Current Concepts Review

Resuming Elective Orthopaedic Surgery During the COVID-19 Pandemic

Guidelines Developed by the International Consensus Group (ICM)

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- As we resume elective surgical procedures, it is important to understand what practices and protocols should be altered or implemented in order to minimize the risk of pathogen transfer during the severe acute respiratory syndrome (SARS)-CoV-2 pandemic.
- Each hospital and health system should consider their unique situation in terms of SARS-CoV-2 prevalence, staffing capabilities, personal protection equipment supply, and so on when determining how and when to implement these recommendations.
- All patients should be screened for SARS-CoV-2 by means of a thorough history and physical examination, as well as reverse transcription-polymerase chain reaction (RT-PCR) testing whenever possible, prior to undergoing elective surgery.
- Patients who are currently infected with coronavirus disease 2019 (COVID-19) should not undergo elective surgery.
- These guidelines are based on the available scientific evidence, albeit scant. The recommendations have been reviewed and voted on by the expert delegates who produced this document.

As the coronavirus disease 2019 (COVID-19) pandemic begins to loosen its initial grip on the globe and we contemplate starting the long road back toward normalcy, the medical community will be facing many challenges, none more paramount than preventing the further spread of COVID-19 and limiting the possibility and the extent of a potential "second wave."

The purpose of the present report is to provide a list of recommendations aimed at reducing pathogen transfer during the reintroduction of elective orthopaedic surgical procedures, with a specific focus on preventing the spread of severe acute respiratory syndrome (SARS)-CoV-2 infection. Although we are assuming that we will be operating on patients without SARS-CoV-2 infection, because of the complexities involved in accurate diagnosis of SARS-CoV-2 infection, including up to 40% false-negative results for reverse transcription-polymerase chain reaction (RT-PCR) tests[1], we believe that precautions need to be in place to minimize the chance of infection transmission by potentially infected patients.

We realize that the situation is evolving on a daily basis and that some of the recommendations in the present report may need to be altered as new evidence emerges. In addition, we are aware that the infection-prevention measures described in the present report will highly depend on the prevalence of COVID-19 in the affected areas and the ability to implement

*A list of the International Consensus Group (ICM) and Research Committee of the American Association of Hip and Knee Surgeons (AAHKS) members is provided in a note at the end of the article.

Disclosure: The authors indicated that no external funding was received for any aspect of this work. On the **Disclosure of Potential Conflicts of Interest** forms, *which are provided with the online version of the article*, one or more of the authors checked "yes" to indicate that the author had a relevant financial relationship in the biomedical arena outside the submitted work and "yes" to indicate that the author had a patent and/or copyright, planned, pending, or issued, broadly relevant to this work (http://links.lww.com/JBJS/F892).

the recommended diagnostic tests to properly rule out COVID-19 prior to surgery. We will continue to monitor the literature and update this document as needed.

Methods

The present document is the result of work by 77 expert physicians in orthopaedic surgery, infectious disease, microbiology and virology, and anesthesia. The members were selected on the basis of their published or clinical expertise in infection prevention, and all members live in countries affected by COVID-19. The set of questions, recommendations, and rationale were developed following the Delphi method. The initial document was reviewed and voted on by all members. The document was then revised, taking into account—but not always incorporating—the comments of the delegates. The revised document was then sent to the delegates for another round of voting. In cases in which the comment made by a delegate could not be comprehended or required clarification, email or telephone contact with the delegate was established. Once the final questions and rationales were developed, the grade of each recommendation was determined. This grade was based on the strength of the supporting literature in addition to the confidence of the participating members regarding the recommendation. The final document, which included tabulated votes, was shared by the delegates for 1 final review. Some minor errors were detected during the third round of evaluation and were corrected.

Limitations

As stated above, we understand that the situation with COVID-19 is evolving on a daily basis. It is possible that some of the recommendations may need to be changed or even reversed as further evidence emerges. It is also plausible that surgeons, infectious-disease physicians, nurses, and hospital administrators may disagree with some of the recommendations. Furthermore, each region and hospital system may have specific limitations that may render some of these recommendations impossible to implement. We have tried to construct these guidelines to be as "universal" as possible while keeping these unique characteristics in mind. These guidelines are not meant to be strictly enforced but rather to serve as a resource for surgeons, staff, and administrators to use when constructing their individual plans. Last, a psychometric analysis of the questions was not conducted. This document and its Appendix will be updated online as new data become available.

