

The Heart of the Matter

Advanced Technology Empowers Physicians to Treat Kids' Heart Troubles



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A disturbing number of children are being diagnosed with arrhythmias, abnormalities of the heart rhythm that can become severe or long-lasting. These can result in the heart not being able to pump enough blood to the body. Physicians find this situation alarming because some of these arrhythmias are not usually found in young people.

Thankfully, groundbreaking modern technology available at Miller Children's & Women's Hospital Long Beach can diagnose and treat children with heart issues, including arrhythmias, which may be caused by consumption of too many energy drinks. Energy drinks contain vast amounts of caffeine, a stimulant that is present in coffee, tea and chocolate.

Know the Dangers

"Caffeine can contribute to heart abnormalities, especially in kids," says Saar Danon, M.D., medical director, Pediatric Cardiology and Congenital Cardiac Catheterization, Miller Children's. Growing numbers of children are consuming caffeine-laden energy drinks - and neither parents nor their kids know how much is too much.

"It's hard to put a number on how many energy drinks are safe, because everyone reacts differently," Dr. Danon says. "I would not give children any energy drinks. There is no need for children or teens to be consuming these chemicals."

At issue is caffeine, as well as multiple other ingredients. He notes, "We always think of caffeine as the biggest problem, and the amount is astronomical in these drinks, but we also don't know the effects of many other ingredients that are in them."

How to Prevent and Monitor for Arrhythmias in Kids

- Limit your child's caffeine intake.

- Watch for complaints of heart racing or skipped beats.
- Get medical treatment immediately if your child complains of chest pain, has persistent feeling of heart racing, feels very light-headed or dizzy, or faints.
- Ensure that kids are not afraid to tell you something is wrong.

New Technology to the Rescue

- An arrhythmia can sometimes be diagnosed with an electrocardiogram, also called an EKG. "It's something that's easy to do, available in any emergency department, and gives us a real-time look at the rhythm," Dr. Danon explains. However, children are not always honest with their parents about their symptoms, or may only tell them after the fact. If the EKG is not performed at the time of symptoms, it may not help in the diagnosis.
- "Other types of technology are improving," he continues. "Recorders can be attached to the child/teen for up to 30 days and are quite good at recording the heart's rhythm. The machine can automatically trigger a call to the physician and transmit information over the phone. Although these can be cumbersome and kids don't like to wear them, there are some recorders that are not much bigger than a credit card - and when a patient feels an irregular heartbeat they can hold it on their chest to record the rhythm."
- "Innovative technology makes it possible for some heart rate monitors to be waterproof so that heart rhythms can be tracked 24/7,"

- says Dr. Danon. "For irregularities more difficult to diagnose devices much smaller than a stick of gum can be implanted under the skin."

Treatment Options for Kids

- When children present with an arrhythmia, physicians work quickly to get the heart rhythm back to normal. Depending upon how stable the child is, doctors treat the patient with medication or use a defibrillator to shock the heart back to normal rhythm, Dr. Danon notes.

- "Once we have treated them, we must think about the long term," he says. "Most times patients are admitted and observed. If we know what's causing it, we can prevent it from happening again. To determine the cause, electrophysiological studies can be done with catheters to find the underlying electrical abnormality and treat it."

- Most important, Dr. Danon notes, is that children understand that energy drinks - among other less-understood foods and beverages - can be harmful. "Educate your kids about the potential harm, but always encourage them to be honest with you about their symptoms."

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