THE SULLIVAN GROUP

TSG PEDS EM NEWS

SAVING LIVES - REDUCING RISK

From The Editor

Welcome to the Summer 2013 issue of Peds EM News.

In this issue we will take a look at how to distinguish between Kawasaki disease and Adenovirus, which can sometimes be very tricky. Adenovirus is known for having one of its peak outbreaks during the early summer, so you may be seeing cases now.

Nothing makes healthcare providers feel worse than babies in pain! This issue also reviews a safe and effective strategy you should strongly consider employing when working with babies that need a blood draw or other painful procedure in which aspiration is not a concern.

We will also provide some interesting tips for dealing with pediatric patients that you won't read in a textbook, as well as some simple but useful tips for when certain lab values and data recordings make you scratch your head and say to yourself, "What do I do now?"

As always, we appreciate the time you take to read our Peds EM News. Please feel free to contact us at The Sullivan Group with any suggestions, comments, questions or concerns.

"Experience in medicine allows the practitioner to diagnose the wrong disease process with that much more confidence"

- Author Unknown

Regards,
Dr. Todd Zimmerman

In This Issue...

Is it Kawasaki Disease or Adenovirus?

Kawasaki disease is a vasculitis. The cause of this disease is unknown, but some experts believe there is an infectious exposure that leads to the illness. There are potentially serious complications with Kawasaki disease: coronary artery inflammation, prema-

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ture coronary artery disease, aneurysm and possible aneurysm rupture, myocarditis, compromised ventricular function, thrombotic occlusion of the aneurysm, and CHF. It has been reported that up to 25% of children with Kawasaki disease who are untreated may go on to develop some degree of coronary artery inflammation/aneurysm.

Adenovirus is a virus that affects all individuals at some time in their lives; it has been known to mimic Kawasaki disease. Adenovirus and Kawasaki disease share many clinical signs and symptoms, so it can be difficult to distinguish between these two illnesses.

The following are specific criteria that will help the practitioner diagnose Kawasaki disease:

Fever for 5 days plus 4 of the following 5 findings:

1. Bilateral conjunctivitis - non-purulent
2. Rash
3. Cervical lymph node ≥ 1.5 cm
4. Early erythema or edema of the hands or feet, or later peeling of the hands/feet
5. Redness, peeling or cracking of the oropharyngeal mucous membranes

To make matters more confusing, Kawasaki disease may be present even if the diagnostic criteria are not all met; this is called **atypical Kawasaki disease**. Atypical Kawasaki disease can be diag-

nosed when some, but not all, of the diagnostic criteria for Kawasaki disease are present and you have clearly ruled out other potential causes for the patient's illness.

Conversely, the following signs are commonly seen in adenovirus; they may overlap with signs of Kawasaki disease:

The treatment for adenoviral infections is supportive care. There is no specific medication for this disease process.

Despite the fact that these 2 diseases can mimic each other, there are some tips that can aid in differentiating Kawasaki disease from adenovirus:

- First and foremost, use the diagnostic criteria for Kawasaki disease.
- Kawasaki disease will have a **non-purulent** conjunctivitis and will be bilateral; the conjunctivitis in adenovirus is **purulent.**
- The sed rate in Kawasaki disease is frequently significantly elevated.
- There may be significantly elevated platelets with Kawasaki disease.
- There may be pyuria in Kawasaki disease, whereas this would be quite uncommon in adenoviral infections.

Once you are considering a diagnosis of Kawasaki or atypical Kawasaki disease, it is prudent to get an infectious disease consultation to aid in the diagnosis and direction of therapy; in addition, the tests listed below should be obtained. It is important to mention that these adjunctive tests will not definitively rule in or rule out Kawasaki disease, but they may help point toward this disease process and, if present, the degree of the patient's illness.

