**Diet Key to Managing Cholesterol Levels in Kids**

**BY HEIDI SPLETE**  
**Senior Writer**

**WASHINGTON** — Attention to diet will successfully manage cholesterol in many children, especially young ones, said Dr. Samuel S. Gidding of the Alfred I. duPont Hospital for Children in Wilmington, Del.

"Cholesterol levels are determined by genetics, plus or minus how bad your diet is," he noted at the annual meeting of the American Academy of Pediatrics. Test cholesterol levels in all children at age 5 or 6 years, and again after puberty.

Dr. Gidding, who has received research funding from AstraZeneca, explained that he rarely puts children younger than 10 years on lipid-lowering drugs, and almost never starts girls younger than 13. Cholesterol levels vary greatly around puberty, with the lowest levels occurring during the pubertal growth spurt. If they remain high after puberty, they are likely to remain high without management.

A cholesterol treatment diet involves taking in less than 30% of calories from fat, less than 7% of calories from saturated fat, and fewer than 200 mg of cholesterol daily. Also, the diet must be sufficient in micronutrients and provide appropriate energy for normal growth.

Dr. Gidding was involved in a 3-year randomized trial in which children who underwent dietary intervention significantly reduced their cholesterol levels, compared with children who did not change their diets. Both groups grew equally well.

An oil that is liquid at room temperature contains monounsaturated or polyunsaturated fats, and is okay for children on controlled diets, Dr. Gidding noted. If the product is solid at room temperature, then it contains saturated fats or trans fats, and should be avoided.

Additional diet directions include reducing salt intake and encouraging children to increase their intake of dietary fiber through the consumption of fruits, vegetables, and legumes.

A low-fat diet can lower cholesterol in most children. Such a diet is safe and effective, but if the child’s LDL cholesterol level is extremely high, such as 190 mg/dL, diet is not enough.

It was once thought that the liver was the main synthesizer of LDL cholesterol, but it is now known that the liver receives nearly 80% of its LDL cholesterol from synthesis in other parts of the body as well as other sources, Dr. Gidding said.

The LDL cholesterol receptors sit on the liver cell and scavenge LDL cholesterol from the bloodstream. Thus, familial hypercholesterolemia, the liver receptors don’t function and LDL cholesterol essentially gets stuck in the bloodstream. These children will have LDL levels of 160 mg/dL or higher. The main issue for these children is when—not whether—to start drug treatment. Diet remains extremely important as well, Dr. Gidding said.

When selecting children or adolescents for drug therapy, consider the child’s age and gender; the family’s prior experience with drugs; the drug’s effect on the child’s likelihood of compliance; and the goal of therapy. Also consider whether the child has either an LDL cholesterol level of at least 190 mg/dL, or an LDL level of at least 160 mg/dL, plus multiple risk factors.

Statins can lower cholesterol by approximately 20%, and are generally safe and well tolerated, although risks increase with the use of multiple medications, Dr. Gidding said.

Starting doses range from 5 to 10 mg/day, and liver function, as well as cholesterol, must be monitored. For statins available on the market—Lovastatin, Pravastatin, Simvastatin, and Atorvastatin—have demonstrated safety and efficacy for more than 1 year in children.

In addition to monitoring liver function, monitor children on statins for complaints of muscle pain. If a child reports such pain, stop the drug immediately and have the child evaluated for rhabdomyolysis, a rare but serious condition in which muscle cell pain is an important early symptom.

Adolescent girls who become pregnant or who are breast-feeding should not take statins.

There are no specific guidelines for the treatment of high triglyceride levels in children, Dr. Gidding said. Drugs that are currently approved for adults may have unfavorable side effects in children.

An elevated triglyceride level has emerged as a significant lipid problem in children because of the obesity epidemic; it also may be a marker for insulin resistance. High carbohydrate intake increases triglyceride levels.

Weight control and exercise are the primary treatments for high triglyceride levels, Dr. Gidding said. Simply limiting a child’s intake of fruit juice or sweetened drinks to no more than 12 ounces daily can significantly reduce triglyceride levels.

Fish oil has been shown to lower triglyceride levels, and may be the best choice, but its antiaggregation properties may be a concern for children who are involved in sports that involve a lot of physical contact or a high risk of injury. For patients who want to try fish oil, Dr. Gidding recommends starting with 2 g daily. However, patients with triglyceride levels greater than 1,000 mg/dL require an statin diet and must be seen by a specialist.

For user-friendly information about cholesterol and children, and about diet and nutrition, visit or direct patients to the American Heart Association’s Web site: www.americanheart.org.

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**How to Gauge When Children Need Lipid-Lowering Drugs**

<table>
<thead>
<tr>
<th>Healthy</th>
<th>Borderline Risk</th>
<th>High Risk</th>
<th>Genetic Disease</th>
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</thead>
<tbody>
<tr>
<td>LDL cholesterol (mg/dL)</td>
<td>&lt;100</td>
<td>100-129</td>
<td>130-189</td>
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<tr>
<td>Triglycerides (mg/dL)</td>
<td>&lt;100</td>
<td>100-199</td>
<td>200-399</td>
</tr>
<tr>
<td>HDL cholesterol (mg/dL)</td>
<td>≥60</td>
<td>40-59</td>
<td>&lt;40</td>
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*Overweight and with no genetic disorder.
*Associated with elevated LDL and smoking, diabetes, hypertension, or obesity/insulin resistance, but no genetic disorder.

Source: Dr. Gidding

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**ECG Screening of Newborns Backed by 50,000-Infant Study**

**BY BRUCE JANCIN**  
**Denver Bureau**

**STOCKHOLM** — A policy of ECG screening of all neonates is a highly cost-effective means of detecting potentially lethal yet treatable genetic arrhythmogenic disorders, according to an interim analysis of an ongoing 50,000-infant Italian prospective study.

Such a screening strategy also provides several major side benefits. It permits early identification of babies with congenital heart malformations while they are still asymptomatic, when surgical correction can often markedly improve prognosis.

And identification of long QT syndrome (LQTS) in a screened neonate often leads to a previously unsuspected diagnosis of the arrhythmogenic genetic disorder in one or more asymptomatic family members, allowing physicians to institute timely prophylactic therapy for inter- or intrafamilial risk.

In a separate presentation at the congress, Dr. Peter J. Schwartz, the project’s coordinator, said that on the basis of data from this and other studies, the estimated cost-effectiveness of routine ECG screening of all neonates is $8,254 per year of life saved.

Even after the analysis is tweaked by plus-or-minus 30% in terms of diagnostic yield and treatment efficacy, the cost per year of life saved remained within the range of $4,800-$18,000.

"These figures do not consider the uniquely tragic emotional trauma [caused by] the sudden death of a child. Thus, screening with ECG every infant born in a large European country is highly cost effective. European taxpayers should be interested," Dr. Schwartz said.

But its anticoagulation properties may be a concern for children who are involved in sports that involve a lot of physical contact or a high risk of injury. For patients who want to try fish oil, Dr. Gidding recommends starting with 2 g daily. However, patients with triglyceride levels greater than 1,000 mg/dL require an statin diet and must be seen by a specialist.

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