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Original article

# Physical therapy under hypnosis for the treatment of patients with type 1 complex regional pain syndrome of the hand and wrist: Retrospective study of 20 cases

## *Rééducation sous protocole HKM (hypnothérapie combinée à la kinésithérapie ± Meopa) : une solution thérapeutique pour la prise en charge du syndrome douloureux complexe de type 1 de la main et du poignet. Étude rétrospective à propos de 20 cas*

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ABSTRACT

Type 1 complex regional painful syndrome (CRPS-1) has a complex physiopathology. The aim of this study was to evaluate the effectiveness of physical therapy under hypnotherapy to treat this condition. Twenty patients with CRPS-1 at the wrist and hand were evaluated retrospectively: 13 women and 7 men with an average age of 56 years (34–75). Thirteen patients were in the inflammatory phase and 7 in the dystrophic phase. The main endpoints were pain (VAS, analgesic use), stiffness (wrist and finger range of motion), and strength (pinch and grasp). Secondary endpoints were functional scores (QuickDASH, PWRE), patient satisfaction, return to work, and side effects. Results were satisfactory in all cases after 5.4 sessions on average. VAS decreased by 4 points, PWRE-pain by 4.1 points, and analgesic use was limited to paracetamol upon request. Finger and wrist range of motion increased and the QuickDASH decreased by 34 points, PRWE-function by 3.8 points, pinch strength increased 4 points, and grasp strength by 10 points. Return to work was possible in 80% of the cases. All patients were satisfied or very satisfied with the treatment. Physical therapy under hypnosis appears to be an effective treatment for CRPS-1 at the wrist and hand no matter the etiology.



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RÉSUMÉ

Le syndrome douloureux régional complexe de type 1 (SDRC-1) est lié à une physiopathologie complexe. L'objectif de cette étude était d'évaluer l'efficacité de séances de kinésithérapie sous hypnose pour la prise en charge de ce syndrome. Vingt patients présentant un SDRC-1 au niveau de la main et du poignet ont été évalués de manière rétrospective : 13 femmes et 7 hommes de 56 ans en moyenne (34–75). Treize patients étaient en phase inflammatoire et 7 en phase dystrophique. Le critère de jugement principal était l'efficacité, évaluée par la douleur (échelle visuelle analogique [EVA], la consommation d'antalgiques), la raideur (mobilités du poignet et des doigts) et la force (pince et poigne). Les critères de jugement secondaires étaient les scores fonctionnels (QuickDASH, PWRE), la satisfaction du patient, la reprise du travail et les effets indésirables. Les résultats étaient satisfaisants dans tous les cas après 5,4 séances en moyenne. La douleur évaluée par l'EVA diminuait de 4 points, le score PWRE-douleur de 4,1 points, et la consommation d'antalgique était limitée au paracétamol à la demande. Les amplitudes articulaires étaient toujours augmentées, le score QuickDASH moyen diminuait de 34 points, le score PWRE-fonction de 3,8 points, la force de pince augmentait de 4 points et la force de poigne de 10 points.

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Quatre-vingt pour cent des patients ont pu reprendre leur travail au même poste. Tous les patients se disaient satisfaits ou très satisfaits. L'hypnose associée à la kinésithérapie semble être un moyen efficace pour la prise en charge du SDRC-1 main–poignet quelle que soit sa phase évolutive.


## 1. Introduction

After many years of obscurity, we now have some insight into the pathophysiology of type 1 complex regional pain syndrome (CRPS-1): overexcited sympathetic nervous system, perturbations of the body map and contribution of psychological factors [1–3]. Despite better understanding of this disease, its treatment is long and difficult with unpredictable results. There is a significant socioeconomic impact due to its incidence (25/100,000 people).

There are multiple treatment options (corticosteroids, antipsychotics, antidepressants) that have varying degrees of effectiveness. To this day, few treatments that make use of psychological mediation have been validated. Hypnotherapy is being used increasingly to address pain, particularly chronic pain, and various psychological disorders. Since 2006, our surgery department has been providing patients suffering from CRPS-1 of the hand and wrist with physical therapy under hypnosis ± MEOPA (50% nitrous oxide 50% oxygen mixture).