- CBC to ascertain WBC (usually higher in Kawasaki than adenovirus); platelet count (can become quite elevated in Kawasaki); anemia (may be present in Kawasaki)
- Sed rate - Typically quite elevated in Kawasaki disease

- UA - Pyuria common in Kawasaki disease
- CXR and ECG to ascertain whether there is any evidence of cardiac dysfunction/ coronary artery aneurysm
- Blood and urine cultures to help rule out other potential infectious causes of patient's illness
- LFTs often reveal elevated transaminases in Kawasaki disease

The treatment for Kawasaki disease includes aspirin therapy and IVIG. It is important to consult with Infectious Disease re: the IVIG therapy and with Cardiology to help determine the patient's cardiac function and degree of coronary artery aneurysm, if present.

The differential diagnosis of Kawasaki disease includes:

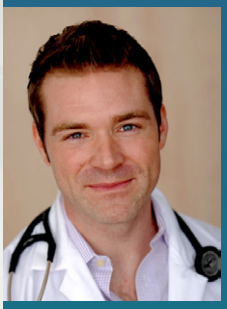
- Adenoviral Infections
- Toxic Shock Syndrome
- Scarlet Fever
- Steven-Johnson Syndrome
- Other viral infections such as Epstein-Barr Virus

So does your patient have a simple viral syndrome? Is it Kawasaki disease? Is it an evolving, more serious bacterial infection? Is it a drug-induced reaction? It can certainly be confusing. Stick to the diagnostic criteria, know what other disease processes it could be, and ask for help from Infectious Disease and Cardiology to help in ruling in or ruling out Kawasaki disease. ■

Patient Satisfaction Is Here

What's Your Plan?

It has been a common belief that "Happy patients don't sue" and some organizations have relied on this as their risk management strategy. Furthermore, now that reimbursements have been tied to patient satisfaction scores, physician groups and hospitals have become even more invested in finding solutions that truly make a difference in their patient satisfaction metrics.



TSG has responded by developing a new Patient Satisfaction program called *Patient*SET™ "Satisfaction Every Time." Championed by Dr. Doug Finefrock, *Patient*SET™ looks to the literature to identify certain elements of behavior that patients would like to see displayed during the physician /patient encounter. Delivered through an online course series, Dr. Finefrock uses multimedia videos to provide concrete examples that will help improve the patient experience.

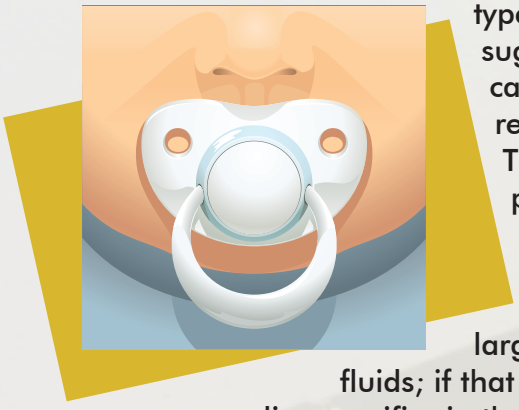
In true TSG fashion, *Patient*SET™ extends beyond online education to include a real-time 'checklist' for the provider (*Patient*SET™ List) as well as an observational assessment tool (*Patient*SET™ Assessment) to be used by a case manager to analyze the clinician's compliance with key behavior elements of the visit.

If you are interested in learning more about the new *Patient*SET™ Program, please contact: Brant Roth at broth@thesullivangroup.com

Pain Management in Babies

Providing pain management for babies is frequently overlooked in the ED. There are valid, obvious reasons an infant should not receive opiates; e.g., respiratory depression. There are also various reasons to be concerned about giving them acetaminophen and ibuprofen. The fact is that babies do experience pain, as exhibited by crying, tachycardia and higher blood pressure readings. So how can practitioners provide these little patients with pain relief in the ED during painful procedures such as venipunctures, IV placement, intramuscular medication injections, lumbar punctures and bladder catheterizations?

