

Jason Mounts MD  
Peds EM Fellow: Children's Hospital of the Kings Daughters  
October 27, 2008

### **Clinical Question**

P: In pediatric patients suffering from abdominal pain worrisome for appendicitis  
I: Is giving them an analgesic before completing evaluation by surgeons  
C: Compared waiting till after everything is done  
O: Associated with increased morbidity

### **Clinical Scenario:**

A seven year old boy is brought in by his father to your ER. He's had 24 hours of periumbilical abdominal pain with fever, vomiting and anorexia. His vitals are all stable. On exam he is guarding and is tender everywhere. You're concerned this may be appendicitis and order a fluid bolus, some labs and let the father know you will probably have to call the surgeon. He asks you if you can do anything about his son's pain. You begrudgingly answer that the surgeons in your hospital prefer not treating patient's pain before they have had a chance examine them because they believe it might mask a serious diagnosis. When he asks you when they will be down you say, "Hopefully in the next couple hours, they'll want to know what the CBC shows first." You leave the room cursing the surgeons, secretly hoping one of them comes to your ED with abdominal pain...

### **Background:**

Surgical tradition holds that the use of analgesics should be withheld from patients with acute abdominal pain until a diagnosis and management plan have been established by a surgeon. This belief originated early in this century and was emphasized by Cope in his extremely influential book, *Early Diagnosis of the Acute Abdomen*. Cope claimed that analgesia would mask signs and symptoms, delay diagnosis, and lead to increased morbidity and mortality. In the most recent edition of Cope's book, Silen condemns the practice of withholding pain medication from a patient with acute abdominal pain. In the next sentence, however, he states that analgesia medication should be given only after a "responsible surgeon" takes a thorough history and performs a thorough physical examination. In actual practice, a surgeon is rarely the first physician to examine a patient with acute abdominal pain, and surgical consultation can take many hours. Given that all the evidence in the medical literature suggests that the use of narcotic analgesia does not obscure diagnosis—and may even improve diagnostic accuracy—in such patients, the traditional practice of withholding pain medication in patients with substantial pain should be seen as inappropriate and inhumane.

In the Adult Emergency Medicine literature treating abdominal pain has been well studied. The 2007 Cochrane review found plenty of evidence to put the issue to rest in adults. The Pediatric literature on the topic is not as robust. The first paper written on the topic was in 2002. Many pediatric institutions are still reticent to

treat abdominal pain in children before they have been fully evaluated by a surgeon and a plan formulated.

<b><u>Author Info</u></b>	<b><u>Study Group</u></b>	<b><u>Study Type</u></b>	<b><u>Key Results</u></b>	<b><u>Weaknesses</u></b>
Kim, et al; Academic Emergency Medicine, 2002	60 children ages 5 to 18 years	Randomized double-blind placebo controlled	<ul style="list-style-type: none"> <li>- Decrease in tender regions per PEMs with MS04 and no placebo</li> <li>- Diagnostic sensitivity was not worse post MS04</li> <li>- Specificity increased in PEM group post MS04 (unsure of stat significance)</li> </ul>	- Too small a sample size with inadequate power to achieve a significant improvement in diagnostic accuracy
Green, et al; Pediatrics 2005	108 children ages 5 to 16 years	Randomized double-blind placebo controlled	<ul style="list-style-type: none"> <li>- Decrease in pain by 1/10 vs 2/10 MS04 vs Placebo</li> <li>- No change in surgeon's confidence in their dx pre and post - 74% vs 74%</li> <li>- No difference in percent of delayed diagnoses</li> <li>- Only child d/c'd with appy was in placebo group</li> </ul>	<ul style="list-style-type: none"> <li>- Sample size too small to attain power for detecting difference in missing the diagnosis of appy between groups</li> <li>- Surgical confidence seems too subjective and bias possible</li> </ul>
Kokki, et al; Arch Pediatr Adolesc Med, 2005	63 children ages 4 to 15 years	Randomized double-blind placebo controlled	<ul style="list-style-type: none"> <li>- Total pain reduction was significant in oxycodone group</li> <li>- Diagnostic accuracy was unchanged between the 2 groups</li> </ul>	<ul style="list-style-type: none"> <li>- Previous assessments may have biased post-study med</li> <li>- Medication unlikely to be used</li> </ul>
Bailey, et al; Annals of Emergency Medicine, 2007	90 children ages 8 to 18 years	Randomized double-blind placebo controlled	<ul style="list-style-type: none"> <li>- No change in pain between placebo/MS04</li> <li>- No difference in time to surgical decision</li> <li>- Only missed dx in placebo group</li> <li>- No loss in rebound tenderness with MS in appendicitis</li> <li>- Significant loss in rebound with MS without appendicitis</li> </ul>	<ul style="list-style-type: none"> <li>- MS04 no better in improving pain</li> <li>- Large placebo effect</li> <li>- Outcome of time to surgical decision is questionable</li> <li>- May have under-dosed MS04</li> </ul>

**Clinical Bottom Line:**

I think this review provides enough evidence to support the notion that the use of opioid analgesics in children with acute abdominal pain is helpful in terms of patient comfort and does not retard decisions to treat. In some of the studies there were suggestions that analgesics may make the exam more specific. More discussion is needed to establish a management guide for children that need their pain controlled.