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PERIOPERATIVE CONSIDERATIONS IN URGENT SURGICAL CARE AND OPERATING ROOM PRACTICE AND GUIDANCE DURING COVID-19 PANDEMIC; OUR EXPERIENCES

COVID-19 Pandemi Sırasındaki Acil Cerrahi Bakım ve Ameliyathane Uygulamalarında Perioperatif Uygulama ve Rehberlik; Deneyimlerimiz

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Abstract

Aim: The novel coronavirus SARS-CoV-2 (COVID-19) can infect healthcare workers. We developed an institutional algorithm to protect operating room team members during the COVID-19 pandemic and rationally conserve personal protective equipment (PPE). We aimed to review the latest data on the COVID-19 pandemic and essential information for practice in emergency surgery and the operating room.

Materials and Methods: An interventional platform (operating room, interventional suite, and endoscopy) with our committee formed with our doctors consisting of different branches, we developed our guidelines based on potential patterns of spread, risk of exposure, and conservation of PPE. We aimed to share our experiences with 128 patients who were taken into operation in a 2-month period. Anesthetic management and infection control guidelines for emergency procedures for patients with suspected 2019-nCoV were drafted and applied in Medical Faculty of Namık Kemal University.

Results: A decision tree algorithm describing our institutional guidelines for precautions for operating room team members was created. This algorithm is based on the urgency of operation, anticipated viral burden at the surgical site, the opportunity for a procedure to aerosolize virus, and the likelihood a patient could be infected based on symptoms and testing.

Conclusion: Despite COVID-19 being a new threat, we have shown that by developing an easy-to-follow decision algorithm for the interventional platform teams, we can ensure optimal healthcare worker safety.

Keywords: COVID-19, Cross-infection, infection control, operating room, viral pneumonia.

Öz

Amaç: Yeni koronavirüs SARS-CoV-2 (COVID-19) sağlık çalışanlarını enfekte edebilir. COVID-19 salgını sırasında ameliyathane ekip üyelerini korumak ve rasyonel olarak kişisel koruyucu ekipman (KKE) için kurumsal bir algoritma geliştirdik. Acil cerrahi ve ameliyathanede COVID-19 salgını ile ilgili en güncel bilgileri gözden geçirmeyi amaçladık.

Materyal ve Metot: Farklı branşlardan oluşan doktorlarımızla oluşturduğumuz komitemiz ile girişimsel bir platform (ameliyathane, girişimsel ve endoskopi), potansiyel yayılma örüntüleri, maruz kalma riski ve KKE'nin korunmasına dayanan kılavuzlarımızı geliştirdik. Deneyimlerimizi 2 aylık bir sürede ameliyat edilen 128 hasta ile paylaşmayı amaçladık. 2019-nCoV şüphesi olan hastalar için acil durum prosedürleri için anestezi yönetimi ve enfeksiyon kontrol kılavuzları Namık Kemal Üniversitesi Tıp Fakültesi'nde hazırlanmış ve uygulanmıştır.

Bulgular: Ameliyathane ekibi üyelerine yönelik önlemler için kurumsal yönergelerimizi açıklayan bir karar algoritması oluşturuldu. Bu algoritma ameliyatın aciliyetine, cerrahi bölgede beklenen viral yüke, virüsü aerosol haline getirme prosedürü fırsatına ve hastanın semptomlara ve testlere dayanarak enfekte olma olasılığına dayanır.

Sonuç: COVID-19'un yeni bir tehdit olmasına rağmen, girişimsel platform ekipleri için izlemesi kolay bir karar algoritması geliştirerek, optimum sağlık çalışanı güvenliğini sağlayabildiğimizi gösterdik.

Anahtar Kelimeler: COVID-19, enfeksiyon kontrolü, ameliyathane, bulaş, vral pnömoni.

INTRODUCTION

On April 10, 2020, the worldwide spread of SARS-Cov-2, the coronavirus that causes the acute respiratory syndrome designated COVID-19 by the World Health Organization (WHO) as a pandemic, with more than 1,700,000 confirmed patients in more than 210 countries/

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territories/areas[1,] with an estimated 2.3% of patients that need tracheal intubation[2].

Coronavirus disease, caused by a positive-sense ribonucleic acid (RNA), dramatically changed people's daily lives. Clinicians must care for patients with a highly communicable disease while protecting themselves from a potentially lethal disease. The mortality in critically ill patients with COVID-19 ranges from 16.7% to 61.5%[3].

Anesthesiologists are at particularly high risk of being exposed to COVID-19 due to airway management, tracheal intubation, positive pressure ventilation through a mask, and management of tracheostomy tubes causes widespread aerosolization[4].

