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Editorial

Pharmacotherapy of pediatric metabolic syndrome

Pediatric metabolic syndrome has become an emerging health problem world-wide, with a considerable increase in low- and middle-income countries. Given its short-term and long-term adverse health consequences, notably on chronic non-communicable diseases, its primordial/primary prevention and early management are of crucial importance.

Genetic-environment interaction is essential in the development of this syndrome. Given that the underlying modifiable risk factors that promote its development are excess weight, physical inactivity, and unhealthy atherogenic diet, all current guidelines on its management emphasize on the pivotal role of life-style change as the first-line clinical therapy.

Some non-pharmacological modalities are reported to be beneficial to be added to life-style modification for management of pediatric metabolic syndrome, e.g., consumption of dairy-rich diets,[1] synbiotics,[2] and juices rich in antioxidants.[3]

Using the herbal extracts revealed controversial results. Plant extracts like botanical therapeutics often contain natural active components that act upon numerous biological targets, providing an opportunity to simultaneously correct multiple defects associated with metabolic syndrome, in contrast to single-target drugs. The fermentability of dietary fiber seems important to generate specific effects on satiety and glycaemia through the release of gut peptides such as glucagon-like peptide-1 associated with the control of the metabolic syndrome.[4]

Although, therapeutic lifestyle modification is first-line therapy for the metabolic syndrome and thus, deserves initial attention, drug therapy may be necessary in many of the adults to achieve recommended goals. The ideal drug for metabolic risk factors would be one that simultaneously lowers apo B-containing lipoproteins, raises high-density lipoprotein (HDL) cholesterol, and reduces blood pressure and glucose levels. Such a drug has yet to be developed; it presumably will be necessary to target a master regulatory pathway. In adults, the use of combination therapy with fibrates or nicotinic acid plus a statin is attractive for metabolic-syndrome patients with atherogenic dyslipidemia; even so, efficacy over statins alone has not been documented through clinical trials. Low-dose aspirin to modify the prothrombotic pro-inflammatory state is justified for patients at intermediate risk and high risk. To date, management of insulin resistance with insulin-sensitizing agents in the absence of diabetes has not been shown to reduce cardiovascular risk; therefore, they are not recommended for this purpose.[5,6]

Although in some cases, lipid-lowering medications are prescribed for management of hyperlipidemia in the pediatric age group,[7,8] but this kind of therapy is usually indicated for those with very high cholesterol levels. As the lipid disorders considered as components of metabolic syndrome are high triglycerides and low HDL-cholesterol levels, generally they do not need pharmacotherapy unless being accompanied with other kinds of hyperlipidemia.

Some evidence exist on the beneficial effects of vitamin D,[9] zinc sulphate[10,11] or omega-3[12] on insulin resistance and components of metabolic syndrome in children and adolescents; however, long-term effects of such treatment modalities should be determined. Metformin is recommended for those cases of pediatric metabolic syndrome with confirmed insulin resistance and it cannot be generalized to all cases.

It can be concluded that still life-style change is the mainstay for management of pediatric metabolic syndrome; physicians, families, and patients cannot count on pharmacotherapy for treating this disorder. Primordial/primary prevention of pediatric metabolic syndrome should be underscored.

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