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Evaluating the benefit of finger gliding exercises after steroid injections for trigger finger

Submission date
31/03/2024

Recruitment status
No longer recruiting

Registration date
03/04/2024

Overall study status
Completed

Last Edited
11/06/2024

Condition category
Musculoskeletal Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] Individual participant data

Plain English summary of protocol

Background and study aims
Trigger finger (stenosing tenosynovitis) is a common musculoskeletal condition in primary care. It is thought to be due to inflammation and subsequent stenosis (narrowing) of the A1 pulley in the hand, which leads to pain, clicking and even locking of the affected finger. It has a lifetime risk of 2.6% and is the fourth most common reason for referral to a hand surgeon. As normal hand function is essential for daily activity and function, a trigger finger can be a frustrating and disabling condition that negatively impacts the quality of life. Corticosteroid injection has been the first-line treatment of trigger fingers and its success rate ranges from 67 to 90% after the first injection. However, studies have shown that the recurrence rate of trigger fingers ranges from 11 to 56%, with most recurrences occurring within the first year. Although risk factors for recurrent trigger fingers such as diabetes, carpal tunnel syndrome and multiple trigger fingers have been identified, studies on strategies to prevent recurrence have been lacking.
Tendon gliding exercises aim to increase the excursion of flexor tendons and maintain a full range of movement of the fingers. In trigger finger patients, the flexor tendons are caught when the digit is fully flexed. Finger flexor tendon gliding exercises can allow maximum excursion of the individual flexor tendon with respect to each other and the bone and flexor sheath. The exercises also force each of the digital joints to glide through its full potential range. It can ensure smooth movement of finger flexor tendons with the potential to prevent the formation of adhesions and inflammatory or degenerative processes of flexor tendons. As trigger finger is due to friction between the tendon sheath and flexor tendon, it is thought that maintaining the smooth sliding motion of the flexor tendon is essential for maintaining the normal function of the hand. Despite finger gliding exercises being suggested for patients with trigger fingers, their effectiveness for treating or preventing the recurrence of trigger fingers has not been studied. The aim of this study is to pilot test the feasibility and the measurement instrument of a digital-based finger gliding exercise for trigger finger in patients treated with steroid injections.

Who can participate?
Patients aged 18 years and older with trigger finger who received a corticosteroid injection

What does the study involve?
Participants will be randomly allocated to the control group or the intervention group. Participants in the control group will receive usual care for trigger fingers and are required to submit an online questionnaire at 6 months of study. Participants in the intervention group will be taught finger-gliding exercises. They are required to do the exercises daily for 6 months and submit online exercise logs regularly. They are also required to answer a questionnaire at 6 months.

What are the possible benefits and risks of participating?
Finger gliding exercises might have the benefit of treating and preventing the recurrence of trigger finger. As these are simple exercises, the risk is minimal

Where is the study run from?
The Hospital Authority of Hong Kong

When is the study starting and how long is it expected to run for?
February 2021 to April 2023

Who is funding the study?
The Hospital Authority of Hong Kong

Who is the main contact?
Dr Yue Kwan Choi, cyk768@ha.org.hk

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
2021.251

Study information

Scientific Title
Clinical effectiveness of finger gliding exercise for trigger finger in patients with steroid injection: a pilot randomized clinical trial

Acronym
Finger GLID

Study objectives
It is hypothesized that compared to the control group, finger gliding exercises done by trigger finger patients after steroid injection will have more favourable clinical outcomes.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 13/04/2021, Joint CUHK-NTEC Clinical Research Ethics Committee (CREC) (Joint CUHK-NTEC Clinical Research Ethics Committee 8/F, Lui Che Woo Clinical Sciences Building, Prince of Wales Hospital Shatin, Hong Kong, Hong Kong, 000, Hong Kong; +852 (0)3505 3935; crec@cuhk.edu.hk), ref: 2021.251

Study design
Pilot interventional randomized controlled trial

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Trigger finger

Interventions
Eligible participants will be randomly assigned to either the control or intervention groups in a 1: 1 ratio. The allocation sequence will be concealed from the researcher and patients using sequentially numbered, opaque, sealed envelopes. The corresponding envelopes will be opened at the time of intervention assignment after all the enrolled patients have undergone all baseline assessments.

