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Basal thumb arthritic pain: To inject one or both sides?

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Abstract

Basal thumb arthritis is a common problem, which is frequently dealt with by intra-articular steroid injection into the first carpometacarpal joint (1st CMCJ), however different health care providers provide it differently. The aim of this paper is to present the result of a standardized procedure, trying to decrease the variables that could affect outcome interpretation.

Thirty patients, who had 1st CMCJ osteoarthritis were assessed then, provided with intra-articular steroid injection, 26.3% of them were males, 73.7% females, 31.6% had a right sided injection, 31.6% left sided, and 37.8% bilateral.

Patient did show an overall improvement, one month after the injection, this result was more pronounced in those who had bilateral 1st CMCJ arthritis (with a p value of 0.0007).

Keywords: Basal thumb arthritis; Basal Thumb Injection; First Carpometacarpal joint pain

1. Introduction

Although steroid injection into the base of the thumb is a common procedure, different health providers would carry the procedure differently, this short-term review assesses the results before and after providing the injection by the same technique and the same dosage. All of these injections were provided by the same health professional, which would decrease the variables while assessing the effectiveness of this treatment modality, as it helps eliminating the effect of changing the technique, or providing the injection by different hands.

2. Materials and Methods

Patients, who presented to an orthopaedic care out-patient clinic with symptomatic osteoarthritis of the 1st CMCJ, were assessed by an orthopaedic consultant or an orthopaedic registrar, and the assessment included clinical examination, grinding test, and x-ray when necessary. They were explained about the treatment options including injection of the involved joint, and when they decided to receive the injection, they were provided with a date for the procedure at a later injection clinic.

At the day of the procedure, thirty successive patients, on four successive clinics, agreed to fill a Quick Dash questionnaire before the injection and the second copy filled and returned one month after the injection.

First the joint of concern is re-examined and the procedure is only carried out if still symptomatic, and all the patients were consented for the procedure and the participation with the scoring system.

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The joint is palpated prior to the procedure and radial arterial branch is palpated as well to help avoiding it when providing the injection. An area of about 8x5 cm centered over the snuff box, is cleaned with 2 alcohol swaps and under aseptic technique all the injections were provided from the dorsal aspect of the 1st CMCJ, entering the snuff box just ulnar to the tendon of extensor pollicis brevis, with the needle pointing distally, from cranial to caudal, aiming to the joint in an angle of about 45 degrees from the long axis of the forearm. Then, some gentle distraction is applied to the joint and a total of (40 mg) of Methylprednisolone acetate, with 0.5 ml of local anesthetic (Levobupivacaine 5.0 mg /ml), were injected into the 1st CMCJ using a blue needle.

3. Results and Discussion

Thirty patients were provided with the Quick DASH scoring system before the injection and provided with a copy to be filled and mailed to the treating hospital one month later.

Among the pre-injection scores for the symptomatic 1st CMCJ, the difference between bilateral and right sided, was significant with a p value = 0.0121, (pre-injection right sided mean = 69.7, and a bilateral mean = 56.82), but no significant difference between bilateral and left sided, or between the right and left sided.

On the post-injections scores, the difference was significant between right and bilateral (p value = 0.0079), but not between left and bilateral (p value = 0.0683), and no difference between right and left sided injected joints.

When the results of all the pre and post injection scores paired on the t test, the difference was statistically significant, with a p value of 0.0006 , (mean pre-injection = 65.31, and a mean post-injection = 51.71) .

The difference between only the bilateral pre-injection and post-injection, is significant, with a p value of 0.0007, (bilateral pre-injection mean is 56.82, and post-injection is 34.42). However, there is no significant difference between pre and post-injection, for the right sided, and no significant difference between pre and post-injection, for the left sided (p value = 0.0638) values when each is considered alone.

The 1st CMCJ or trapeziometacarpal joint arthritis is the most commonly involved arthritic joint in the hand. It is known as nature's universal joint, with its saddle-shape, it allows a wide range of movement in three planes. A hyper-mobile joint may have a causative role in the development of primary osteoarthritis at the base of the thumb by concentrating forces on the palmar aspect of the trapeziometacarpal joint (1). Basal thumb arthritis is a common problem that presents to all hand clinics (2). The prevalence of basal thumb arthritis increases with age and is seen predominantly in post-menopausal women, with osteoarthritis being a common condition in the community with one-third of females over 50 years exhibiting some radiological changes in the 1st CMCJ (3,4), and the most common cause for symptomatic basal joint arthritis is idiopathic (5).

Patients usually present with pain over the base of the thumb (6). The pain is usually activity related, particularly after excessive use involving forceful pinch, and simple activities such as unscrewing jar tops, turning doorknobs and writing can exacerbate symptoms (7). As the arthritis progresses, pain may become constant, which can result in weakness or loss of motion (8). In the later stages of the disease when instability and subluxation of the joint occurs, patients report an inability to abduct the thumb, weakness of pinch grip and a deterioration of hand function, and a swan-neck deformity may eventually develop with progressive adduction of the first metacarpal and compensatory hyperextension of the metacarpophalangeal joint (9).

4. Conclusion

In this report, a trend of improvement after this simple procedure was found. Although the over-all impression is improvement in the post-injection score levels, actually patients who presented with bilateral 1st CMCJ osteoarthritis and had both of them injected at the same visit, had statistically significant improvement, even when considered in separation from the other patients, while those patients who presented with a unilateral CMCJ symptoms and had it injected, did not have statistically significant improvement on the scoring system used when each of these unilateral groups is statistically analyzed in isolation, a result which may be re-audited on a longer period and a larger sample size.

Compliance with ethical standards

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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