

Paediatric use of statins: Safety, efficacy, and guidelines.

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Introduction

Statins, a class of medications primarily used to lower cholesterol levels, have been widely prescribed in adults for the prevention and treatment of cardiovascular diseases. However, their use in pediatric populations has been a topic of debate and investigation. This article aims to explore the safety, efficacy, and current guidelines regarding the pediatric use of statins. The safety of statin therapy in pediatric patients has been a subject of concern due to potential adverse effects on growth, development, and long-term health outcomes. Key safety considerations include: There is some evidence to suggest that statins may affect growth and pubertal development in children. Animal studies have shown alterations in bone metabolism and growth plate development with statin use. However, clinical data in humans are limited, and the long-term impact on final adult height and development is not fully understood. [1,2].

Muscle-related adverse effects, such as myopathy and rhabdomyolysis, are rare but serious complications of statin therapy in both adults and children. Liver enzyme elevations have also been reported, although severe liver toxicity is uncommon in pediatric patients. Some studies have raised concerns about potential neurocognitive effects of statins, including memory impairment and cognitive decline. However, the evidence is conflicting, and further research is needed to elucidate the impact of statin therapy on neurodevelopment in children. Despite safety concerns, statins have been shown to be effective in reducing cholesterol levels and improving lipid profiles in pediatric patients with certain lipid disorders. Clinical trials and observational studies have demonstrated the following benefits. Statins effectively lower low-density lipoprotein (LDL) cholesterol levels in children and adolescents with familial hypercholesterolemia (FH) and other genetic lipid disorders. Lowering LDL cholesterol in pediatric patients with FH has been associated with a decreased risk of premature atherosclerosis and cardiovascular events in adulthood. [3,4].

In addition to reducing LDL cholesterol, statins can improve other lipid parameters, including total cholesterol, triglycerides, and non-HDL cholesterol, in pediatric populations with dyslipidemia. Early initiation of statin therapy in children with FH has been shown to slow the progression of atherosclerosis and delay the onset of cardiovascular disease risk factors compared to untreated individuals. The AAP recommends considering statin therapy in children and adolescents aged

8 to 10 years with severe FH (LDL cholesterol \geq 190 mg/dL) who do not achieve target lipid levels with lifestyle modifications alone. Statin therapy may also be considered in children with moderate FH (LDL cholesterol \geq 160 mg/dL) or significant family history of premature cardiovascular disease. The ESC guidelines recommend statin therapy for children and adolescents with FH from the age of 8 years onwards, regardless of the presence of cardiovascular risk factors. The decision to initiate statin therapy should be based on LDL cholesterol levels and the presence of other risk factors. [5,6].

The NLA guidelines recommend considering statin therapy in children with FH as young as 2 years old if they have persistently elevated LDL cholesterol levels despite lifestyle modifications and dietary interventions. Statin therapy should be initiated at the lowest effective dose and titrated based on lipid response and tolerability. When considering statin therapy in pediatric patients, healthcare providers should adopt an individualized approach, taking into account the patient's age, lipid profile, family history, comorbidities, and risk factors for cardiovascular disease. Close monitoring of lipid levels, liver function tests, and muscle symptoms is essential to assess treatment response and detect potential adverse effects early. [7,8].

The use of statins in pediatric populations remains a complex and evolving area of clinical practice. While safety concerns exist, particularly regarding growth and development, statins have demonstrated efficacy in lowering cholesterol levels and improving lipid profiles in children and adolescents with certain lipid disorders, such as FH. Current guidelines recommend considering statin therapy in pediatric patients with severe FH or significant cardiovascular risk factors. [9,10].

Conclusion

Cerebrovascular disease, a primary contributor to strokes, poses substantial hurdles in diagnosis, treatment, and prevention. Unraveling its origins aids in pinpointing vulnerable populations and deploying preemptive measures. Progress in diagnostic imaging and therapeutic techniques has bolstered the handling of cerebrovascular incidents, curbing fatalities and bolstering recuperation. Holistic treatment strategies encompassing immediate care, ongoing prevention, surgical remedies, and rehabilitation play pivotal roles in maximizing patient recovery and mitigating the worldwide burden of cerebrovascular disease.

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