

Tackling osteoarthritis during COVID-19 pandemic

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ABSTRACT

In this opinion article, we would like to draw attention to the fact that COVID-19 has a significant impact not only on immune-mediated arthritis but also on osteoarthritis (OA), the most common rheumatic disease. We suggest herein strategies for pain relief and symptom prevention in patients with OA during COVID-19 pandemic.

The recently characterised SARS_CoV-2 is the cause of COVID-19, a serious illness responsible for the current pandemic, as declared by WHO.^{1,2} The number of deaths associated with COVID-19 has been partially linked to the incapacity of health systems to provide care to infected patients.³ As of 15 July 2020, WHO reported 13 119 239 confirmed cases of COVID-19 globally, with a 573 752 death toll. There is no curative treatment and a vaccine will most probably not be available, at least to everybody, by the end of this year. Although the Food and Drug Administration in the USA has issued a statement allowing for remdesivir to be used as a treatment for COVID-19,⁴ a defined therapy is yet to be made. Given the huge number of patients affected by COVID-19, health authorities have established rules for ‘physical distancing’ and a ‘stay at home’ strong advice. In some situations, a strict lockdown norm has been issued in order to limit the number of people exposed in order not to overwhelm the health systems ability to provide assistance for those with more severe disease.⁵

GUIDELINES ON RHEUMATIC DISEASES

Most immune-mediated rheumatic disease patients are subjected to some sort of immunosuppressive therapy, rendering them more susceptible to infections. Characteristics associated with hospitalisation for COVID-19 in people with rheumatic disease based on the data from the COVID-19 Global Rheumatology Alliance physician-reported registry have been recently published⁶. It provides original and important information concerning the links between chronic inflammatory arthritis and COVID-19. Several organisations including the American College of Rheumatology,⁷ the European League Against Rheumatism⁸ and the Brazilian Society of Rheumatology⁹ issued guidances for managing such patients during this pandemic. However, recommendations on dealing with patients affected by highly prevalent musculoskeletal diseases that are not considered to be immune-mediated are lacking. Indeed, neck pain, low back pain, ‘other musculoskeletal disorders’ and falls account for 4 out of the top 10 causes of years lost with disability worldwide.¹⁰

We would like to draw attention to the fact that COVID-19 have also had a significant impact on the most common rheumatic disease, osteoarthritis (OA). Mendy *et al* looked among the 689 COVID19 patients treated in 4 hospitals in the Cincinnati area for factors associated with severity and/or with hospitalisation.¹¹ One hundred and five patients had OA. After adjustment, patients with OA were more often hospitalised than patients without osteoarthritis (OR (95% CI) = 1.95 (1.19,3.19), p= 0.008), and had to use UCI more often (OR (95% CI) = 2.01 (0.98,4.11), p= 0.057). In an Austrian prospective study conducted on 63 patients who had to have a total knee or hip joint replacement for OA and who had to delay it because of the lockdown, there was a significant increase in pain, worsening of physical function and a decrease in physical activity when comparing the clinical condition at the beginning and end of the lockdown.¹²

OA MANAGEMENT IN COVID-19 DAYS

OA, the most prevalent chronic arthritis, is a major cause of musculoskeletal pain and years lost with disability. Usually, patients with OA are advised to avoid self-medication so that when severe pain ensues, it is not uncommon for them to seek help in emergency care. However, people are currently being strongly encouraged not to seek emergency treatment for fear of getting contaminated with SARS-Cov-2.^{13,14} That is even more true for the elderly, which are exactly those most affected by musculoskeletal ‘non-immune-mediated’ diseases.¹⁴ Some guidance to those patients would be helpful to decrease their demand for emergency care.