Please note that the rationale behind each recommendation is provided in the Appendix along with additional references.

I. General

Question I.1: When Will the SARS-CoV-2 Pandemic End?
Response/Recommendation: Unknown. Epidemics/pandemics end when:

(1) A large portion of the society has acquired immunity with neutralizing antibodies to the pandemic agent after being infected, leaving a small percentage of individuals susceptible to infection (herd immunity)[2]. This occurred with the Spanish Flu in 1918 caused by influenza A (H1N1), when >60% of the population was infected, and, to some extent, with the following swine flu in 2009, which infected >60 million people in the United States,
(2) The pathogen (virus) mutates sufficiently to become nonvirulent,
(3) An effective treatment against the disease is available, or
(4) An effective vaccine against the virus is developed and delivered to the population.

Grade of Recommendation: Moderate
Delegate vote: Agree (100%)

Question I.2: How Can Hospitals or Surgery Centers Know When They Should Resume Elective Procedures?
Response/Recommendation: Elective surgery may be resumed when[2,3]:

(1) Lockdown in the region has been lifted and a mandate allowing return to elective surgery has been issued by local/state/provincial/governmental authorities,
(2) The number of COVID-19 cases in the region has been consistently declining,
(3) The hospital/surgical facility has the capacity to admit non-COVID-19 patients to an area of the hospital separated from COVID-19-positive patients,
(4) The facility has an adequate supply of effective personal protective equipment (PPE), has RT-PCR-testing kits for SARS-CoV-2 virus, and is able to perform surgery safely with low risk of transmission of SARS-CoV-2 virus,
(5) The facility is able to maintain social distancing throughout the process in all phases (preoperatively, intraoperatively, and postoperatively), and
(6) The facility has an adequate stockpile of necessary equipment for a potential second wave.

Grade of Recommendation: Moderate
Delegate vote: Agree (97.5%), Disagree (2.5%)

Question I.3: Should Patients with Active COVID-19 Undergo Elective Surgery?
Response/Recommendation: The Centers for Disease Control and Prevention (CDC) has guidelines based on testing and non-testing that are useful for defining recovery[4], including 14 days of quarantine and the absence of fever and other symptoms. It is the opinion of this group that elective surgery should be delayed in patients with active COVID-19 until they are shown to have recovered from the infection as defined by local guidelines[5].

Grade of Recommendation: Weak
Delegate vote: Agree (100%)

Question I.4: Should Elective Surgery Be Delayed in Elderly Patients or Those with Comorbidities That Place Them at High Risk for COVID-19?

Response/Recommendation: It is the opinion of this group that elective surgery should be risk-stratified and possibly deferred on the basis of patient age (≥75 years), morbid obesity, diabetes, uncontrolled hypertension, chronic pulmonary disease, obstructive sleep apnea, chronic heart disease, and immunocompromised state (e.g., because of organ or bone marrow transplantation, active cancer, or current or recent chemotherapy or radiation therapy) in the early days when elective surgery is resumed[6]. Patients with substantial comorbidities and risk factors should be scheduled after healthier patients have been treated and experience has been amassed from the establishment of screening, prevention, and treatment protocols.

Grade of Recommendation: Weak

Delegate vote: Agree (98.75%), Abstain (1.25%)

Question I.5: What Type of Education Should Patients Receive Prior to Undergoing Elective Surgery During the Pandemic Related to Risk of SARS-CoV-2 Transmission?

Response/Recommendation: It is critical for patients undergoing elective surgery to be educated on the protocols that are in place to minimize SARS-CoV-2 transmission to themselves, family members, other patients, and hospital personnel. An overview of the protocols implemented by the hospital to reduce the risk of transmission of the infection should be included[7] (see Appendix Fig. 1).

Grade of Recommendation: Strong

Delegate vote: Agree (100%)

Question I.6: Can Patients/Individuals Who Were Infected with SARS-CoV-2 Be Infected with SARS-CoV-2 Again?

