such as moist corn meal or a mixture of bread and milk. This should be applied directly to the affected area. A moisten hot cloth should be periodically applied to maintain heat and moisture. After the poultice is removed, the area should be washed with hot water or an herbal infusion.
5. **Syrup:** A syrup can be made by boiling three pounds of brown sugar in one pint of water until it reaches the right consistency. Whatever plant you wish to use can be boiled in the mixture of water and sugar.

* These terms were taken from the book The Healer is Here by Disciple Caesar.

