OB/GYN Grand Rounds:
3/18/15
8:15-9:15 a.m.  
GYN M&M/QI Case Presentations (Mod 8) – Christian Dolensek, DO
9:15-10:15 a.m.  
Topic: Multiple Gestation  
Speaker: Jeffrey Johnson, MD

Pediatric Grand Rounds:
3/20/15, 8 a.m.  
Topic: Retinoblastoma: Important Update for Pediatricians  
Speaker: Steven Awner, MD & L. Fisher, MS, CGC

Pediatric Surgery Research Meeting:
3/31/15, 4:30 p.m.  
WCHOB Board Room  
Topic: What can the Fetus Teach Us? – Oxygen use in the NICU  
Speaker: Satyan Lakshminrusimha, MD

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What is Pediatric Electrophysiology?

Pediatric electrophysiology is a field of medicine that diagnoses and treats abnormal heart rhythm in children. Children with irregular heart rhythm typically complain that their heart stops for a few seconds, or beats irregularly. Two common reasons for these episodes are premature beats in the upper or lower chambers of the heart. Fortunately, this is usually not an indication of something that is serious, and is often resolved without any treatment. However, children who report these events should be taken seriously and seen by a pediatric cardiologist to be thoroughly evaluated to exclude any serious heart conditions.

Sometimes children describe their heart as palpitating, pounding, beeping and going too fast. Most of the time this is not a life-threatening cause for concern, but if palpitation episodes seem to be severe, or are prolonged, significant complications can occur. A pediatric cardiologist may want to simply monitor the situation. He or she may want to prescribe medications, or perform a procedure to find the abnormal area and eliminate it by applying heat or cold energy. A small percentage of children with fast heart rates may have life-threatening problems, so timely diagnosis and treatment to prevent sudden cardiac death is important.

Children with slow heart rhythm may have been born with the problem, or they could have acquired it later in life due to infection, familial disease, or heart surgery. If the slow heart rate cannot be treated medically or does not resolve naturally, the child may require a pacemaker.

To diagnose arrhythmia problems, a pediatric cardiologist specializing in arrhythmia treatment may use noninvasive or invasive methods. Noninvasive electrophysiological evaluation makes use of surface electrocardiograms (ECG), ambulatory electrocardiograms (Holter monitor), and patient-activated cardiac event recorders. Exercise testing and tilt table testing can be helpful in patients prone to fainting. Pediatric patients who require a cardiac pacemaker are followed with a combination of trans-telephonic monitoring and in-office assessments.

Invasive electrophysiology testing includes intra-cardiac electrophysiology studies (EPS) and radiofrequency ablation, which are often performed together. During an electrophysiology study specialized electrode catheters are inserted in the leg and neck vessels, which are advanced to the heart. The heart’s electrical impulses and pathways are mapped. Once the abnormal impulse is located, the site is ablated by emission of radiofrequency energy at the tip of a specialized catheter. In many cases, this results in complete elimination of the arrhythmia and, thus, the need for anti-arrhythmia medication. However, as with any procedure, there are risks involved, and success and recurrence rates vary, depending upon the specific arrhythmia.

Oleg Kovalenko, MD is the Director of Pediatric Electrophysiology and Device Service within the Division of Pediatric Cardiology at Women & Children’s Hospital of Buffalo. He completed a fellowship in pediatric electrophysiology at University of Michigan. For more information about pediatric electrophysiology or to refer a patient, please call (716) 878-1315.