Response/Recommendation: Unclear. There have been reports of individuals who have contracted COVID-19, recovered, and then tested positive for SARS-CoV-2 again[2].

Grade of Recommendation: Strong

Delegate vote: Agree (95%), Abstain (5%)

II. Preoperative

Question II.1: What Additional Steps Should Be Taken During the Pre-Admission Process for Patients Undergoing Elective Surgery During the SARS-CoV-2 Pandemic?

Response/Recommendation: This workgroup recommends that:

- Information on TOCC (travel, occupation, contact, cluster) should be obtained and documented. Screening for symptoms (see Question II.3) of COVID-19 should be performed and documented.
- If the patient is given a RT-PCR test for SARS-CoV-2, the test should be performed within 3 to 7 days before elective surgery and the result should be documented in the clinical charts of the patient. Appropriate clinical and/or microbiological screening procedures for each patient should be undertaken.
- Additional education should be provided to the patient regarding infection-prevention protocols (hand hygiene, wearing a mask, etc.).
- All patients and providers should use a surgical mask during encounters. Providers should use protective eyewear as well[7,8].
- The risk of infection and transmission should be minimized by utilizing general social distancing principles.
- "No eating or drinking" rules in restricted areas need to be enforced.
- Patients should avoid the use of common spaces or surfaces (e.g., check-in desks), when possible, and these surfaces should be thoroughly cleaned between patients. Bedside check-in should be encouraged.
- The use of waiting rooms should be minimized. Social distancing in the waiting room and other communal areas should be exercised. Frequent cleaning is also recommended.
- Family members and visitors should limit the time that they spend within the hospital. Some institutions may ban the entry of family members and visitors to the hospital.
- The surgeon and the surgical team should avoid direct contact with family members and should update the families via telephone or video conferencing.
- Family members of pediatric patients should be screened for SARS-CoV-2 before pediatric surgery.
- Patients should be housed in single rooms, if possible. When patients are housed in the same room, the beds should be distanced at least 2 m (6 ft) from each other, and all patients should wear a surgical mask.
- Commonly touched surfaces should be wiped down and cleaned with an effective disinfectant solution (e.g., 70% alcohol) at least twice a day.
- Any close contact with the patient should be done with use of appropriate PPE, as directed by the institutional policy and in conjunction with national and local guidelines.
- In the early weeks following the return to elective surgery, each patient should be placed in a single room or cubicle where check-in, registration, and other administrative tasks can be performed.
- Consideration should be given to having a screening ward to house patients, especially those who may not have been tested for SARS-CoV-2 preoperatively.
- Large surgical bays with multiple patients sharing 1 room should be avoided.
- Consideration should be given to the use of portable high-efficiency particulate air (HEPA) filtration systems in relatively crowded areas/rooms.
- Presently, in most parts of China, even low-prevalence areas, the patients are required to have a green digital health code and 1 negative RT-PCR test prior to undergoing their planned procedure. This code signifies that the patient has not been infected with

COVID-19 and can undergo procedures and partake in daily activities with general precautions. In the absence of the green code, patients are quarantined for 2 weeks.

Grade of Recommendation: Moderate

Delegate vote: Agree (97.5%), Abstain (2.5%)

Question II.2: Should Asymptomatic Patients Undergoing Elective Surgery Wear Protective Masks During the SARS-CoV-2 Pandemic?

Response/Recommendation: It is the opinion of this group that all patients entering a hospital to undergo elective surgery should wear a mask[9-12].

Grade of Recommendation: Weak

Delegate vote: Agree (97.5%), Disagree (1.25%), Abstain (1.25%)

Question II.3: Should Patients Undergoing Elective Surgery Be Screened for Symptoms of COVID-19 During the Pandemic?

Response/Recommendation: Yes. All patients undergoing surgery during the pandemic should have their temperature and pulse oximetry measured and be screened with a series of questions that will stratify them into various risk groups[4]. The questions should aim to ask the patients about COVID-19 symptoms (fever, shortness of breathing, cough, loss of smell and taste, diarrhea, headache, sore throat) (see Appendix Table I)[13] as well as TOCC information (travel to regions with a high prevalence of COVID-19, occupation with a high risk of COVID-19 infection, contact with people known to be infected with COVID-19, or close proximity with a COVID-19-positive case). Those with a high risk of being infected should have surgery deferred, and should be quarantined as per local guidelines, unless adequate testing can be performed to rule out COVID-19.

