

I.S.Mu.L.T. Recommendations for Intra and Periarticular Injections during COVID-19 Pandemic

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DOI:

10.32098/mltj.03.2020.00

INTRODUCTION

SARS-CoV-2 is the coronavirus involved for the ongoing pandemic, responsible of the disease that has been identified as COVID-19 (CORonaVirus Disease-19) (1,2).

In most cases, transmission occurs via saliva droplets in closed or poorly ventilated environments (particularly public and workplaces), unclean hands and rarely via contaminated surfaces (1).

At present, it is unclear whether SARS-CoV-2, can be harbored in the synovial fluid, though musculoskeletal symptoms as myalgia, arthralgia and asthenia are frequent (3-5). Rapid tests based on the identification of specific IgM and IgG antibodies should not replace the molecular test based

on the identification of viral RNA from nasopharyngeal swabs (6,7).

Serological testing can be used for research and retrospective epidemiological purposes, while the possible role in diagnosing ongoing SARS-CoV-2 infection need further evidence considering high false negative and false positive risk (5).

PRE-TRIAGE AND OUTPATIENT ACCESS

The first outpatient access should be preceded by a telephone triage 48-72 hours before the consultation, in which the operator should be supported by a dedicated question-

naire (figure 1), aimed to unveil the possible presence of suspicious symptoms or close contacts. Triage should be repeated at each subsequent access, and patients should be instructed to alert the operators whether any change in health status occurred.

By telephone, the operator should also provide information on access rules:

1. The patient must wear a surgical mask.
2. The patient can be accompanied by only one person.

When suspicious symptoms are identified during telephone triage, the doctor should contact the patient directly,

and invite them to contact the general practitioner (GP). GPs should also be alerted when patients meet the criteria of suspected or close contact of a confirmed case. For the purpose of the European Centre for Disease Prevention and Control, a close contact of a confirmed case, has been clearly defined (8).

When a patient attends the clinic should be measured the temperature with a contactless device.

When temperature is inferior to 37.5°C, patients are allowed to access, providing them with all the necessary PPE. On the other hand, if the temperature exceeds 37.5°C, the patient cannot access and will be referred to the GP.



**ISMULT TRIAGE QUESTIONNAIRE FOR
COVID-19 PREVENTION**

TELEPHONE TRIAGE AMBULATORY TRIAGE

SURNAME	NAME
DATE OF BIRTH	BIRTHPLACE
RESIDENCE	PROVINCE

Do you have or have you had one or more of these symptoms in the last 14 days?

<input type="radio"/> Temperature	<input type="radio"/> Alteration in taste
<input type="radio"/> Cough	<input type="radio"/> Alteration in smell
<input type="radio"/> Sore Throat	<input type="radio"/> Fatigue
<input type="radio"/> Headache	<input type="radio"/> Dyspnea
<input type="radio"/> Diarrhea	<input type="radio"/> Vomit

One of the following has occurred in the last 14 days:

I have had confirmed family members / cohabitants / close contacts with COVID-19

I have had family members / cohabitants / close contacts considered suspected / probable for COVID-19

I have executed COVID-19 swab on (day/month/year) _____ resulted:

<input type="radio"/> POSITIVE	<input type="radio"/> NEGATIVE
<input type="radio"/> WAITING FOR REPORTING	<input type="radio"/> DOUBT

I declare that I am cured of COVID-19 (attach certificate of healing)

I declare that I am in the mandatory quarantine status

The undersigned

Date _____ _____

The healthcare worker

Date _____ _____

Figure 1. ISMuLT questionnaire.

AMBULATORY SETTING AND PREVENTIVE MEASURES

Healthcare workers should always be equipped with PPE:

- since the injection procedure does not expose to droplets, the surgical mask should be sufficient (suspected or symptomatic cases cannot access to the procedure);
- the nurse equipped with a surgical mask may be present together with the doctor;
- the accompanying person should remain in the waiting room.