Due to the high transmissibility of the virus, critically ill patients required intensive care unit (ICU) admission and ventilation support. Several articles have addressed the reorganization of operational activity under COVID-19. Given the highly contagious nature of the causative virus, severe acute respiratory syndrome COVID-19, and its transmission by droplet[5] or even aerosol infection[6] , tracheal intubation carries a high risk to the operator[7]. High-risk procedures to generate aerosol are mainly defined as tracheal intubation or surgical airway, bag-mask ventilation, non- invasive ventilation procedures (CPAP, high flow), and bronchoscopy[7].

We aimed to review the latest data on the COVID-19 pandemic and essential information for practice in emergency surgery and the operating room. The present study aims to help prevent cross-infection in the operating room by implementing strict anesthesia management and infection control procedures while caring for patients with confirmed or suspected COVID 19. Moreover, the clinical features and anesthesia-related characteristics may provide insights into COVID-19 from the perspective of anesthesiology.

METHODS

As an anesthesia department, we wanted to share 128 patients who received anesthesia in 2 months. We prepared our algorithms to minimize contamination risk in line with the recommendations of the Turkish Anesthesia and Reanimation Association (TARD). Elective surgeries at the peak of the pandemic in Turkey terminated by the board of science. In the same period, anesthesia management of 128 patients who underwent operations at our University was made by considering TARD recommendations and our hospital facility. The applications that direct our algorithm is as follows and summarized in Figure 1.

Anesthetic Management in Patients with Suspected or Diagnosed COVID-19

Emergency Anesthesia Management

A medical mask should be worn when the patients come from the service. Patients requiring urgent surgery must have undergone primary triage. Secondary triage should be performed by anesthesiologists before the operation and should include: anamnesis, fever measurement, detailed physical examination, an examination of lung film, and thorax tomography when necessary. Patients who are excluded from COVID-19 should undergo a routine surgical procedure. Anesthesia and surgical intervention can adversely affect the course of COVID-19 disease. If the patient has a diagnosis or suspected COVID-19, non-urgent surgeries should be canceled or postponed. In the case of COVID-19 positive or possible cases, patients should be taken directly to the operating room for emergency surgeries and, if possible, operated in the operating rooms reserved for COVID-19. If there is no operating room reserved for COVID-

19, or if the patient is found to be COVID 19, routine cleaning should be performed after the patient leaves and contact follow-up, if any.

Preoperative preparation

A separate breathing circuit should be used in each patient, and a filter should be placed in the inspiratory and expiratory connections of these breathing circuits. The operating room and the preoperative area reserved for patients with COVID-19 should be ventilated with negative pressure systems, and the negative pressure level should be controlled. In hospitals where there are no negative pressure systems, positive pressure systems and air conditioners should be closed. If a patient with COVID-19 is put into operation, the specialist determined from the infectious diseases and clinical microbiology clinic should contact the anesthesia team.

The operating room door should be kept closed during the operation, and the in and out should be kept to a minimum. Only those who will provide direct maintenance should be allowed to enter the operation room; unnecessary mobility should be prevented. The suitability of laminar flow and the functions of high-impact filters should be checked periodically by technical personnel.

The anesthesia work station of the operating room reserved for patients with COVID-19 should only belong to that room. It is recommended to cover the devices used in the operating room, such as anesthesia work stations, perfusion machines, defibrillators, with comprehensive, transparent nylon covers.

Personal protective equipment (PPE) for anesthesiologists in the operation room should be at the following standards; Protective coveralls/clothes on hospital uniforms, N95/FFP2 mask, disposable surgical bone, goggles/face protective equipment. Jewelry (rings, watches) should be removed, keys, wallets, phones should be left out.

Anesthesia induction

In order to reduce the risk of droplet transmission, general anesthesia with intubation is recommended in patients with suspected or diagnosed COVID-19. Other methods can be selected depending on the individual condition of the patients and the type of surgery.

Regional anesthesia is recommended to patients who will be operated for an obstetric reason. A surgical mask should be worn to an infected mother. If oxygen support is required, a nasal cannula should be worn, or oxygen should be given over the mask.

Unnecessary equipment should be taken out of the room. Anesthesia and emergency medicines and other materials that may be required, should be prepared and brought out of the room. Trays of suitable size should be prepared to place dirty materials. Respiratory system filters are attached to the inspiratory and extubation line and immediately back to the intubation tube.

If general anesthesia is to be applied, rapid serial induction is recommended. Ventilation with a mask should be avoided as much as possible. Anesthesia induction should begin after making sure that everyone in the room is wearing PPE.