Grade of Recommendation: Moderate

Delegate vote: Agree (98.75%), Disagree (1.25%)

Question II.4: Should Patients Undergoing Elective Surgery Be Tested for SARS-CoV-2? If So, Should the Testing Be Done on All Patients or a Select Group?

Response/Recommendation: RT-PCR testing for SARS-CoV-2 is becoming more accessible. Testing of patients should be mandatory in high-prevalence areas given the risk of disease transmission by asymptomatic patients[14,15]. Routine testing is not feasible in all locations because of limitations in testing capacity, and therefore local guidelines should be followed in these areas.

Grade of Recommendation: Strong

Delegate vote: Agree (96.25%), Disagree (1.25%), Abstain (2.5%)

Question II.5: For Patients Being Considered for Molecular Testing of SARS-CoV-2, What Type of Test Should Be Used?

Response/Recommendation: We recommend an RT-PCR test for SARS-CoV-2 that is known to have high sensitivity and negative predictive value[4,15,16]. Currently, a nasopharyngeal swab appears to have a reasonable yield, although an RT-PCR of a combination of saliva, sputum, or the use of oropharyngeal swab is also effective. These alternative tests may replace the more painful and invasive nasopharyngeal tests in the future. Next-generation sequencing (NGS), CRISPR/Cas-9, and other molecular techniques can be used as an adjunct when available. Emerging data suggest that specimens should be transported in media (virus transport medium, universal transport medium, or saline solution) approved for use with each respective testing platform.

Grade of Recommendation: Strong

Delegate vote: Agree (100%)

Question II.6: Should Antibody Testing for SARS-CoV-2 Be Performed? If So, in Whom Should This Test Be Carried Out?

Response/Recommendation: At this time, we are aware of no data to support routine antibody testing of patients undergoing elective surgery. There are a number of serum antibody tests available, including point-of-care (POC) lateral flow tests. The accuracy of these kits in detecting the relevant antibody against SARS-CoV-2 is variable. There is also genetic variability in SARS-CoV-2 strains being isolated in different parts of the world, which may limit the accuracy of current antibody tests. The degree of immunity conferred with detectable antibodies and the importance of antibody quantification are unknown at this time[2].

Grade of Recommendation: Strong

Delegate vote: Agree (96.25%), Disagree (1.25%), Abstain (2.5%)

Question II.7: What Additional Tests Other Than Molecular and Serology Tests Are Available to Detect SARS-CoV-2 and When Should They Be Done?

Response/Recommendation: For patients with symptoms suggestive of COVID-19 but a negative SARS-CoV-2 RT-PCR test, repeat testing should be considered. If the result is still negative, and without any alternative explanation for the patient' symptoms, a chest radiograph and a low-dose computed tomographic (CT) scan of the chest should be performed to determine if COVID-19-specific lung abnormalities are present[17]. Elective surgery should be deferred in this patient population.

Grade of Recommendation: Strong

Delegate vote: Agree (95%), Disagree (3.75%), Abstain (1.25%)

III. Intraoperative

Question III.1: What Considerations Should Be Given to the Operating Room Ventilation Systems While SARS-CoV-2 Is Still Highly Prevalent and Elective Cases Are Resumed?

Response/Recommendation: The operating room ventilation system should reduce the presence of airborne pathogens to a minimum[18-20]. We recommend to:

(1) Have a ventilation system in the operating room with a minimum of 20 air changes per hour.

(2) Reduce the amount of equipment in the operating room and limit it to what is essential for the surgical procedure.
(3) Install filters that are able to remove aerosol and droplets, such as HEPA filters.
(4) Have normal positive-pressure rooms for elective procedures. There is no need to convert to negative-pressure rooms, but modalities to decrease efflux of contaminated air into the hallways, such as in-room air filters and negative-pressure antechambers, can be considered.
(5) Minimize the number of people in the operating room at all times, particularly during intubation or extubation of a patient.

