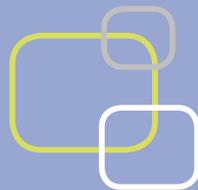


Understanding the metabolic syndrome



RoodlaneMedical

Understanding the metabolic system

Metabolic syndrome is the clustering together of a number of risk factors for heart disease, stroke and diabetes. Having one of these risk factors — raised blood pressure, high insulin levels, excess fat around the abdomen or abnormal lipids (cholesterol and triglyceride) means you are more likely to develop the others. If you fulfil criteria for the “metabolic syndrome” then your risk of developing diabetes doubles and your risk of heart attack or stroke increases by about 5 times.

SYMPTOMS

Having metabolic syndrome means you have several disorders related to your metabolism at the same time, including:

- Obesity, particularly around your waist (having an “apple shape”) – centripetal obesity.
- Raised blood pressure.
- Raised levels of triglycerides (a type of fat in the blood) and a low level of high-density lipoprotein (HDL) cholesterol — “good” cholesterol.
- Resistance or insensitivity to insulin.

CAUSES

The main process which underlies these conditions and links them is the body’s resistance to a hormone called insulin. Insulin is needed to help the body use sugar from food and to carry sugar into the cells of the body. It is released, in response to food, by the pancreas gland in the abdomen in response to food. In metabolic syndrome and in patients with type 2 (maturity onset) diabetes, the body becomes resistant to insulin and the pancreas produces more and more to try and “drive” sugar into the cells of the body. Whilst there may be high levels of sugar in the blood, the body tissues are actually deprived of sugar and a number of metabolic changes in the body occur to try and correct this. The result is high blood sugar levels, muscle protein break down to provide energy (sugar) and increased fat levels in the blood. These metabolic changes also drive blood pressure up and set the scene for the blood vessel damage, which is the cause of heart attacks, strokes, and kidney damage.

RISK FACTORS

As with many medical conditions, the causes of metabolic syndrome are multiple. There will usually be a genetic tendency towards diabetes and high blood pressure. This then couples with other factors such as obesity, lack of exercise and increasing age to produce the syndrome. The following factors increase your chances of having metabolic syndrome:

AGE Metabolic syndrome gets more common as you get older. This is partly because the body naturally becomes less sensitive to insulin as you get older. People also tend to get fatter and less active as they get older.

RACE Southern Asians seem to be at greater risk for metabolic syndrome. There is a 2-3 times greater risk.

OBESITY Being obese or overweight increases the risk of metabolic syndrome. This is particularly the case if the weight is distributed around the middle ("apple") in a centripetal pattern. In general, the fatter you are the more resistant to insulin you will be.

PHYSICALLY INACTIVE Not a cause but linked to obesity and high blood pressure. Exercise also increases sensitivity to insulin.

HISTORY OF DIABETES You are more likely to have metabolic syndrome if you have a family history of type 2 diabetes or a history of diabetes during pregnancy (gestational diabetes).

OTHER DISEASES A diagnosis of high blood pressure, cardiovascular disease or polycystic ovary syndrome also increases the risk of metabolic syndrome.

WHEN TO SEEK MEDICAL ADVICE

If you know you have at least one feature of metabolic syndrome e.g. high blood pressure, high cholesterol or an apple-shaped body then it is worth checking for other features. This can easily be done with your GP.

SCREENING AND DIAGNOSIS

The measures used to make a diagnosis of “metabolic syndrome” at Roodlane Medical are shown in the table at the end of this leaflet. These measures are based on the International Diabetes Federation definition 2005.

TREATMENT

If you have been advised that you have the “metabolic syndrome” then you should seriously consider making significant lifestyle changes. It is easy to look at colleagues or friends who are overweight or unfit and who appear healthy and reassure yourself that nobody has advised them to change their habits. Either they are lucky enough not to have metabolic problems for genetic or other reasons or they are sitting on a future health problem. The keys to reducing your future health risk are:

EXERCISE 30 to 60 minutes of moderate intensity exercise, such as brisk walking, every day. If this sounds impossible then start low and build up – anything is better than nothing!

LOSE WEIGHT Losing as little as 5 percent to 10 percent of your body weight can reduce insulin levels and blood pressure and decrease your risk of diabetes.

STOP SMOKING Smoking cigarettes worsens the health consequences of metabolic syndrome. There are lots of successful ways to stop smoking so seek advice.

Major lifestyle changes are difficult and unsettling. Like any project they require planning and motivation. If you want to make lifestyle changes but don't know where to start then speak to one of the doctors at Roodlane or go and see your NHS GP or practice nurse. Several of our doctors have special interests in diet, exercise, nutrition and weight management.

See our website: www.roodlane.co.uk

Where lifestyle alone is not effective at changing things, then medication may be recommended. This can reduce blood pressure, reduce cholesterol and other risk factors, improve good or HDL cholesterol and increase sensitivity to insulin. There are also medications which will help you lose weight. These are only licensed for those with a BMI of 30 or more and require specialist monitoring.

Prevention

Whether you have one, two or none of the components of metabolic syndrome, the following lifestyle changes will reduce your risk of heart disease, diabetes and stroke:

EAT A HEALTHY DIET. Eat plenty of fruits and vegetables. Choose lean cuts of white meat or fish over red meat. Avoid processed or deep-fried foods. Cut out table salt. Use olive oil or flax seed oil spreads and half fat or skimmed milk.

EXERCISE Get 30 to 60 minutes of moderately strenuous activity most days of the week.

HAVE REGULAR CHECKUPS Check your blood pressure, cholesterol and blood sugar levels on a regular basis.

EAT SOLUBLE FIBRE in the form of oats, whole grains and pulses. This will help to reduce cholesterol as well as helping you to improve your diet and lose weight.

The features of metabolic syndrome

CENTRAL OBESITY

Waist circumference

ethnicity specific*
for caucasian:

Male ≥ 94 cms
Female ≥ 80 cms

plus any **two** of the following:

Raised triglycerides

≥ 1.7 mmol/L
or specific treatment for this lipid abnormality

Reduced HDL cholesterol

< 1.03 mmol/L in males
 < 1.29 mmol/L in females
or specific treatment for this lipid abnormality

Raised bloodpressure

Systolic : ≥ 130 mmHg or
Diastolic: ≥ 85 mmHg or
Treatment of previously diagnosed hypertension

Raised fasting plasma glucose

Fasting plasma glucose 5.6 mmol/L or
Previously diagnosed type 2 diabetes

If above 5.6 mmol/L, OGTT* is strongly recommended but is not necessary to define presence of the syndrome.

*OGTT: Oral Glucose Tolerance Test

South Asian and South-East Asian men ≥ 90 cm, women ≥ 80 cm
Japanese men ≥ 85 cm, women ≥ 90 cm

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