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Anesthesia for collagenase clostridium histolyticum injection in patients with dupuytren disease: A cohort analysis☆☆☆☆☆

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KEYWORDS
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Summary Procedural pain is one of the most common adverse effects reported by patients with Dupuytren disease (DD) treated with collagenase clostridium histolyticum (CCH). The aim of this study was to assess the effectiveness of wrist block before CCH injection in reducing procedural pain and to analyze its impact on adverse effects. We performed a prospective, single-center study in which we compared two groups of patients in a consecutive cohort. In the first group (NO-BLOCK), wrist block was only performed before finger extension, whereas in the second group (BLOCK), it was performed before CCH injection and finger extension. Pain was assessed on a 10-item numerical rating scale. Our results show that pain scores were

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ETHICAL STANDARDS
The authors declare that this study was carried according to the Declaration of Helsinki Ethical Principles for Medical Research Involving Human Subjects.
The study was approved by the research committee at Hospital de Denia (Alicante, Spain), the ethics committee at Hospital de La Ribera (Valencia, Spain), and the AEMPS (Agencia Española de Medicamentos y Productos Sanitarios) under protocol number JPJ-COL-2015-01.
The authors declare that the present paper was prepared following the STROBE guidelines.

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clearlylower in the BLOCK group than in the NO-BLOCK group: 4.72 vs. 0.61 for CCH injection and 3.43 vs. 0.82 for finger extension. Patients who rated CCH injection pain with a score of 4 or higher were 11 times more likely to experience pain during extension. There was a weak correlation between the use of wrist block for CCH injection and the occurrence of skin lacerations (Spearman's rho = -0.222, $p < 0.01$) and the presence of pruritus (Spearman's rho = 0.183, $p < 0.07$). In conclusion, wrist block before CCH injection is an effective measure of decreasing perceived pain throughout the different stages of CCH treatment in patients with DD.

Introduction

Based on 5-year outcomes, collagenase clostridium histolyticum (CCH) is an effective treatment for Dupuytren disease (DD),[1] and it is becoming an increasingly popular alternative to surgery in routine practice.[2,3] Its use, however, is associated with a high rate of adverse effects,[4] although most of these are mild or moderate and only occur in the short term.[5]

Pain during CCH injection is one of the most worrisome adverse effects for patients, and according to one survey, 23% of patients would not repeat the treatment because of procedural pain.[6]

The aim of this study was to assess the effectiveness of an ulnar and median nerve anesthetic block at the wrist in reducing CCH injection pain and to analyze the effects of this block on immediate adverse effects.

Materials

We conducted a prospective single-center study of patients with DD consecutively treated with CCH between November 2011 and November 2016. The study consisted of two phases and two groups of patients in a single cohort. In the first phase, which started in November, 2011, a median and ulnar nerve block at the wrist was used only for finger extension (NO-BLOCK group), whereas from June 2015 to November 2016, the wrist block was used for both CCH injection and finger extension (BLOCK group) (Fig. 1). All patients were consecutively included in the study. The study was carried out according to the Declaration of Helsinki Ethical Principles of Medical Research Involving Human Subjects and was approved by the research committee at Hospital de Denia in Alicante, Spain; the ethics committee at Hospital de La Ribera in Valencia, Spain; and the Spanish Agency for Medicines and Health Products (AEMPS) under protocol number JPJ-COL-2015-01. The STROBE guidelines were followed when preparing this paper.

Sample size was calculated using a standard approach for independent samples based on a significance level of 5% (alpha-type error), a difference of 1.3 points in the quantification of pain,[7] a power of 80%, and a 2:1 ratio between groups.

Inclusion criteria were a diagnosis of DD with a contracture of 20° or more[5] in a metacarpophalangeal (MCP) or proximal interphalangeal (PIP) joint in one or both hands; presence of a palpable cord in one or two digits in the hand; absence of declared allergies to CCH or local anesthetics; and provision of signed informed consent. Patients with contractures that affected the thumbs or distal interphalangeal joints were excluded. Where applicable, antiplatelet treatment was discontinued 7 days before the CCH procedure and oral anticoagulants were temporarily replaced with low-molecular-weight heparin.

All the procedures and pain assessments were performed by two orthopedic surgeons, including CCH administration and wrist blocks. The volume of CCH injected was 0.25 mL

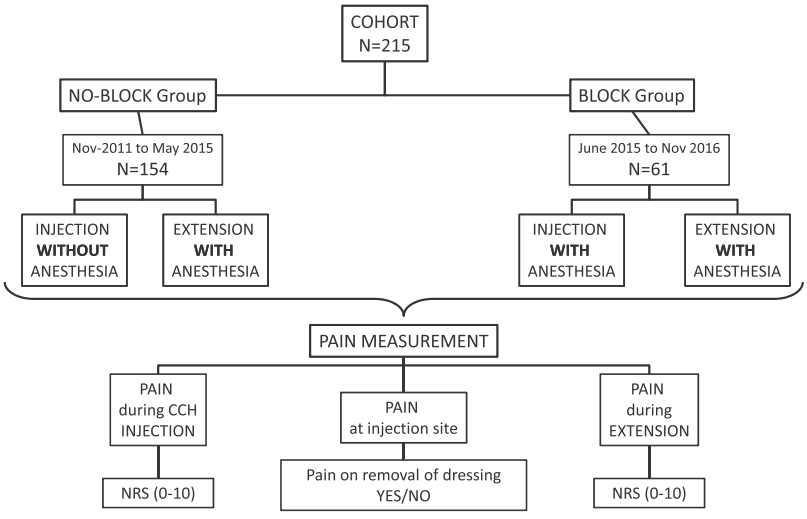

Fig. 1 Study design.