

cause of symptoms of biliary colic. All 106 children were cured, and side effects were identical for both groups. Follow-up examinations two months later revealed moderate-to-severe sensorineural hearing loss in two children (4%) treated with ceftriaxone and in nine (17%) treated with cefuroxime ( $P = .05$ ). It was concluded that the benefits of more rapid sterilization of the cerebrospinal fluid and milder hearing impairment with ceftriaxone outweigh the problems with biliary pseudolithiasis and that ceftriaxone is superior to cefuroxime for the treatment of acute bacterial meningitis in children.

Wayne Guerra, MD

opioids, respiratory depression

### Differences in magnitude and duration of opioid-induced respiratory depression and analgesia with fentanyl and sufentanil

Bailey PL, Streisand JB, East KA, et al  
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A prospective study to evaluate the differences in respiratory depression and analgesia between fentanyl and sufentanil was performed. Thirty healthy nonsmoking men, aged 18-35, were divided into three groups and studied in a double-blind, randomized fashion. Each volunteer received one dose of fentanyl (1, 2, or 3 mg/kg) or sufentanil (0.1, 0.2, or 0.4 mg/kg) and no sooner than 48 hours later, an equipotent dose of the other opioid. By using a mask and rebreathing circuit,  $\text{ETCO}_2$ , ventilatory response to  $\text{CO}_2$ , and occlusion response to  $\text{CO}_2$  were determined to estimate the magnitude of respiratory depression in response to the drug. Analgesia was measured by applying electric shock to the forearm in 0.2-to 0.5-ma increments until the subject described pain. Regardless of dose, the magnitude and duration of the ventilatory and occlusion pressure response was less with sufentanil. Ventilatory and occlusion pressure responses returned to baseline in 30 minutes for sufentanil and required more than 120 minutes for fentanyl. The pain threshold was higher and longer lasting for sufentanil, returning back to control values after 180 minutes compared with only 90 minutes for fentanyl. It was concluded that sufentanil may provide better analgesia with less respiratory depression as compared with fentanyl. *[Editor's note: Even though there were measured differences in respiratory depression between these two short-acting narcotics, even at the higher doses of 4 mg/kg of fentanyl, there is no mention of the need to reverse the effect of the drug or supplement ventilation. Therefore, the amount of measured respiratory depression is probably not clinically significant. Both drugs are excellent short-term reversible analgesic agents for emergency department use.]*

Wayne Guerra, MD

angina, unstable

### Effect of heparin, aspirin, or alteplase in reduction of myocardial ischemia in refractory unstable angina

Serner GG, Gensini GF, Poggesi L, et al  
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This was a prospective, double-blinded, randomized study to evaluate the efficacy of heparin, aspirin, and alteplase in the treatment of refractory unstable angina. Three hundred ninety-nine out of 474 inpatients were monitored for 48 hours, and 97 of them were found to be refractory to conventional antianginal treatment of nitrates, calcium channel blockers, and beta-blockers. Unstable angina was defined as ST segment elevation or depression of at least 0.1 mV 80 ms after J-point or a single episode of chest pain lasting 20 minutes or more with a creatine kinase less than twice normal. Patients were monitored for three days after starting treatment and then observed for four more days. In the initial protocol 58 patients were randomized into three treatment groups: heparin infusion, heparin by repeated bolus, or aspirin. Heparin infusion significantly reduced the number of anginal episodes (94% decrease) as compared with heparin bolus (30% decrease) or aspirin (18% decrease). The episodes of silent ischemia and overall duration of ischemia were also significantly reduced. The remaining 39 patients were assigned randomly to receive heparin infusion or alteplase. Alteplase was given over 12 hours, and no concurrent anticoagulation was administered. Again, heparin infusion was found to significantly decrease episodes of angina (84%) and silent ischemia (77%) and reduce the overall duration of ischemia (86%). Alteplase caused small (nonsignificant) reductions on the first day only. Only minimal bleeding complications were reported. It was concluded that continuous heparin infusion is a prompt, effective, and safe treatment for myocardial ischemia in unstable angina refractory to conventional treatments and that coadministration of alteplase, while increasing the risk of hemorrhage, offers no advantages over heparin infusion alone.

Wayne Guerra, MD

trauma, facial bone fracture, pediatric

### Pediatric maxillofacial trauma

McGraw B, Cole R  
*Arch Otolaryngol Head Neck Surg* 116:41-45  
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A retrospective analysis of 72 children with maxillofacial trauma from ages 26 days to 16 years over a four-and-