TYPE 2 DIABETES MELLITUS

WHY TREAT DIABETES WITH A HOLISTIC APPROACH?

Type 2 diabetes mellitus (T2DM) is a metabolic disorder that occurs when insulin resistance and eventual insulin deficiency lead to high blood glucose. Extensive research is currently underway to better understand the causes of insulin resistance in the body. Numerous factors, such as obesity, toxin exposure, infections and emotional stress all contribute to chronic inflammation and the development of this chronic condition and its many negative sequelae.

Several large clinical trials have shown that control of hyperglycemia alone does reduce the microvascular (small blood vessel) complications of diabetes but it does not definitively reduce the macrovascular (large vessel) complications, such as cardiovascular disease (CVD). It also does not decrease mortality. This suggests, then, that only focusing on treating blood glucose numbers in diabetics is not sufficient. Additional focus should be given to reducing inflammation and improving lifestyle factors, which can have microvascular benefits and lengthen lifespan. This Whole Health tool offers evidence-based suggestions on how the Whole Health approach can enhance T2DM care.

PREVENTION

Patients need to know that T2DM is a preventable—and reversible—disease in most cases. It is estimated that 90% of diabetes is preventable through changes in diet and exercise, elimination of smoking and moderation of alcohol intake.[1]

SUMMARY OF TREATMENT RECOMMENDATIONS

FOOD AND DRINK

Low glycemic index (GI) diet. The low-GI diet focuses on carbohydrate type. GI measures how quickly a carbohydrate affects postprandial glucose levels. Low GI foods result in a more gradual rise in glucose and insulin release versus high GI foods. More insulin release in a short time period can lead to more abrupt drops in glucose levels and promote chronic inflammation. Over time, the low-GI eating can result in a 0.4 to 0.5% reduction in hemoglobin A1c (HgbA1c).[2,3] For more information, refer to “Glycemic Index”.

Mediterranean diet. The Mediterranean diet is anti-inflammatory and has been found to counteract the chronic inflammation associated with many chronic diseases. Patients should be encouraged to decrease pro-inflammatory fats and enhance omega-3 intake while reducing the intake of omega-6 fats. This can result in an 83% reduction in diabetes incidence; 0.1%-0.6% reduction in HgbA1C.[4] For more information, refer to “The Anti-Inflammatory Diet” and “Choosing a Diet.”
Vegetarian diet. Plant based diets may be associated with lower circulating levels of insulin-like growth factor (IGF-1). They have been found to lead to a 1.23% reduction in HgbA1C, according to one randomized controlled trial (RCT).[5]

WEIGHT LOSS

Weight loss is recommended for overweight and obese patients with T2DM, independent of the type of diet a person follows.[6] Moderate weight loss (5% of body weight) can improve insulin action, decrease fasting blood glucose (FBG) concentrations, and reduce the need for diabetes medications.[7,8] When weight loss is not achievable, weight maintenance should be stressed.

Studies suggest patients with diabetes and insulin resistance will lose more weight on low GI, high protein diets.[9-12]

MOVING THE BODY

Exercise is a fundamental component of diabetes care that helps weight reduction and glucose uptake. The American Diabetes Association (ADA) recommends 150 minutes of moderate intensity aerobic physical activity weekly, over at least 3 days a week, with no more than 2 consecutive days without activity. Resistance training provides additional benefit and is recommended at least twice weekly for 5 major muscle groups.[13]

Yoga. Two systematic reviews concluded that yoga likely benefits patients with T2DM by lowering blood sugars, LDL, triglycerides, body weight, waist to hip ratio, and HbA1c, as well as raising HDL.[14,15] Significant heterogeneity across and pooled statistical analyses are not yet available.

Tai chi. The effectiveness of tai chi and qi gong has not yet been determined.

Structured exercise training programs lead to greater glycemic control than unstructured exercise in diabetic patients

DIETARY SUPPLEMENTS

Note: Please refer to the Passport to Whole Health, Chapter 15 on Dietary Supplements for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.