In ultrasound-guided and ultrasound-assisted procedures, the probe must be properly disinfected and a disposable probe cover should always be used (9).

It is mandatory to disinfect the contact surfaces (table, chairs) and the bench at each appointment.

Furthermore, appropriate ventilation of the environment must be ensured.

INJECTION PROCEDURE

Intra-articular and peri-articular injections can be practised in an ambulatory setting or in hospital outpatient department (10), according to a sequential procedure (**table I**).

Written or verbal informed consent should be obtained. In case of injection procedures, it is always necessary to discuss the risks, benefits and alternatives with the patient (12).

The presence of contraindications should be investigated:

- systemic infections;
- suspect or presence of infections at injection skin site or selected joint;
- fractures;
- prosthesis at injection site;
- coagulopathies;
- hypersensitivity to products.

Relative contraindications include:

- presence of infection in another site of the body;
- hypersensitivity to other injection products (not used);
- Diabetes Mellitus (10-12).

Injection therapy in patients on anticoagulant drugs or with known bleeding diathesis should be approached with great caution. All coagulation parameters should be evaluated in these patients, including prothrombin time (PT), activated partial thromboplastin time (aPTT), international normalized ratio (INR), and platelet count. Injections should be avoided with prolonged bleeding time, INR > 1.2, and platelet count < 100,000 / μ l(12).

Various side effects can occur during the injection procedure; however, most adverse events are minor, transient and localized at the injection site (13).

Table I. Step-by-step procedure of intra-articular and periarticular injection (10-12).

Clinical exam; evaluate injection indications; evaluate comorbidities
Explain and sign the informed consent; discuss possible risks and advantages
Preparation of the necessary instruments (disinfectant, sterile material, drugs, needles, syringes, dressings); select needle length and gauge
Prepare patient; identify anatomical landmarks
Skin disinfection; prepare sterile field
Proceed with arthrocentesis when needed
Proceed with injection
Remove the needle rapidly after injection and perform local compression with sterile gauze
Disinfection and patch application
Instruct the patient to notice if any symptom or infection sign is detected; schedule follow-up visit

The most common complications are sudden onset of local pain lasting no more than 72 hours (2-10% of cases), skin atrophy (1%), skin fat atrophy (1%), and appearance of redness of the face (1-12%) (13).

Less commonly reported side effects may include iatrogenic infection (risk of 1 in 1,000) and tendon rupture (less than 1%). The risk of tendon rupture is higher during soft tissue injections around the Achilles tendon and plantar fascia (14).

Vasovagal episodes can occur with any type of injection procedure due to the nociceptive stimulation effect of the needle. The treatment is mainly supportive; it is rarely necessary to administer fluids and / or oxygen (12).

Required equipment

The equipment required is:

- gloves / sterile gloves;
- sterile swabs and sterile draps;
- prepacked sterile needles and syringes;
- disinfectant (iodopovidone / chlorhexidine);
- synovial fluid collection bottles;
- sterile ultrasound kit (only for US-guided injection);
- emergency kit (10,15,16).

The choice of the right needle is mandatory, considering the characteristics of the target joint. A needle of 21 gauge should be preferred in large joints such as the shoulder or the knee, while 23-25 gauge needles are indicated in small joints. Deep joints such as the hip required spinal needles (length of 3,5 18 inches; 8-9 centimeters) (10,12).

HYALURONIC ACID PROPERTIES

Several studies support the role of viscosupplementation with hyaluronic acid (HA) in knee and hip osteoarthritis, in comparison to intra-articular corticosteroids (10,17-19). Emerging evidences suggest that the use of intra-articular corticosteroids could also determine a higher risk of viral infections, such as influenza, while no evidence about coronaviruses are currently found (20).

HA protects the articular environment through several mechanisms of action: anti-inflammatory effect, chondroprotection, analgesic effect, subchondral bone protection and increased production of endogenous HA (21).

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