

PedsCases Podcast Scripts

This is a text version of a podcast from PedsCases.com on the "Altered Level of Consciousness." These podcasts are designed to give medical students an overview of key topics in pediatrics. The audio versions are accessible on iTunes or at www.pedsCases.com/podcasts.

Altered Level of Consciousness

Developed by Peter MacPherson and Dr. Melanie Lewis for PedsCases.com.
August 4, 2010

Introduction:

Peter: Hi everyone, my name is Peter MacPherson and I'm a medical student at the University of Alberta. I'm joined today by Dr. Mel Lewis. Dr. Lewis is a general pediatrician and the Pediatrics Clerkship Director at the University of Alberta.

Today, we're going to be talking about the evaluation of altered level of consciousness in children. We'll review a bit of the background material and help you develop a stepwise approach to these cases. We'll also go over some common causes of altered states of consciousness one by one.

Dr. Lewis: These cases can be scary, especially for junior learners. The differential diagnosis is broad, but we will help you develop an organized approach to these cases.

Acute changes in the level of consciousness indicate a serious medical problem and the evaluation is emergent. The Lewis approach is always: Rule out what can be acutely life threatening and then think ...what's common. First and foremost, don't forget your ABCDFG...ABC being Airway, Breathing, and Circulation and DFG...Don't Forget Glucose.

I'm going to start by defining states of consciousness. Between normal consciousness and coma, there are a number of different states of consciousness in which children can present. These include lethargy and stupor. A lethargic child can be aroused by moderate stimulation, but has limited responsiveness otherwise. A stuporous child can be aroused only with vigorous and repeated stimulation. A child in a coma is unresponsive to all stimuli. The Glasgow Coma Scale, or GCS, can document a patient's level of consciousness in older children. There is a modified coma scale for infants.

Peter: We're going to talk in depth about specific causes and their associated historical features towards the end of the podcast. For now, could you set the stage about how we should think about the causes of altered states of consciousness?

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Dr. Lewis: Sure, an easy way to think about it is to divide it into **structural and medical** causes. Structural causes include things like: stroke, hydrocephalus, space occupying masses, and trauma. Medical causes are things like: toxic ingestions, infections – like sepsis, encephalitis & meningitis, neurologic causes - like seizure and migraine, and finally metabolic causes which range from rare metabolic disorders which cause dysfunction in energy production to simply hypoglycemia from too much insulin.

Neuroimaging will often reveal structural causes. The pupillary light reflex is an important way to differentiate structural and medical causes. This reflex is relatively resistant to metabolic effects. If a child with decreased level of consciousness has pupils that are unequal, sluggishly reactive or unreactive to light, this would indicate a structural insult to the brainstem in the region of the reticular activating system. This system plays a key role in consciousness. Additionally, the oculoccephalic reflex and the motor response to pain can help localize the level of a brainstem lesion. Pinpoint pupils that remain reactive to light (although this may be difficult to tell due to their size) may indicate an ingestion such as opiates.

In general, head trauma, toxic ingestions and CNS infections are among the most common causes of acute alterations in consciousness in children. That said, you need to consider the other causes as well. In general, a toddler who was totally well and then becomes acutely ataxic and demonstrates decreased LOC has ingested something until proven otherwise. Remember, many ingestions can cause acute hypoglycemia, like getting into Grandma's Diabetic meds, or getting into Mom and Dad's alcohol.

Peter: We've included a differential diagnosis broken down into structural and medical causes in the show notes that you can review on your own, either by pausing now or by reviewing later. If you are wondering what show notes are, they are the text or description that accompanies the podcast episode. We didn't want to bog you down with a big long list so we have left it for you to look at on your own.

Now that we have a bird's eye view of the causes of an altered level of consciousness, let's talk about the practical aspects of the initial management of these patients. What should you do, and in what order?

References:

References available upon request.