Grade of Recommendation: Strong
Delegate vote: Agree (98.75%), Abstain (1.25%)

Question III.2: Should Standard Surgical Helmets and Protection Suits Be Utilized When Performing Elective Surgery During the SARS-CoV-2 Pandemic?
Response/Recommendation: We recommend that surgical helmets should not be used as the primary protection against aerosol and airborne diseases, including COVID-19. Fans within the helmets and the helmets themselves can harbor viruses, and these devices cannot be sterilized between procedures, increasing the potential spread of infection from patients to surgeons or from surgeons to the next patient. If, however, surgical helmet use is mandated by the hospital standard protocols for total joint arthroplasty, this should be continued with appropriate disinfection protocols in place, and an N95 (or equivalent) mask should also be worn when using the helmet.

Grade of Recommendation: Strong
Delegate vote: Agree (93.75%), Disagree (1.25%), Abstain (5%)

Question III.3: What Type of Protective Equipment Should Surgeons and Assistants Utilize During Elective Surgery Performed at the Time of the SARS-CoV-2 Pandemic?
Response/Recommendation: In areas of high prevalence of COVID-19, and during surgery on patients who have not been RT-PCR-tested for SARS-CoV-2, we recommend that surgeons and the entire surgical team who scrub during the case wear a mask (preferably N95, filtering face piece (FFP)2, or P3)[21] and a face shield with a neck cover that wraps around the face and has an extension that can be placed inside the gown. In the absence of a face shield, protective eyewear that provides a seal around the eyes (i.e., goggles) should be worn. In patients who have been tested for SARS-CoV-2 by RT-PCR within 3 days before surgery and quarantined for 14 days prior to elective surgery, regular protective equipment (surgical mask, etc.) may be worn. These measures should be implemented until the pandemic ends. Global variation in access to the aforementioned PPE will influence the implementation of some of these guidelines.

Grade of Recommendation: Strong
Delegate vote: Agree (98.75%), Disagree (1.25%)

Question III.4: Does the Type of Anesthesia Influence the Potential Spread of COVID-19?
Response/Recommendation: Yes. General anesthesia that requires airway manipulation, endotracheal intubation, and positive ventilation is more likely to predispose the anesthesia and surgical team to transmission of SARS-CoV-2[22]. The use of regional anesthesia, whenever possible, should be strongly considered for patients undergoing elective surgery during the pandemic.

Grade of Recommendation: Moderate
Delegate vote: Agree (97.5%), Disagree (1.25%), Abstain (1.25%)

Question III.5: What Precautions Should Be Taken by the Operative Staff During Elective Surgery Performed at the Time of the SARS-CoV-2 Pandemic?
Response/Recommendation: A number of precautions should be taken by the operative staff, including[21]:

(1) Limiting the number of people in the operating room,
(2) Reducing door opening in the operating room,
(3) Cautious use of electrocautery and judicious use of suction to remove smoke,
(4) Keeping the power setting to as low as possible when high-power tools are being used, or considering using a Gigli saw, sharp osteotomes, and manual reaming whenever possible, and
(5) Keeping equipment in the room to a minimum. This includes navigation consoles, x-ray machines, and robots, all of which represent surfaces for contamination by the virus.

Grade of Recommendation: Strong
Delegate vote: Agree (97.5%), Disagree (1.25%), Abstain (1.25%)

Question III.6: Should Additional Cleaning or Sterilization of Instruments Be Performed for Elective Surgical Procedures During the SARS-CoV-2 Pandemic?
Response/Recommendation: The standard recommendations for cleaning and sterilizing of instruments are still adequate and need to be followed vigilantly. We refer to the standards posited by the Association for the Advancement of Medical Instrumentation (AAMI) and the Association of periOperative Registered Nurses (AORN)[23,24].