During the preoxygenation, it is recommended to cover the patient's nose and mouth with two layers of wet gauze or cover the face and face with a nylon cover to avoid the secretions of the patient. It should be ensured that the wet gauze does not clog the patient's airway. Adequate muscle relaxation should be provided to prevent coughing during intubation. Mask ventilation should be minimized, and cricoid pressure should not be applied.

If possible, oral intubation with a video laryngoscope or bronchoscope is recommended. If direct laryngoscopy is performed for intubation, extra care must be taken to prevent coughing. Without bending over the patient's face, intubation is performed with the tube whose distal part is clamped. If intubation is considered to be difficult, a guidewire should be placed inside the tube.

The endotracheal tube is brought to the ideal depth at once (often the rim is 22cm), the cuff is inflated (leakage is not allowed), and then the tube clamp is raised. If possible, the location of the endotracheal tube is confirmed by capnograph and thorax movements. If there is no capnograph, the tube location can be confirmed by auscultation.

The integrity of the breathing circuit is checked during the surgery. If it is necessary to separate the line, the tube is first clamped and made from the farthest distance to the HME filter.

To reduce viral aerosol production, it is recommended to use closed airway aspirator systems, if possible. If not possible, suction applications should be kept to a minimum.

Anesthesia Recovery

If the patient supplies the extubation criteria, should be extubated in the operating room. If possible, a closed system suction should be performed. Non-recyclable materials (mask, tube, suction system) waste, which have been in contact with the removed tube and all other patients, should be disposed of in the appropriate waste bin.

To reduce exposure to secretions during extubation, two layers of wet gauze can be covered before the extubation / or the mask is placed under a transparent nylon cover. The extubation can be done under the transparent nylon cover by allowing only the connector part to pierce the bag under the transparent cover.

Patients with COVID-19 should be taken directly to the separate intensive care unit or the isolated room in the service without bringing them to the recovery units after anesthesia.

All reusable materials are collected in the clinically dirty tray, COVID-19 warnings are hung up and carried to the closest sink to the room. It should be washed by the person dressed and protected as described above, and water is never splashed around while washing. Medical waste boxes are kept at the place where the equipment is cleaned, and the waste is discarded. The person cleaning the equipment removes protective clothing rightly.

Patient transfer

If the patient with COVID-19 is stable after surgery and does not need intensive care, it can be taken directly to negative pressure rooms or isolated service rooms.

All disposable materials should be carefully thrown into the waste bin. The nylon cover of the operating room devices, such as anesthesia machines, perfusion machines, defibrillators, are carefully collected and thrown into the waste bin.

During the transfer, the team should wear PPE outside the operating room and the the patient should wear a surgical mask. The places where the patient passes and the transfer bed should be disinfected with products that comply with the hospital disinfection rules after standard cleaning procedures.

If the patient is transferred with endotracheal intubation tube (ETT), a filter should be added to the endotracheal tube, and the transfer should be made with a disposable Ambu. If the transport is transferred with the ventilator, the endotracheal tube must be attached to the breathing circuit by

inserting a filter, and the breathing circuit must be discarded after the transfer.

After surgery, anesthesia work stations, trays should be cleaned and disinfected. In this regard, cleaning suggestions prepared by the Ministry of Health should be taken into consideration and made by trained teams in line with the suggestions.

Airway Management in A Patient With COVID-19 or Suspected.

Basic and essential rules

1- Intubation should be done by the most experienced person in the team.

2- Necessary precautions should be taken for transmission by droplet

3- Detailed prepatory examination should be done, and intubation success should be high for the first time.

4. The patient should be in the isolated negative pressure compartment.

Preparation

Team members should be as few as possible (4-5 people).

1. The whole team must be equipped with Personal Protective Equipment (PPE)

2. The minimum number of team members should be in contact with the patient.

3. If possible, the patient should be in a negative pressure insulation environment or in a room with a well-closed door.

4. The most experienced team member should implement intubation and / or advanced airway control / ventilation strategies.

5. Experienced assistant nurse / technician / physician who knows the protocols / guides and equipment should assist in wearing PPE.

6. If difficult airway is suspected and advanced methods will be required, a second experienced physician should be ready to be dressed in PPE.

7. A physician wearing PPE should be available outside the room to assist if needed. This is not necessary if there is a second physician inside.

8. An assistant personnel to assist in other works such as PPE wearing / removing etc.

9. Team design definitions, strategy determinatıon and how and who sides the team should be described before.

PPE: Personal Protective Equipment; FFP3 Mask, + eye protection mask including eyes + long sleeve liquid-proof apron + double gloves + long overshoes to cover the shoes completely.