Besides a persistent inflammatory component,¹⁵ OA is also related to mechanical derangement leading to joint failure affecting the cartilage, muscles, tendons, ligaments, menisci and the subchondral bone.¹⁴ Although COVID-19 will virtually infect anybody, old people are more severely affected, particularly those displaying comorbidities including cardiovascular diseases, obesity, diabetes and chronic lung diseases.¹⁶ Obesity is a well-defined risk factor in patients with OA, who usually suffer from frailty both secondary to reduced physical inactivity and ageing leading to sarcopenia which impacts respiratory capacity. Cardiovascular risk is also enhanced among patients with OA, being significantly associated with the use of non-steroidal anti-inflammatory drugs (NSAIDs).¹⁷

Patient education, information about the disease, stimulation of exercise programmes, weight control, nutritional orientation and mind-body exercises compose a core treatment for knee, hip



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or polyarticular OA, regardless of comorbidities, in the recently updated Osteoarthritis Research Society International (OARSI) guidelines.¹⁸ Actually, similar recommendations have been advocated as a general rule in the management of immune-mediated rheumatic diseases.¹⁹ Restoration of daily life activities may not be fully implemented in the upcoming months, particularly for the elderly, which are the main target to be protected from getting COVID-19. Unfortunately, this group of people, which is heavily affected by OA, is less prone to physical activity.²⁰ Coincidentally, increased age, higher body mass index (BMI), reduced physical activity and cardiovascular diseases, which are more prevalent in the OA patient, have been associated with a worse prognosis among patients with COVID-19. We may then envision that prolonged periods of virtually complete physical inactivity will most likely worsen sarcopenia and frailty as well as cardiovascular risk in patients with OA.

A recent article has suggested home-based exercises rheumatic disease patients during this pandemic, as a strategy to reduce their disease burden.²¹ An analysis of a meta-analysis on the effect of exercise in knee OA was so clearly positive that concluded that no further studies are needed to reinforce it.²² Details on the type of exercises that can be performed by elderly people who are isolated because of COVID-19 have even been published by the Centre for Evidence-Based Medicine at Oxford University based on a systematic literature review (<https://www.cebm.net/covid-19/maximising-mobility-in-the-older-people-when-isolated-with-covid-19/>). Unfortunately, though commendable, such physical practices are probably easier said than done. Actually, being inactive throughout life carries a higher knee OA risk.²³ Adherence to self-exercise programmes are very low among those patients with OA, questioning the efficacy of such guidances.²⁴ Why would we believe patients will now adhere to home-based 'spontaneous' physical activity, especially experimenting a sort of segregation?

Usually, patients with OA rely on pain killers even without a medical prescription.²⁵ That theoretical perfect storm may lead elderly patients with OA with movement restrictions to increase NSAIDs use and the risk of a worse prognosis if they get infected by COVID-19. There are some questionable, though sometimes effective treatment options to mitigate joint pain in OA patients.²⁶

STRATEGIES FOR PAIN RELIEF IN PATIENTS WITH OA DURING COVID-19 PANDEMIC (BOX 1)

Current OARSI guidelines¹⁸ have disregarded paracetamol as an effective pain killer in OA. That was due to a very low effect size and safety issues with doses higher than 2 g per day. At least during COVID-19, stimulating on demand usage of paracetamol up to 1.5 g daily may provide partial pain relief. That could be to combined to other strategies including topical NSAIDs, which provide a better safety profile, although with undocumented adherence. A recommendation to avoid NSAIDs was disseminated in the media in the early weeks of the epidemic based on some experimental results.²⁷ This hypothesis has never been confirmed.²⁷ However, a warning to avoid systemic NSAIDs in patients with OA with cardiovascular comorbidities exists independently of the epidemic. Such medications can be obtained without a medical prescription, particularly in low/middle-income countries. Let us not forget that NSAID use may account for over 40% of the increased cardiovascular risk in patients with OA.¹⁷ They should be used on demand, for the shortest period possible, restricting to naproxen given its less deleterious cardiovascular risk profile.²⁸

