

9. APPROACH TO THE TREATMENT OF METABOLIC SYNDROME

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1. Introduction

The metabolic syndrome is a constellation of interrelated abnormalities that increase the risk for cardiovascular disease and type 2 diabetes. The prevalence of this syndrome is increasing because of the 'obesity epidemic'. The most effective therapeutic intervention in patients with the metabolic syndrome should focus on modest weight reduction and regular physical activity. Drug therapy may be needed to achieve recommended goals if therapeutic lifestyle changes are not sufficient.

2. Management of risk factors

1. Obesity

Abdominal obesity is the body fat parameter most closely associated with the metabolic syndrome. Effective weight reduction improves all risk factors associated with the metabolic syndrome, and it will further reduce the risk for type 2 diabetes. Weight reduction is best achieved by behavioral change to reduce energy intake and by increased physical activity to enhance energy expenditure. Caloric intake should be reduced by 500–1000 calories per day to produce a weight loss of 0.5–1.0 kg per week. The goal is to reduce bodyweight by about 7–10% over 6–12 months, followed by long-term behavior modification and maintenance of increased physical activity.

2. Physical inactivity

Current guidelines recommend practical, regular, and moderate regimens of physical activity (e.g. 30 min moderate-intensity exercise daily). Regular and sustained physical activity will improve all risk factors of the metabolic syndrome.

3. Atherogenic and diabetogenic diets

There is general agreement that persons with the metabolic syndrome should follow some important dietary principles: low intakes of saturated fats and cholesterol, reduced consumption of simple sugars, and increased intakes of fruits, vegetables, and whole grains. More controversial is the relative amounts of carbohydrate and unsaturated fats. Some investigators favour lower fat intakes, whereas others recommend higher fat diets. Low-fat diets have been advocated to promote weight reduction, whereas higher monounsaturated fat intakes diminish postprandial glycaemia, reduce serum triglycerides, and raise concentrations of HDL-cholesterol.

60Atherogenic dyslipidaemia

This condition comprises elevations of triglycerides and LDL cholesterol, and low HDL cholesterol. Statins (3-hydroxy-3-methylglutaryl-coenzyme A reductase inhibitors) reduce risk for major cardiovascular disease events in high risk patients with the metabolic syndrome. Fibrates mitigate atherogenic dyslipidaemia and appear to reduce the risk for cardiovascular disease in patients with the metabolic syndrome. Their use in combination with statins is particularly attractive, but carries some increased risk for myopathy.

5. Blood pressure

Mild elevations of blood pressure can often be controlled with lifestyle changes, but if hypertension persists despite such therapies, antihypertensive drugs are usually required. Current guidelines do not provide specific recommendation for pharmacological management of the hypertensive patients with metabolic syndrome. Recent trials have consistently shown that therapy involving beta blockers and diuretics may have some negative impact on the metabolic and haemodynamic disorders present in metabolic syndrome. Several lines of evidence support the use of angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers as the appropriate first-line therapy and the calcium channel blockers as the second in the patients with metabolic syndrome.

6. Insulin resistance and hyperglycaemia

Lifestyle intervention can reduce the risk for conversion of impaired glucose tolerance to type 2 diabetes. Preliminary reports indicate that metformin or thiazolidinediones also reduce risk for type 2 diabetes in people with impaired glucose tolerance. On the other hand, no clinical trial evidence indicates that these drugs will reduce risk for cardiovascular disease events in patients with the metabolic syndrome. Currently, metformin or thiazolidinediones are not recommended solely for the prevention of diabetes. The cost-effectiveness of this approach has not been established. Metformin and thiazolidinediones improve insulin sensitivity. The increase in weight in patients treated with insulin secretagogues (sulfonylureas and repaglinide or nateglinide) and insulin results mostly from improved glycaemic control and increases in caloric intake as a result of hypoglycaemia. With the exception of nicotinic acid, lipid-altering drugs do not affect insulin sensitivity or weight, whereas the effect of antihypertensive drugs is more complex. β -adrenergic blockers and thiazide diuretics might decrease insulin sensitivity but less so at low doses, whereas ACE inhibitors and angiotensin II receptor antagonists have variable effects. By uncertain mechanisms, ACE inhibitors and angiotensin II receptor antagonists seem to decrease the incidence of type 2 diabetes.

7. Prothrombotic state

Metabolic syndrome is accompanied by elevation in prothrombotic factors (fibrinogen, plasminogen activator inhibitor 1, and possibly other coagulation factors). The only available clinical approach to an increased risk for arterial thrombosis in patients with metabolic syndrome is low-dose aspirin or other antiplatelet drugs. These drugs are universally recommended unless contraindicated in patients with established cardiovascular disease. In other people with the metabolic syndrome, aspirin prophylaxis is a therapeutic option when the risk for cardiovascular disease events is judged to be relatively high.

Recommended literature:

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