

2002 Fall A16

**INTRATHECAL, BUT NOT INTRAVENOUS ADENOSINE REDUCES ALLODYNIA IN PATIENTS WITH NEUROPATHIC PAIN**

Eisenach, J.C.1; Curry, R.1; Rauck, R.L.1

1. Anesthesiology, Wake Forest University School of Medicine; 2. Anesthesiology, Wake Forest University School of Medicine, Winston-Salem, NC

**Introduction.** Intrathecal adenosine reduces allodynia in human volunteers with experimentally induced allodynia from capsaicin, and reduces hypersensitivity to mechanical stimuli in animals with nerve injury. Although both intrathecal and intravenous adenosine have been reported to relieve pain in patients with neuropathic pain, there are no controlled trials of this therapy.

**Methods.** In order to determine the effect of adenosine, 7 patients with chronic neuropathic pain and stable areas of hyperalgesia to von Frey filament testing and allodynia to cotton wisp brush testing were recruited. Patients were trained to rate pain sensation in normal skin using a thermal probe, and rated their ongoing pain in relation to the pain induced by a 49 degree C stimulus. Using a double-blind, cross over design, patients were studied on two occasions, once with intrathecal adenosine, 2 mg, and once with intravenous adenosine, 2 mg, using saline by the alternate route. Areas of hyperalgesia and allodynia and pain from von Frey stimulation in the area of allodynia were determined up to 24 hr after drug injection.

**Results.** Intravenous adenosine produced no effect on analgesic measures. Intrathecal adenosine reduced area of allodynia by approximately 25%, which was statistically significant from 2 to 24 hr after injection. Intrathecal adenosine reduced pain from von Frey filament stimulation in the area of allodynia by approximately 20%, which was significant. Ongoing pain was unaffected by adenosine by either route. Intrathecal, but not intravenous adenosine, caused backache in 5 of 7 patients, lasting 6 hr. **Conclusions.** These results indicate that intrathecal adenosine reduces allodynia and pain from stimulation in the area of allodynia, whereas the same dose of adenosine intravenously was ineffective. The effect of adenosine was modest and was associated with backache, which was severe in some cases. These data suggest a limited role for intrathecal adenosine as a sole agent for the treatment of neuropathic pain.