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## Comparison of lidocaine injection, botulinum toxin injection, and dry needling to trigger points in myofascial pain syndrome.

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#### Abstract

**BACKGROUND:** Myofascial pain syndrome (MPS) is one of the most common causes of chronic musculoskeletal pain. Several methods have been recommended for the inactivation of trigger points (TrP).

**OBJECTIVES:** This prospective, single-blind study was proposed to compare TrP injection with botulinum toxin type A (BTX-A) to dry needling and lidocaine injection in MPS.

**METHODS:** Eighty-seven trigger points (cervical and/or periscapular regions) in 23 female and six male patients with MPS were treated and randomly assigned to three groups: lidocaine injection (n=10, 32 TrP), dry needling (n=10, 33 TrP), and BTX-A injection (n=9, 22 TrP).

**OUTCOME MEASURES:** Clinical assessment including cervical range of motion, TrP pain pressure threshold (PPT), pain scores (PS), and visual analog scales for pain, fatigue, and work disability were evaluated at entry and the end of the 4th week. Additionally, depression and anxiety were evaluated with the Hamilton depression and anxiety rating scales, and quality of life was assessed using the Nottingham health profile (NHP). The subjects were also asked to describe side effects. **INJECTION PROCEDURE:** One milliliter of 0.5% lidocaine was administered to each TrP in the lidocaine injection group, 10-20 IU of BTX-A to each TrP in the BTX-A group, and dry needling to each TrP in the last group, followed by stretching of the muscle groups involved. The patients were instructed to continue their home exercise programs.

**RESULTS:** Pain pressure thresholds and PS significantly improved in all three groups. In the lidocaine group, PPT values were significantly higher than in the dry needle group, and PS were significantly lower than in both the BTX-A and dry needle groups. In all, visual analog scores significantly decreased in the lidocaine injection and BTX-A groups and did not significantly change in the dry needle group. Disturbance during the injection procedure was lowest in the lidocaine injection group. Quality of life scores assessed by NHP significantly improved in the lidocaine and BTX-A groups but not in the dry needle group. Depression and anxiety scores significantly improved only in the BTX-A-injected group.

**CONCLUSIONS:** Injection is more practical and rapid, since it causes less disturbance than dry needling and is more cost effective than BTX-A injection, and seems the treatment of choice in MPS. On the other hand, BTX-A could be selectively used in MPS patients resistant to conventional treatments.

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