Glucose or sucrose oral solutions are available for this exact reason, and they come pre-made. Numerous studies have demonstrated that providing babies with these types of oral sugar solutions can provide real pain relief. The clinical picture may not warrant the baby ingesting a large volume of fluids; if that is the case, you can dip a pacifier in the solution and let the baby suckle on the pacifier. This has also shown to provide some pain relief.



In a 2010 review, 13 of 14 studies showed that when patients up to 1 year of age were given a sugar-containing oral solution prior to receiving an immunization, they cried less. Additionally, this has been a relatively common practice for newborns undergoing a circumcision for years. This study also showed that the benefit declines as the age approaches 1 year of age.

Another study of newborns undergoing venipuncture compared the use of a sugar-containing oral solution to the use of topical EMLA at the venipuncture site. The study showed that the sugar-containing oral solution provided better pain management than topical EMLA cream.

If your ED is not using this technique or only using it sporadically, this is a great opportunity for your ED to begin providing the necessary pain management for your little patients.

Mann D. Sugar Water Eases Vaccine Pain for Babies. WebMD. May 27, 2010. http://www.webmd.com/parenting/baby/news/20100527/sugar-water-eases-vaccine-pain-for-babies Accessed June 5, 2013.

Gradin M RN BSN, Eriksson M RN BSN, Holmqvist G RN BSN, Holstein A RN, Schollin J MD PhD. Pain Reduction at Venipuncture in Newborns: Oral Glucose Compared With Local Anesthetic Cream. *Pediatrics.* Vol. 110 No. 6. December 1, 2002; pp. 1053 -1057.

Pediatric Tips and Tricks in the Emergency Department

1 When you need to document that a heart rate is normalizing prior to discharge, place an O2 sat monitor on the baby, infant or toddler and walk away for a few minutes. They usually forget the probe is on after a few minutes; then you can than sneak by without entering the room and see the heart rate without making the baby cry.

2 When performing a lumbar puncture on a baby, allow the parents/caretaker to stay in the room on the opposite side from where you are placing the needle. Also, make sure they are sitting down in a chair. We have seen seasoned family members have a vasovagal episode after watching a lumbar puncture on their baby; these can result in significant head injuries.

3 For teenagers who cannot get relief from migraines, try Reglan; it has been around for a while, but it's reliable and works amazingly well for refractory migraines. Make sure your patient is a suitable candidate to receive this medication.

4 Diarrhea can be seen in up to 40% of patients < 2 years of age with acute appendicitis. Remember not to anchor on the diagnosis of acute gastroenteritis; consider all potential diagnoses.

5 A significant percentage of pediatric patients with testicular torsion will complain of abdominal pain only. Make sure you conduct a complete GU examination in patients with abdominal pain to ensure you are not missing a testicular torsion.

Pediatric Tips and Tricks in the Emergency Department

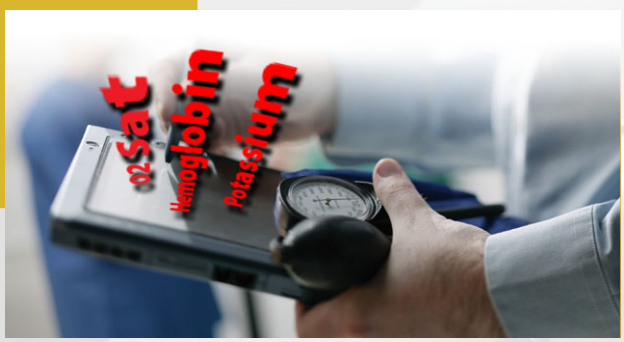
6 Neonates that present with a skin or soft tissue infection should undergo a full sepsis evaluation. They may appear well and have no fever, but they may very well have a systemic infection present.

7 If you are concerned that an adolescent who is having a "seizure" is malingering, lean over and whisper the following in his/her ear: "Are you having a seizure?" and see if you get a response.

