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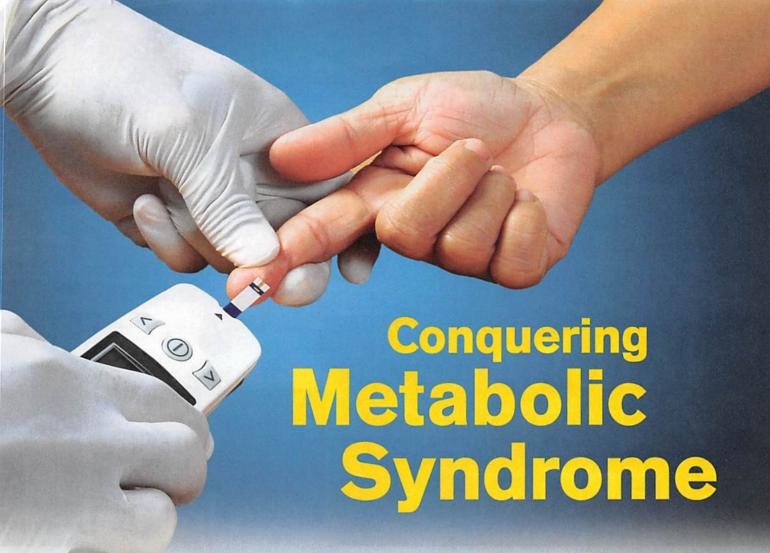
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Metabolic syndrome may seem daunting, but the available remedies and supplements at patients' disposal allow for it to be more manageable. By Nicholas Saraceno

ccording to Healthline, metabolic syndrome consists of a group of five risk factors that can increase one's chances of getting diabetes, heart disease and stroke including:

- · Excess fat around the waist
- High blood sugar levels (insulin resistance)
  - · High triglyceride levels
- Low levels of HDL (high-density lipoprotein), or "good cholesterol"
- Increased blood pressure, which is greater than 130/85 mmHg

Kai Man Yuen, medical and scientific affairs specialist with New Zealand-based MitoQ Limited, creator of MitoQ Blood Sugar supplement, broke down the specifics of why this could be, stating that "... Type II diabetes is the result of our bodies not creating enough insulin to keep our blood sugar levels back into the normal range. If this is not controlled, this can lead to more damage in our body over time. High blood sugar can also lead to cardiovascular issues. High glucose levels have been postulated to reduce

nitric oxide, which is a vasodilator. Reducing nitric oxide increases the risk of high blood pressure and eventually narrows down the vessels, which can lead to strokes and other cardiovascular diseases."

As practitioners know, in order to be diagnosed with metabolic syndrome, patients must have at least three of the above factors—approximately 34 percent of U.S adults are believed to have metabolic syndrome, according to the American Heart Association.

Being aware of the risks, there are a plethora of natural remedies and lifestyle approaches that patients can consider. Practitioners cannot only advise them on these, but can also suggest various supplements to help address these risk factors if need be.

## **Natural Remedies**

Kibow Biotech (Pennsylvania), the biotechnology company that specializes in probiotic dietary supplements for kidney health and for boosting immunity of the geriatric age group, firmly supports natural products.

"At Kibow Biotech," stated Terrence O.

Tormey, CEO, "we believe that "standard treatment" for kidney illnesses (including dialysis) can be augmented by non-prescription, all-natural products. Clinical trials completed on Kibow's products have demonstrated this."

According to Yuen, there are a variety of supplements that have proven beneficial towards addressing healthy blood sugar and metabolic syndrome overall, including (but not limited to) cinnamon and chromium.

"... Cinnamon studies have shown to support normal insulin metabolism, balance blood sugar levels and support normal cholesterol levels. A triple blind placebo-controlled randomized clinical trial done by Zare et al. evaluated the effect of cinnamon supplementation on anthropometric, glycaemic and lipid outcomes of patients with type 2 diabetes based on their baseline BMI (body mass index). One hundred forty patients were randomly assigned into four groups: cinnamon (BMI≥27, BMI<27) and placebo (BMI≥27, BMI<27). Results showed that cinnamon may improve anthropometric

parameters (BMI, body fat and visceral fat), glycaemic (fasting plasma glucose, two-hour post prandial blood glucose test, HbA1c fasting insulin and insulin resistance) and lipids (cholesterol total, low density lipoprotein-cholesterol, high density lipoprotein-cholesterol) outcomes. All the observed changes were significantly more prominent in patients with higher baseline BMI ..."

Yuen added that chromium supports insulin metabolism and helps balance blood sugar levels. "Paiva et al. conducted a fourmonth controlled, single blind, randomized trial with 71 patients with poorly controlled type II diabetes. They were split into control and supplemented. Fasting and postprandial glucose, HbA1c (indication of long-term blood glucose control), total cholesterol, high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol, triglycerides and serum ferritin was evaluated. Chromium picolinate (CrPic) supplementation did not cause any adverse reactions and significantly reduced the fasting glucose conc, postprandial glucose conc and HbA1c.