Grade of Recommendation: Moderate
Delegate vote: Agree (98.75%), Abstain (1.25%)

Question III.7: How Should Each Operating Room Be Cleaned in Between Cases During the SARS-CoV-2 Pandemic?
Response/Recommendation: Consideration should be given to performing a thorough cleaning of the room at the end of each

case. The surfaces of all equipment in the operating room (including computers, lead gowns, robots, case carts, and so on) should be wiped down after each case. Manufacturer's instructions on the surface contact time requirements of the disinfectant, which can range from 4 to >10 minutes, must be followed[25].

Grade of Recommendation: Strong

Delegate vote: Agree (93.75%), Abstain (6.25%)

Question III.8: How Should the Surgeon and the Surgical Team Clean Themselves Following the Conclusion of Each Procedure During the SARS-CoV-2 Pandemic?

Response/Recommendation: The surgeon and the surgical team should change scrubs frequently during a surgical day. If respirators (N95, FFP2, P3) are being worn, they can be used for 6 to 8 hours and need not be discarded after each use unless soiled. A new respirator is required each day.

Grade of Recommendation: Strong

Delegate vote: Agree (97.5%), Disagree (1.25%), Abstain (1.25%)

Question III.9: Are There Any Considerations to Give Toward, or Concerns Regarding, Surgeons Utilizing Multiple Operating Rooms During the Operative Day?

Response/Recommendation: Because of the implementation of extra steps aimed at reducing the transmission of COVID-19 and an expected decline in operating room efficiency, the use of multiple operating rooms is preferred, whenever possible[26]. This would allow one of the surgeon's rooms to be cleaned while another room is being used for surgery. However, the surgeon and surgical team should strictly follow the personal cleansing procedures between cases.

Grade of Recommendation: Strong

Delegate vote: Agree (97.5%), Abstain (2.5%)

Question III.10: Should Wound Closure Be Altered in Patients Undergoing Elective Surgery?

Response/Recommendation: The use of suture material (such as staples and nonabsorbable sutures) that requires the patient to return to the office, or a visit by a nurse, for suture removal should be minimized[8]. The wound should also be covered in an occlusive dressing.

Grade of Recommendation: Strong

Delegate vote: Agree (96.25%), Disagree (1.25%), Abstain (2.5%)

IV. Postoperative

Question IV.1: What Steps Should Be Taken if a Patient Who Underwent Elective Surgery Tests Positive for SARS-CoV-2 in the Postoperative Period?

Response/Recommendation: If a patient is positive for SARS-CoV-2 on RT-PCR testing after a surgical procedure, all health-care workers who came into contact with the patient without using PPE and are not known to have antibodies against SARS-CoV-2 should be tested and quarantined until the test results become available[12]. Decisions regarding the need to quarantine staff should be made in tandem with the hospital infection-control team and employee health department. The patient also should be isolated, and any contact with the patient should occur with use of full PPE.

Grade of Recommendation: Strong

Delegate vote: Agree (96.25%), Disagree (2.5%), Abstain (1.25%)

Question IV.2: What Changes Should Be Implemented in the Recovery Room and in the Postoperative Care of Patients?

Response/Recommendation: In the post-anesthesia care unit (PACU):

(1) Patients should be separated from each other by a minimum distance of 2 m (6 ft).
(2) Personnel taking care of the patient should be wearing an appropriate mask at all times.
(3) Patient stay in the recovery area should be minimized while maintaining perioperative safety.
(4) Overcrowding and nonessential personnel traffic should be avoided.
(5) Patients who could not be extubated in the operating room should be transferred to the intensive care unit (ICU) directly, bypassing the PACU.
(6) Surfaces around the bed of each patient in the PACU should be wiped down after transfer of the patient and prior to arrival of the next patient[26].
(7) Consideration should be given to recovering patients in the operating room and bypassing the PACU, if possible[27].
(8) Consideration should be given to the use of a separate PACU or recovery space for non-COVID-19 cases and short-stay cases, to avoid admission to hospital floors where exposure to SARS-CoV-2 may be higher.

Grade of Recommendation: Moderate

Delegate vote: Agree (100%)

Question IV.3: Should Patients Wear a Mask in the Postoperative Period During the SARS-CoV-2 Pandemic? If So, What Type?

Response/Recommendation: All patients should wear a surgical mask postoperatively[12]. This will decrease the spread of droplets during coughing, sneezing, and talking while patients are mildly incapacitated and may not be able to control these functions as they would without anesthesia.