Box 1

Points to emphasise to the osteoarthritis (OA) patient during COVID-19 pandemic

- ▶ Physical activity is a must need in OA patients, regardless of age.
- ▶ Rheumatology organisations should be stimulated to develop home-based supervised exercise programmes.
- ▶ Keep physical distancing as long as needed.
- ▶ Nutritional requirements should be adjusted to the degree of physical activity
- ▶ Non-steroidal anti-inflammatory drugs should be taken with higher scrutiny.
- ▶ Opioids should be not taken.
- ▶ If indicated, consider intra-articular steroids and hyaluronic acid in the appropriate setting.
- ▶ Psychological care includes medications and psychological/psychiatric counselling.
- ▶ Information should be disseminated to healthcare professionals in primary care.

Psychological issues most commonly represented by depression carry a worse phenotype prognosis in OA.²⁹ Duloxetine has been recommended in patients with OA with depression and widespread pain. The psychological burden to those patients will probably increase in the isolated elderly. Hence, identifying the need for antidepressants might help them cope with the disease. Psychological and/or psychiatric counselling should be stressed as it can be provided using telehealth strategies.³⁰

Although access to non-urgent hospital facilities is restricted, intra-articular injections of hyaluronic acid could be an interesting alternative, given the relatively long-term pain relief they provide. That could also be said of intra-articular corticosteroids. Despite the fear of the immunosuppressive effect of corticosteroids, usage in a non-infected patient may provide up to 3 weeks pain relief thus reducing the need for systemic NSAIDs without persistent immunosuppression.³¹ Considering the current situation of social isolation, we believe opioids should not be used. Such drugs have been associated with fractures from falls³² and that risk would probably increase under opioid use given the increased frailty due to persistent inactivity in COVID-19 days.

The elderly patient with OA must be seen in complete. Healthcare professionals (HCP) should try to establish more frequent, even short, online visits as well as encourage social

Box 2

Research agenda

- ▶ Determine the impact of confinement on osteoarthritis (OA) disability.
- ▶ Determine the loss of physical activity in patients with OA during and after the confinement.
- ▶ Determine the impact of confinement on frailty in the elderly patient with OA and its influence in mortality at the long term.
- ▶ Determine impact of confinement in OA according to phenotypes.
- ▶ Determine impact of confinement in spine OA pain and function.
- ▶ Determine safety of intra-articular injections in a home care setting.

'online gatherings' with family and friends. Adherence to healthy nutrition requirements, probably with further calorie restriction, with attention on protein requirements in those with no physical activity, should be emphasised. Although a high BMI is associated with a worse scenario in knee OA outcome²⁹ weight reduction will be harder in the current pandemic. Publications in social media conveying information that stigmatise weight gain as inevitable may discourage attempts toward weight control.³³ That should not refrain HCP from being proactive in counselling on preventing weight gain as less activity calls for calorie restriction. As said above, psychological distress is expected to impact people. Physical activity can be a favourable double-edged sword helping with both mental and physical harms imposed by the 'stay at home' norms.³⁴ Stimulation of the practice of respiratory movements, avoiding being bedridden and long sitting periods is also a prophylactic measure in the event of a respiratory infection. Prophylactic nebulisers with no active drug help prevent mucus clot and strict adherence to cardiovascular and metabolic treatment is a must in order to improve chances if COVID-19 comes. It is noteworthy that some of these recommendations for patients with OA can also be applied to patients suffering from other types of RMDs, including immune-mediated ones.

CONCLUDING REMARKS

Not uncommonly, the rheumatologist is the physician most tightly linked to the elderly OA patient with musculoskeletal diseases. Being proactive, such specialists might improve our patient's opportunities to tackle this pandemic. Notwithstanding, spreading similar recommendations for HCP in the primary care setting would increase the number of patients reached. A worsening of symptoms in OA patients after this confinement period might be anticipated. Measures to mitigate this situation should not be overlooked, as they involve both non-pharmacological and pharmacological approaches (Box 2). In addition to patients affected by immune-mediated rheumatic diseases the burden posed by other musculoskeletal disorders cannot be disregarded.

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