"In 2014, a systematic review and meta-analysis was done to assess the effects on metabolic profiles and safety of chromium supplementation in diabetes. Twenty-five randomized controlled trials met the inclusion with 22 trials using chromium monosupplementation. Results showed that supplementation (mono or combined) significantly improve glycaemic control. Monosupplementation significantly reduced triglycerides and increased HDL-C levels (good cholesterol). Risk of adverse events also do not increase when compared to placebo."

*Hintona latiflora* is also recommended as a potential remedy.

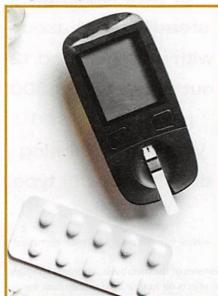
"Over 10 studies have shown that a remarkable new herb, called *Hintonia latiflora* (available in the U.S. as Sucontral D by EuroMedica and available at Emerson Ecologics) is remarkably effective," suggested Jacob Teitelbaum, MD, a member of *Natural Practitioner's* Editorial Advisory Board and the author of *Diabetes Is Optional*. "The dose is a 20-mg capsule two to three times daily.

"Hintonia is an extract of the bark of a shrubby tree that grows in the Sonoran Desert, Dr. Teitelbaum continued. "It has been used in folk medicine in Mexico and Central America to treat and even reverse high blood sugar, insulin resistance, type II diabetes and metabolic syndrome for over a century. It's been studied in detail for its ability to reverse high blood sugars for the past 60 years. After a number of case reports showing efficacy,

10 more studies have been published looking at this herb's effectiveness in treating diabetes. 1-10 Research has shown that it was so effective that many patients with type II diabetes could reduce or eliminate their need for insulin, especially those needing 25 units a day or less. 1 They were also routinely able to lower the dose or eliminate their oral hypoglycemic agents. 2-10

He also noted that researched found the following improvements:

- HbA1c (hemoglobin A1c) improved by a significant average of 10.4 percent (an ~ 1 percent drop in HbA1c)
- Fasting glucose improved an average of 23.3 percent
- Postprandial glucose decreased by an average of 24.9 percent



It's important to mention that further, improvements were found in diabetic symptoms, along with blood pressure, cholesterol and liver enzyme values. The researchers followed up with the study participants for nearly three years, and there were no side effects or any problems taking it, even when taken in combination with blood sugar control medications.

### Pieces of Advice

Other than natural remedies, practitioners can help suggest lifestyle changes to patients—diet could be a launch point.

"Certainly, for pre-diabetics and type-II diabetics, a good diet is where we all start. Tormey explained. "I say 'we' because I am a type-II diabetic, who is down 25 lbs. since being diagnosed. Exercise is the next step (one I am still not doing enough!). Regular measurement of one's glucose levels is critically important. Because glucometers

are only a snapshot of your 'sugar levels,' you must also control your A1-C. My advice also includes studying up on this condition. Learn everything you can about diabetes so you can be responsible for your own health!"

Dr. Teitelbaum expressed the importance of not only taking a multivitamin, but also reducing sugar intake:

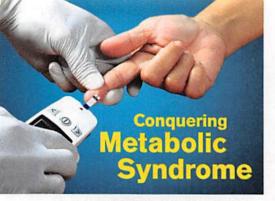
- Take a good multivitamin high in magnesium and vitamin D. His favorites are the Daily Energy Infusion vitamin powder or Clinical Essentials.
- Cut back sugar intake. This doesn't mean the person can't indulge his or her sweet tooth occasionally. In fact, chocolate in moderation is a health food. A small amount each day has been associated with a 45 percent lower risk of heart attack. Begin by having the person cut out sodas and fruit juices, both of which have ¾ tsp. of sugar per ounce. This translates to 36 spoons of sugar in that 48-oz. 'Big Burp' soda. Have them enjoy the whole fruit instead. Meanwhile, look at the nutritional label, and divide grams of sugar by four to see how many teaspoons of sugar are in a serving.
- Go for walks in the sunshine. Or find other exercise, preferably outside, that they love.
- Lose weight. This will be easier once the person does the rest of the program and their insulin sensitivity improves. Research has shown that with adequate weight loss, diabetes actually goes away in 86 percent of diabetics.
- Optimize testosterone levels in men. He will use bioidentical testosterone to bring the total testosterone up to about 900 ng/dl. In women, Dr. Teitelbaum would use the treatments discussed in this article, along with the medications metformin and Aldactone to lower elevated testosterone.