Substituting supplements for drug therapy is rarely helpful for the disease process and may be dangerous in some cases. Supplements can be helpful patients who want to maximize their health as part of a comprehensive health plan.

Supplements which may be of benefit in diabetic patients include:[16]
• Fish Oil  
• Cinnamon  
• Chromium  
• Alpha-Lipoic Acid (ALA)  
• Vitamin D  
• Magnesium  
• Vitamin E  
• Pycnogenol  
• Fiber

In general, fiber, fish oil and Vitamin D can be recommended routinely, as most diabetics will benefit from these supplements for overall health. Chromium and Cinnamon can be recommended in patients who have pre-diabetes or early diabetes and want to avoid medications. For more detailed information on this topic, refer to “Supplements to Lower Blood Sugar”

POWER OF THE MIND

Biofeedback. One RCT involving 30 participants found improvement in HgbA1c with biofeedback techniques Biofeedback can, among other things, produce clinically significant toe temperature elevations which is associated with increased circulation, improvement of claudication pain, increased physical activity, more rapid healing of diabetic ulcers, and improved overall functional status.[18]

Meditation. Several RCTs show improvement in glucose control with different meditation techniques. There is compelling evidence for an association between mental stress and hypothalamic-pituitary-adrenal axis hyperactivity. Increased catecholamine levels released by the adrenal glands affect glucose transport and insulin resistance, suggesting a mechanism by which reduced stress levels might improve diabetes control.[19,20]

COMPLEMENTARY APPROACHES

Acupuncture. Acupuncture to improve glycemic control in diabetes and pre-diabetic states has been reported in the literature for over half a century, but the evidence is limited and of poor quality.[21,22] However, there is some evidence that acupuncture reduces symptoms of diabetic complications (refer to the section below).

SURROUNDINGS

It has been suggested that diet and exercise cannot fully explain the current T2DM epidemic throughout the world and that the prevalence of toxins, including the exponential rise in production and release of organic and inorganic chemicals into the environment during the last half-century, is a major contributing factor.[23-25] Refer to Figure 1.

Patients with diabetes or at risk of developing diabetes should be encouraged to limit toxin exposure when possible. For more information, refer to “Food Safety” and “Surroundings.”
MANAGING DIABETES COMPLICATIONS

CARDIOVASCULAR DISEASE (CVD)

It is widely agreed that diabetes increases a patient’s risk of developing CVD. Patients should be counseled that the lifestyle interventions most helpful for management of diabetes will also reduce their morbidity and mortality from CVD. This includes weight loss, increasing physical activity, following a Mediterranean diet, and stress reduction.

PERIPHERAL NEUROPATHY

The following interventions can be considered in patients with diabetic neuropathy:

- **Acupuncture.**[27,28] A number of masked studies support the use of acupuncture. In one study, the benefits of acupuncture lasted for up to six months and reduced the use of other analgesics.
- **Alpha-lipoic acid (ALA).**[29] This free radical scavenger antioxidant has been shown to be efficacious in the management of painful neuropathies when administered parenterally. It can also be given orally. Oral dose is 300 milligrams daily.
- **Magnet therapy.**[30] Static magnetic sole inserts have been found to reduce neuropathic pain when administered daily over three to four months.
- **Capsaicin.**[31] This alkaloid, which is found in red pepper, depletes tissue of substance P and reduces chemically induced pain. Capsaicin is applied topically.
- **Acetyl-L-carnitine (ALC).**[32] Studies have shown ALC supplementation reduces pain and improves nerve fiber regeneration and vibration perception. Dose is 500-1000 milligrams three times daily.
GASTROPARESIS

- There is some evidence to support the use of acupuncture for symptomatic gastroparesis.[33]
- Digestive enzyme therapy can be considered in patients with gastroparesis, though high level evidence is not available to support their use.

SUMMARY

Caring for diabetics is complicated, even without the inclusion of alternative therapies. Pharmacologic management is important but should not be the only treatment option presented to patients. Holistic therapy involves all aspects of a patient’s lifestyle as well as their goals to make positive health changes.

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REFERENCES


