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Capsaican-evoked Mechanical Allodynia and Hyperalgesia Cross-nerve Territories

To the Editor:—In the September 1996 issue of the journal, CN Sang *et al.* reported on the allodynia and hyperalgesia produced by injection of capsaicin.[1] In their experiments, volunteers received radial or ulnar nerve blocks with a preparation of capsaicin. One wonders about the solution in which capsaicin was used. The reason for this query is that the OTC preparation of capsaicin known as *Zostrix* is an emollient containing benzyl alcohol, cetyl alcohol, etc. As reported by Duncan and Jarvis in 1943,[2] benzyl alcohol in 5–10% concentrations destroys peripheral nerve fibers. This is the reason for prolongation of block in anesthetic mixtures in oily media. We rediscovered this phenomenon in 1947 in an attempt to prolong sympathetic nerve block by using bromsalizol in polyethylene glycol.[3] Bromsalizol is a derivative of benzyl alcohol. Could the results achieved by Sang *et al.* be related to some substance in solution, perhaps benzyl alcohol?

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References

1. Sang CN, Gracely RH, Max MB, et al: Capsaicin-evoked mechanical allodynia and hyperalgesia cross nerve territories. Evidence for a central mechanism. ANESTHESIOLOGY 1996; 85:491–6

2. Duncan DH, Jarvis WH: Comparison of the action on nerve fibers of certain anesthetic mixtures and substances in oil. ANESTHESIOLOGY 1943; 4:465–74

3. Harmel H, Vandam LD, Lamont A: An attempt to prolong sympathetic block with bromsalizol in polyethyleneglycol. ANESTHESIOLOGY 1947; 8:266–9

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In Reply:—Dr. Vandam correctly points out that the medium in which capsaicin is dissolved may itself cause pain, perhaps by destroying peripheral nerve fibers as has been shown to occur with 5–10% benzyl alcohol. He mentions that Zostrix, an OTC preparation of capsaicin, contains benzyl alcohol and acetyl alcohol. We did not use this preparation but prepared our injectate from purified capsaicin powder (Fluka, Ronkonkoma, NY) and dissolved it in 15% Tween-80 in water at a concentration of 10 mg/ml. We are unaware of reports that examine the direct effects of Tween-80 on the peripheral nerve fibers. In previous studies (Simone *et al.,* 1989) injection of this vehicle alone does not cause secondary hyperalgesia. However, even if the vehicle had caused peripheral nerve injury or sensitization, our findings would still support the conclusion that in normal human volunteers, mechanical allodynia and hyperalgesia caused by a focal noxious stimulus spread beyond the distribution of the nerve supplying the injection site. This indicates that strong peripheral nociceptor input can produce mechanical allodynia and hyperalgesia by sensitizing central nervous system neurons.

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Reference

1. Simone DA, Baumann TK, LaMotte RH: Dose-dependent pain and mechanical hyperalgesia in humans after intradermal injection of capsaicin. Pain 1989; 38:99–107

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