



Short Communication

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Fuzopuncture: A New Intervention Towards Joint Disorders

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Abstract

Acupuncture has played a beneficial role in the treatment of various musculoskeletal disorders and therefore is thought to be a wellness therapy replacing generally accepted pharmacological intervention. Accumulated evidence has issued that acupuncture points are specialized points beneath which dense neurovascular complexes are distributed than non-acupuncture points. Especially, acupuncture points located on the joints and muscles responsible for the movement of the joints play a crucial role in relieving pain and facilitating articular movement in joint diseases. To attain a better therapeutic effect, Korean specialists have conducted Fuzopuncture technique in the treatment of joint diseases. Fuzopuncture utilizes injection of pharmacological drugs to the acupuncture points localized on the joints, muscles acting in concert with the joints, and paravertebral regions influencing the joint innervation to improve joint functions.

Keywords

Acupuncture; Fuzopuncture; Joint disorders

Short Communication

Acupuncture gains growing popularity as an alternative and complementary therapeutic intervention in western society. From much effort to investigate the characteristic of acupuncture points, it was revealed that loci with dense neurovascular complexes coincided with acupuncture points [1,2]. Since the earlier work of Melzack on 1977, acupuncture and dry needling of trigger points were believed to be governed by similar physiological mechanism based on two criteria: spatial distributions and associated pain patterns [3]. Birch analyzed the data as well as theoretical foundation of Melzack and concluded that conceptually trigger points can only be compared to a-shi points of acupuncture points [4]. Meanwhile, Dorsher and Fleckenstein used graphic software to evaluate the anatomical relationship between the locations of classical acupuncture points and trigger points [5]. They superimposed the locations of 255 common trigger points described in the Trigger Point Manual onto the layers of 361 channel acupuncture points. As confirmed by acupuncture and human anatomy references [6], 238 (93.3%) trigger points had anatomically corresponding channel acupuncture points. They pointed out Birch's 2003 study [4] ignored marked clinical correspondences between common trigger points and classical acupuncture points in both somatovisceral and pain disorders [5]. They claimed that Melzack's concept that distal

pain sites can be influenced by trigger points was not applied in the study of Birch's analysis. They pointed out that Birch's study, which favors "no correspondence of trigger points and classical acupuncture points", might be influenced by a systematic bias in conceptual, data reporting, and data analysis errors. Besides, the a-shi points frequently coincide with channel points primarily in the treatment of pain conditions [5,7].

As acupuncture is increasingly used for the treatment of pain and other conditions, manipulation of acupuncture needle attracts much concern among medical experts. Manual needle manipulation or electrical stimulation after needle insertion has been commonly used to strengthen the effect of acupuncture [8,9]. However, maintenance of needles might be cumbersome, particularly in agitated animals. In order to overcome this disadvantage, other techniques might be used for stimulation of acupuncture points. Recently in Korea and China, the injection of pharmacological medication or purified herbal medicine to acupuncture points is widely used to enhance and prolong the effect of stimulation of acupuncture points [10]. It is a new acupuncture therapy that combines acupuncture and medication, and hence accomplishes more effective therapeutic outcomes [11].

Fuzopuncture is one of most prominent acupuncture point injection techniques in Korea, which employs hollow-bore needles to administer medication into acupuncture points. Practitioners have agonized over which acupuncture points are to be chosen to relieve the complicated symptoms. In Fuzopuncture technique, three types of acupuncture points are utilized to improve joint functions. They are the acupuncture points located on the articular cavity, muscles responsible for the articular movement, and paraspinal muscles influencing the innervation of the articular cavity. Those acupuncture points are very promising candidates for joint disorders because joint dysfunction and muscular imbalance around the joint can cause pain and articular restriction. Depending on the degree of pain and joint disability, a diverse kind of medication is injected to three types of acupuncture points. Since the tip of needle is placed underneath the acupuncture points which have dense peripheral nerves and/or neurovascular bundles, Fuzopuncture causes complex changes in pain transmission, perception, and motor function. Followings are theoretical backgrounds to choose three types of acupuncture points in Fuzopuncture.

In the case of frozen shoulder syndrome, clinically known as adhesive capsulitis, patients with frozen shoulder exhibit significant deficits in shoulder kinematics, including increased elevation and upward scapular rotation due to lack of capsular extensibility [12]. Thus, corticoid injection to the shoulder joint is one of generally accepted interventions to improve joint mobility and relieve pain [13]. Especially in the knee osteoarthritis (OA), intra-articular injection of medication is widely applied to reduce joint pain and increase joint mobility [14]. Therefore, injection of medication into acupuncture points localized on the joint cavity is a good tactic to attain the alleviated pain and facilitated mobility.

Besides, shoulder complex muscle imbalances lead to altered shoulder motion. In adhesive capsulitis, the upper trapezius tends to be more activated than the lower trapezius, creating an imbalance of scapular stabilizers which is known to cause restrictions in

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the range of motion [15]. Engaging the proper shoulder kinetic chain is accomplished by trigger points release with injection of pharmacological substances to dynamic motor muscles. Local injection therapy to myofascial trigger points is also reported to be an effective therapy with chronic radiculopathy derived pain symptoms [16]. As a needle penetrates trigger points of the muscles responsible for the movement of the joints, muscular knots become untangled and, thus, joint mobility progresses smoothly.

Moreover, correlation between the progression of knee OA and lumbar spine OA was proposed in a family based study [17]. This tendency was also supported by the higher prevalence of lumbar spine degeneration in patients with generalized OA at other sites [18]. It is known that the facet capsules and adjacent tissue are rich in nociceptive receptors and pain arises when the capsules are irritated by mechanical stimulation or inflammation [19]. Stimulation of the acupuncture points located on paravertebral muscles whose contraction interrupts the passage of spinal nerve to their assigned joints is, therefore, necessary to resume a functional joint activity.

With respect to Fuzopuncture, there are two advantages; acupuncture stimulation per se and chemical agent injected. Wang et al. [13] reported that the effect of acupuncture point injection with carbamyl- β -methylcholine chloride (CMCC) was stronger than that of intramuscular injection and longer-lasting than intravenous injection, which correlated with the blood concentration of CMCC [20]. In general, a faster onset of action and a comparatively stronger effect of Fuzopuncture is interpreted to a synergy between acupuncture stimulation and medicine.

Furthermore, Chen et al. [21] reported that injections of bee venom, normal saline, and vitamins B1 and B12 into acupuncture point ST36 activated neuronal signaling compared to a dry needling as a control [21]. They suggested that both the spatial configuration changes and liquid substrate stimulate the acupuncture point and activate neuronal signal transmission system [21]. Besides, Chao et al. [22] demonstrated that the plasma concentration of injected drug changed significantly after injection of drug into acupuncture points [22]. As for the mechanism of Fuzopuncture, specialists infer both volume effect and chemical stimulation of the injected substrates might stimulate acupuncture points and thus evoke more profound neurovascular effects than acupuncture alone.

Presently, many Korean specialists regard fuzopuncture is an option to provide improvement of joint functions by modulating specific acupuncture points felicitous for the joint movement.

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