8 Don't forget about early use of epinephrine in conjunction with antihistamines and steroids for stings and anaphylaxis. Discharge these patients home on 3 days of antihistamines and steroids along with an epinephrine autoinjector (if deemed appropriate).Do not forget to ask about tetanus status.

9 Asthmatics who use an MDI often do not use a spacer with the MDI. Without a spacer, the back of the throat is likely to get as much of the medication as the lungs, if not more.

10 If you are starting an IV on a little one with a 24-gauge IV, you probably want to flush with a smaller syringe (with a smaller volume) using gentle pressure. A larger syringe (with a larger volume) is often easier to push and can "blow" the vein.



3 Frustrating Pieces of Pediatric Lab Data

Obtaining data from children is never easy, and interpreting that data can be challenging as well.

First and foremost, all data that is collected from children need to be interpreted for the individual patient. Some of this data may seem alarming at first, but there may be another explanation that's not so worrisome. Here we will review 3 of these data points.

Oxygen Saturation

When taking care of asthmatics, we commonly monitor the O2 saturation and give them a bronchodilator. Patients with a true asthma exacerbation may have parts of the lung that are not being ventilated well but are still being perfused. A bronchodilator will open these areas up resulting in a ventilation/perfusion mismatch, which can cause the O2 saturation to dip a bit. We do not want patients to remain hypoxic, but keep in mind that if you are treating the asthmatic with a bronchodilator and the child looks well and is clinically improving, a transient small drop in the oxygen saturation may not be cause for alarm.

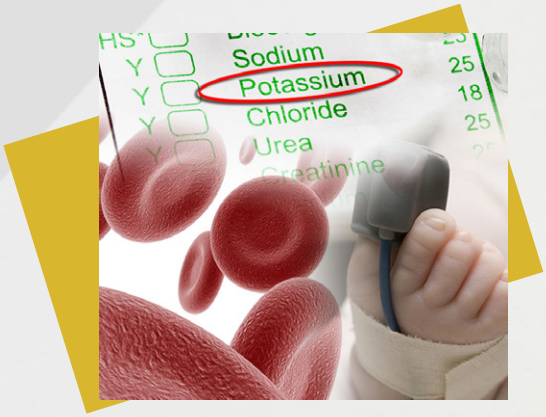
Hemoglobin

When little babies come in for infectious illnesses, we often check a CBC. It's not uncommon to get a phone call from the lab for the emergent report that the 2-month-old's hemoglobin is 9.4. The fact is that this is the normal physiologic nadir of the hemo-

"Probably the most helpful course I've done in the last 6 years! All things I "know" but helped to put them all together in a concise format."

Stacy Domel, RN
Round Rock Medical Center *(Pediatric Respiratory Emergencies)*

globin, so this is actually a normal hemoglobin level for the patient's age. The *Harriet Lane Handbook* is a good resource for finding normal hemoglobin values per age. It is important to mention again that every lab value should be interpreted for each patient's presenting illness.



Potassium

Another phone call we often get from the lab has to do with high potassium levels in babies; levels of 6, 7 or even 8. These levels obviously need to be addressed, but these specimens are usually hemolyzed. So first ask the laboratory technician if the specimen is hemolyzed; then decide if a repeat potassium level is necessary; this is usually strongly advised.

...every lab value should be interpreted for each patient's presenting illness.

I recommend using a 23-gauge butterfly needle rather than a 25-gauge needle for the redraw. A venous sampling is preferred; but if you cannot get a good vein, then a heel stick is not unreasonable. Be sure you adequately warm the heel with a neonatal heel warmer prior to the heel stick. I try to avoid heel sticks altogether as they notoriously result in elevated potassium levels.

As always, all thoughtful comments and questions are more than welcome!

E-mail us at:
info@thesullivangroupcom

Thank you

CONTACT US

The Sullivan Group
1S450 Summit Avenue
Suite 320
Oakbrook Terrace, IL 60181

Toll Free
855.RSQ.INFO

Office
630.268.1188

Fax
630.268.1122

www.thesullivangroup.com