The goal of this study was to specifically evaluate the effects of this strategy. We hypothesized that hypnotic suggestion reduces the activity of certain cerebral areas stimulated during painful treatment procedures, thereby resulting in better progression during rehabilitation.

## 2. Materials and methods

### 2.1. Materials

This was a retrospective study of data collected prospectively and continuously in the orthopedic and trauma surgery department of a French University hospital. Between May 1, 2014 and April 30, 2015, all patients with CRPS-1 of the hand and/or wrist were included in the study, no matter the etiology, time elapsed before treatment, prior treatments and disease phase (acute inflammatory, dystrophic, atrophic). The diagnosis of CRPS-1 was confirmed based on the presence of the International Association for the Study of Pain (IASP) criteria described by Merskey in 1994, as modified by Harden in 2007 [4]. Since the IASP criteria do not include a bone scan, it was not performed regularly.

Patients were excluded if this treatment strategy was not applicable to them, if they could not speak French reasonably well, were hard of hearing or refused hypnotherapy. All patients provided written consent.

### 2.2. Protocol and PT-H method

Once the diagnosis had been made, the enrolled patients were asked to return to the pain clinical at the hospital, which is managed by anesthesiologists. The goals of this initial visit were to have an introductory meeting between the patient and hypnotherapist (nurse anesthetist with hypnotherapy training), to take the mystery out of hypnosis and to explain the details of application, and to collect all the pretreatment clinical data. All patients received care from a hypnotherapist and physiotherapist team. The same hypnotherapist worked with all patients, while two different physiotherapists cared for the patients.

All patients underwent a full clinical examination by the same examiner before the first PT-H session and after the last session. The following clinical parameters were assessed:

- pain (daytime and nighttime VAS);
- wrist and finger range of motion (ROM): wrist flexion/extension, pronation/supination and ulnar/radial deviation; finger flexion/extension of the metacarpophalangeal (MCP) and proximal/distal interphalangeal (PIP, DIP) joints (retained value was the mean of the values in all four fingers);
- functional scores: QuickDASH, PWRE, and a subjective evaluation of the overall function of the hand and wrist called the simple hand value (SHV);
- pinch strength and grip strength.

Each PT-H session took place as follows:

- first, an induction phase that allowed the patient to dissociate and protect themselves from pain;
- second, a treatment phase during which the physical therapist performed pain-relieving modalities, lymphatic drainage massage and passive mobilization of the wrist and fingers in all directions.

Each session lasted an average of 45 to 60 minutes. One session was performed every week or two, depending on the availability of the patient, hypnotherapist and physical therapist. Between the PT-H sessions, patients participated in a standard rehabilitation program with three sessions per week that combined pain-relieving modalities, contrast baths, and gradual increase of the range of motion below the pain threshold. The sessions ended when the patients decided that they had recovered enough strength and ROM to do activities of daily living with no or minimal pain.

### 2.3. Endpoints

The primary endpoint was efficacy evaluated through pain (daytime and nighttime VAS, analgesic consumption), stiffness (finger and wrist ROM) and strength (pinch and grip). The secondary endpoints were the functional scores (QuickDASH, PWRE, SHV), return to work and hypnosis-related side effects.

### 2.4. Statistical analysis

The qualitative variables were described with sample sizes and percentages associated with the various parameters of the study population. The quantitative variables were described with means and standard deviations (along with median and minimum, maximum), since the distribution of the quantitative variables met the normality assumptions. Student's *t*-test was used to compare two measurements of a quantitative variable in the same patient at different time points. The difference between two variables was considered significant when $P < 0.05$ (5% threshold). No subgroup analysis was performed due to the small sample size (20 patients).

## 3. Results

### 3.1. Patient characteristics

Twenty patients were included: 13 women (65%) and 7 men (35%) with an average age of 56.6 years (34–75) (Table 1). None of

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