Participants in the control group will receive usual care for trigger fingers and are required to submit an online questionnaire at 6 months of study. Participants in the intervention group will be taught finger-gliding exercises. They are required to do the exercises daily for 6 months and

submit online exercise logs regularly. They are also required to answer a questionnaire at 6 months.

Regular finger gliding exercise: the tendon gliding exercise prescription for the intervention group encompasses the exercise described by Wehbe and Hunter. It includes exercises in three basic fist positions:
1. Straight-fist position: the distal interphalangeal joint (DIPJ) extends while the metarcarpophaleageal joint (MCPJ) and proximal interphalangeal joint (PIPJ) are flexed
2. Hook: MCPJ extends while DIPJ and PIPJ are flexed
3. Full fist: all the finger joints are fully flexed.

The straight-fist position provides maximum flexor digitorum superficialis (FDS) excursion while the full-fist position provides maximum flexor digitorum profundus (FDP) excursion. The hook position allows maximum differential gliding by providing more FDP than FDS excursion. As the thumb only involves one flexor tendon flexor pollicis longus (FPL), maximum gliding can be achieved by flexing the interphalangeal joint and MCPJ. Each fist position exercise should be done with 10 repetitions each time. Participants are suggested to do the finger gliding exercises two times per day.

Intervention Type
Other

Primary outcome(s)
The feasibility of the trial will be measured in terms of:
1. Percentage of eligible patients recruited: the percentage of patients that are eligible to participate in the study among all those approached for the study during the recruitment period.
2. Recruitment rate and time: recruitment rate is defined by the percentage of patients recruited for the study among all those eligible for the study. Recruitment time is the time needed to recruit the requested sample size.
3. Exercise log response and compliance rate: an online exercise log will be sent to participants weekly at 1, 2, 3, 4, 8, 12, 16 and 20 weeks post baseline. It requests patients to have recalled exercise entries for the past 1 week. Exercise log response rate is the percentage of online exercise log submitted and compliance rate is the percentage of exercise entries recorded.
4. Follow-up rate: the percentage of participants who have submitted the online survey at 6 months among all those who participated in the study.

Key secondary outcome(s))
The preliminary effectiveness of the finger gliding exercise collected via an online questionnaire at 6 months:
1. Self-rated change of finger condition measured by asking patients to indicate whether they have improved, no change or worsening symptoms
2. Overall finger pain severity measured by Numerical Pain Rating Scale (NPRS)
3. Severity of symptoms measured using Quinelle grading
4. Number of repeated injections: participants will report whether there has been a repeated injection of the trigger finger being studied from baseline until the time of answering the questionnaire
5. The occurrence of a new trigger finger site: participants will report whether there is emergence of a new trigger finger site besides the trigger finger being studied from baseline until the time of answering the questionnaire

Completion date

26/04/2023

Eligibility

Key inclusion criteria
1. Trigger finger patients aged 18 years and over
2. Trigger finger patients with single finger digit problem at presentation
3. Trigger finger patients have corticosteroid injections and are fit for discharge at the subsequent follow-up visit

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Total final enrolment
67

Key exclusion criteria
1. Patients who do not have a smartphone
2. Patients with no internet access
3. Patients who cannot read Chinese

Date of first enrolment
12/08/2021

Date of final enrolment
11/08/2022

Locations

Countries of recruitment
Hong Kong

Study participating centre
Family Medicine Specialist Clinic
3/F, Li Ka Shing Specialist Outpatient Clinics (South Wing)
Prince of Wales Hospital

30-32 Ngan Shing Street
Sha Tin
New Territories
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Sponsor information

Organisation
Prince of Wales Hospital

ROR
https://ror.org/02827ca86

Funder(s)

Funder type
Hospital/treatment centre

Funder Name
Hospital Authority of Hong Kong

Results and Publications

Individual participant data (IPD) sharing plan
The dataset will be available upon request from Yue Kwan Choi (cyk768@ha.org.hk). Sharing data include recruitment rate, follow-up rate, baseline characteristics of participants, clinical outcome (self-reported improvement, repeated injection, numerical pain rating score, finger grading), exercise log response rate and exercise compliance rate. All participants consented to data use for study purposes.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Basic results		11/06/2024	11/06/2024	No	No