Grade of Recommendation: Moderate

Delegate vote: Agree (97.5%), Disagree (1.25%), Abstain (1.25%)

Question IV.4: Should Routinely Performed Postoperative Radiographs Be Made in the PACU or Somewhere Else?

Response/Recommendation: It is preferable for postoperative radiographs to be made in the operating room. If radiographs need to be made in the PACU, the x-ray plate and other equipment coming into contact with the patient should be thoroughly cleaned after use.

Grade of Recommendation: Weak

Delegate vote: Agree (93.75%), Disagree (2.5%), Abstain (3.75%)

Question IV.5: Should the Antibiotic or Venous Thromboembolism (VTE) Prophylaxis Be Altered in Patients Undergoing Elective Surgery During the SARS-CoV-2 Pandemic?

Response/Recommendation: No. The available data on thrombotic risk in COVID-19 patients is limited, although an increased risk of thromboembolic disease has been reported[28]. VTE prophylaxis needs to be administered to patients with COVID-19, unless there is a contraindication (bleeding risk and so on). The type of VTE prophylaxis for patients undergoing elective surgery needs to be determined by the treating surgeon and does not need to differ from the protocols used prior to the pandemic. Bacterial coinfection in patients with COVID-19 is low, and there is no need to alter the antibiotic prophylaxis.

Grade of Recommendation: Strong

Delegate vote: Agree (98.75%), Abstain (1.25%)

Question IV.6: Should Any Changes Be Made in Postoperative Care Protocols for Patients Undergoing Elective Surgery During the SARS-CoV-2 Pandemic?

Response/Recommendation: This workgroup recommends that the following changes be made in the postoperative care of patients during the pandemic:

(1) The length of hospital stay for patients should be minimized.
(2) Postoperative rounds by the surgeon may be done with use of telemedicine, whenever possible.
(3) Patients should be discharged home, and transfer to inpatient rehabilitation should be minimized.
(4) The patient should be instructed how to perform self-directed physical therapy at home.
(5) Post-discharge visits to the office should be minimized, with the majority of the follow-up being done by telemedicine.
(6) Office visits should be limited to those who are having issues/complications such as wound-healing problems, suspected fracture, stiffness, and so on.
(7) Digital health programs and wearable sensor technologies that allow monitoring of patients will play a larger role in management of patients in the future.
(8) Social distancing should be resumed and at-home visits avoided, unless absolutely essential.

Grade of Recommendation: Moderate

Delegate vote: Agree (100%)

Question IV.7: What Considerations, if Any, Should Be Given to the Use of Nonsteroidal Anti-Inflammatory Drugs (NSAIDS) for Patients Undergoing Elective Surgery During the SARS-CoV-2 Pandemic?

Response/Recommendation: This workgroup recommends that nonsteroidal anti-inflammatory drugs (NSAIDs) can be used, as part of a multimodal analgesia regimen, in patients who do not have COVID-19 infection and have undergone elective surgery.

Grade of Recommendation: Moderate

Delegate vote: Agree (97.5%), Disagree (1.25%), Abstain (1.25%)

Appendix

eA Supporting material provided by the authors is posted with the online version of this article as a data supplement at jbjs.org (http://links.lww.com/JBJS/F893). ■

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Update

This article was updated on September 4, 2020, because of a previous error. On page 1211, in the author affiliation section, "W.L. Walter, MBBS, PhD[3]" now reads "W.L. Walter, MBBS, PhD[3,4]," the affiliation for Dr. Van Onsem that had read "[3]Specialist Orthopedic Group, The Mater Clinic, North Sydney, New South Wales, Australia" now reads "[3]Royal North Shore Hospital, St. Leonards, New South Wales, Australia," and the affiliation for Dr. Walter that had read "[3]Specialist Orthopedic Group, The Mater Clinic, North Sydney, New South Wales, Australia" now reads "[3]Royal North Shore Hospital, St. Leonards, New South Wales, Australia" and "[4]University of Sydney, Sydney, New South Wales, Australia."

An erratum has been published: J Bone Joint Surg Am. 2020 Oct 7;102(19):e113.