### A Deeper Look

According to Dr. Teitelbaum, the market surrounding metabolic syndrome is a rapidly expanding one. One third of Americans are predicted to get diabetes, and more with metabolic syndrome, which includes high blood pressure and elevated cholesterol caused by insulin resistance.

And over the years, approaches to treatment have been fairly consistent for the most part, but there are some faults to practitioner teaching methods, along with questionable drugs that can be used to treat the condition.

"The main approaches [have] been to initially give insulin if severe, and oral diabetes medications if less severe. For childhood diabetes, which is a totally different



autoimmune illness, insulin is lifesaving and necessary," Dr. Teitelbaum explained. "For adult diabetics, it is a loan shark which initially lowers blood sugar. But because it causes often massive weight gain, it can worsen the diabetes in the long term. So, it may be necessary short term, but it is a horrible overall solution for type II diabetes. In my 40 years as a physician, I have found that most diabetes medications turn out to cause more harm and deaths than benefit. But routinely, physicians are not taught about the research on the drug's toxicities until after the patent runs out and it is no longer profitable. Then the drug companies are off teaching them about the newest, most profitable, diabetes medication. The only diabetes medication I use is metformin, but this must be supplemented with vitamin B12 or it will cause B12 deficiency.

"In addition," he continued, "there is a massive market for minimally useful drugs to treat elevated cholesterol caused by metabolic syndrome. In the absence of known heart disease, these decrease heart attack deaths by only about 2 to 10 percent. To put it in perspective, owning a cat is associated with a 30 percent lower risk of heart attack death, and a small square chocolate each day with a 45 percent lower risk. Much better to treat the underlying insulin resistance. Treating high blood pressure from metabolic syndrome is a different story. For these, medications are a godsend."

MitoQ Limited is quite intrigued by research in this space, and has actually conducted studies regarding this. "MitoQ is very interested in this area," Yuen said. "The production of reactive oxygen species if not controlled by our naturally producing antioxidants, can cause oxidative stress. Oxidative stress has been postulated to cause the development of insulin resistance, impaired glucose tolerance and  $\beta$ -cell dysfunction, all of which restricts the function of healthy blood sugar levels. This could potentially lead to metabolic syndromes.

"MitoQ has done studies in this field. Escribano-Lopez et al. evaluated the effect of MitoQ on oxidative stress, endoplasmic reticulum (ER) stress and NFκB signaling in pancreatic  $\beta$ -cell line under normoglycaemia and hyperglycaemia. Results showed that MitoQ was able to reverse the ER stressed markers and NFkB under hyperglycaemic conditions. This indicates that MitoQ may possess a potential benefit as a treatment for insulin resistance-related diseases. MitoQ was also used to determine the impact it has on obesity, glucose intolerance and insulin resistance in obesogenic diet-fed rats. Results showed that plasma insulin levels, triacylglycerol, non-esterified fatty acids and total cholesterol were decreased. This study indicates that MitoQ may potentially be able to protect obesogenic diet-fed rats from some

"The average age of diagnosis has steadily decreased, with an estimated 12 out of every 100,000 people under 20 years of age being diagnosed with type II diabetes."

-Kai Man Yuen, MitoQ Limited

features of the metabolic syndrome through its effects on muscle lipid metabolism and mitochondrial activity."

## **New Developments**

At the end of the day, practitioners should be aware that commonness of metabolic syndrome have increased due to the modern lifestyle—age for diagnosis has even decreased, but the use of lab tests to assist with this diagnosis has risen.

"Due to the increased prevalence of obesity and sedentary lifestyles, prevalence of diabetes and metabolic syndromes have increased as well," Yuen concluded. "The average age of diagnosis has steadily decreased, with an estimated 12 out of every 100,000 people under 20 years of age being diagnosed with type II diabetes.

"Lab tests have also increased in use, and this has helped with early diagnosis. Testing for glucose, Hemoglobin A1c, lipids, C-peptide, urine albumin and other markers all help with establishing the diagnosis. Studies have also shown that non-invasive methods (measuring waist-height ratio, body mass index, blood pressure and body fat percentage) can also diagnose early detection of metabolic syndrome. Cardiovascular diseases are one of the leading causes of death in the world, and with the increased prevalence and use of early detection methods for diagnosis, these are issues that are creating more buzz with healthy blood sugar/metabolic syndrome."

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- A small square of chocolate each day has been associated with a 45 percent lower risk of heart attack.
- Research has shown that with adequate weight loss, diabetes actually goes away in 86 percent of diabetics.
- The average age of diagnosis has steadily decreased, with an estimated 12 out of every 100,000 people under 20 years of age being diagnosed with type II diabetes.

# FOR MORE INFORMATION:

- Jacob Teitelbaum, MD, www.vitality101.com
- Kibow Biotech, Inc., www.kibowbiotech.com
- MitoQ Limited, www.mitog.com