

**Taskaynatan MA, Ozgul A, et al. Bier Block with Methylprednisolone and Lidocaine in CRPS Type I: A Randomized, Double-Blinded, Placebo-Controlled Study. Regional Anesthesia and Pain Medicine 2004;29(5):408-412.**

Design: Randomized clinical trial

Brief summary of findings:

- 25 patients (25 men, 0 women, mean age 22, maximum age 25) treated for CRPS-I at a department of Physical Medicine and Rehabilitation at a military academy in Ankara, Turkey
- Mean duration of CRPS was 3.1 months
- Exclusion criteria were angina, myocardial infarction, peptic ulcer, diabetes, osteoporosis, and cardiac conduction block; stellate ganglion block or IV Bier Block in the past month were also exclusion criteria
- All patients had cannulation of a large cubital vein on the affected side with a 22-gauge catheter, drainage and elevation of the limb followed by inflation of a blood pressure cuff 100 mm Hg above the systolic blood pressure, and infusion of 100 ml of saline; all participants were treated as inpatients for 3 infusions performed one week apart
- Randomized to 100 ml of saline alone (n=11) or to addition of 40 mg methylprednisolone and 10 ml of 2% lidocaine (n=14)
- Main outcomes were pain severity on a scale from 0 to 10, range of motion (ROM) between fingertip and distal palmar crease, and edema measured by a standard volumeter; these measurements were done by a physician blinded to treatment assignment
- Measurements were done 1 hour after the release of the tourniquet in each of the 3 block sessions, and the final assessment was done 1.5 months after the last session
- In each of the 3 block sessions, mean pain scores improved significantly (about 1.2 to 1.5 points) in both treatment groups 1 hour after the blocks; there was no difference between groups on pain score improvements
- In the 3 block sessions, ROM and edema did not improve in either group after the blocks
- At 1.5 months, the final assessment showed no improvement in pain severity from the pain at baseline in either treatment group; ROM and edema scores also showed no change from baseline in either group
- Patient satisfaction at the end of the study showed that most patients in both groups reported no change had occurred during treatment

Authors' conclusions:

- Brief pain improvements were observed one hour after an IV Bier block
- The presence of methylprednisolone or lidocaine did not appear to affect the pain response
- The pain response was transient, and was not present 1.5 months after the last of 3 Bier blocks

- Other randomized trials of Bier blocks with differing agents have also not shown lasting improvement
- The study was small and under powered (power was about 65% to find a clinically important difference between groups), and a larger, more powerful study may find differences between steroid/lidocaine and placebo

Comments:

- The authors have summarized the main limitation of the study: its low power
- The sample size calculation which arrived at an estimate of 65% power did not state the effect size for which the study had that level of power; presumably, this effect size would have represented a minimally clinically important difference between groups for pain intensity, if that were the principal outcome
- The lack of power precludes making definite conclusions about steroid/lidocaine Bier blocks, but a very dramatic effect is not likely

Assessment: Inadequate for evidence about the effectiveness or lack of effectiveness of IV Bier blocks with lidocaine and steroid