Endotracheal Intubation

Endotracheal intubation is mandatory omitting facemask or supraglottic airways. During the endotracheal intubation period, limiting staff -with two anesthesiologists- is preferred to minimize viral exposure. Pre-oxygenation with 100% for 5 minutes is suitable for prolonged apnea period. The patient's mouth and nose should be shielded by two layers of wet gauze or transparent covers to minimize droplet dispersion. Rapid sequence induction is widely recommended. Rocuronium (1-1.2 mg.kg-1) is the first alternative for neuromuscular blocking, and suxamethonium could be used with a dose of 1.5 $mg.kg^{-1}$ considering apnea time and risk of coughing.

Video-laryngoscopy is vital to protect anesthesiologist with a safer distance of infected patient's airway. An experienced anesthesiologist assumes for smooth intubation, and the second one should immediately inflate the tube balloon. A clamp to the endotracheal tube (ETT) or exhalation filter should be prepared before

intubation. Confirmation of ETT has easily achieved with end-tidal CO2 tracing. An epidural filter can be used in streamline end-tidal CO2 sampling lines. Leakage should be monitored and avoided. All airway equipment should be available in dirty or clean buffer zones according to difficult airway predictions.

If the difficult airway is suspected, anesthesiologists should consider guideline recommendations, resources, and the patient's status. Awake intubation is possible within experienced teams but potentially associated with increased aerosol generation. Insertion of the supraglottic airway with subsequent ETT placement can be another alternative.

It would be smart to use COVID-19 dedicated anesthesia machines with high-efficiency filters on both inspiratory and expiratory limbs. Two heat and moisture exchanger (HME) filters could be placed next to ETT. If surgery lasts more than 4 hours, filters should be changed. Anesthesia machine, monitors, pumps should all covered by packs with the availability of the control panel. Carbon dioxide absorbent should be replaced at the end of cases.

Tracheal extubation is an aerosol-generating procedure as well. Coverage or wet gauze layers should be placed. Recovery should be as smooth as possible to prevent coughing and secretions. One of the filters is removed with ETT, and the second is immediately joined to face mask. When adequate spontaneous ventilation is established, the patient can be transferred from Operating room (OR) to ward with a face mask and O2 supply. If the postoperative course requires a planned ICU stay, a team with personal precautions would be transported following the dirty zone instructions. Removal of protective equipment begins in the clean buffer zone from goggles to gown, protective mask, and head cover with handwashing in each step.

OR dedicated to COVID-19 patients should rather have a negative pressure system with adequate pressure levels. Organization for OR includes the distinction of dirty, clean buffer or clean zones. The dirty zone is accessible for two anesthesiologists, surgeon, assistant(s) and nurse(s). They have to be armed with full protection including goggles (or face shielding), appropriate masks (N95/ FFP 2 and FFP 3), fluid resistant gown and double gloves[8].

Application Recommendations on Neuroaxial Anesthesia and Peripheral Nerve Blocks During COVID-19 Pandemic

Airway interventions during general anesthesia (GA) lead to aerosol production, which exposes the healthcare team to the risk of transmission of COVID-19 during both intubation and extubation. It is known to be 6.6 times more than those who do not have tracheal intubation[9]. Since regional anesthesia reduces the risk of postoperative complications, avoiding GA is also beneficial for patients, and this is becoming more important in the context of current respiratory infection[10].

Regional anesthesia should be preferred as a form of anesthesia whenever possible. Proper planning should be done to make the operation entirely with regional anesthesia. It is most undesirable to have an unexpected return to GA in the intraoperative period. Due to the duration or complexity of the operation, it will be more appropriate to start with GA if it is likely to convert to GA. Anesthesia technique requires excellent communication between anesthesia and surgical teams.

Both neuraxial anesthesia and peripheral nerve blocks are not considered as aerosol-producing procedures; therefore, when dealing with a COVID-19 positive or suspected patient, contact

and droplet contamination measures are required[11]. These measures include surgical masks, eye protection, surgical gowns, and double gloves for personnel performing these procedures.

The use of N95 (FFP3) masks or similar air-filter respirators (PAPR) is usually not necessary but may be considered in prolonged close contact with a positive patient in a confined environment. Given respiratory mask shortage, N95 or FFP3 masks such as tracheal intubation and extubation aerosol generators should be kept for procedures[12].

The equipment and drugs should be prepared before the procedure and put in a plastic bag. Ultrasound equipment, including the ultrasound probe, must be protected from contamination using plastic covers. Medicines or equipment should not be brought to the room where the procedure is performed. Despite limited evidence, the use of spinal anesthesia is not contraindicated for COVID-19 positive or suspected patients. Routine indications and contraindications of spinal anesthesia apply in patients with suspected or COVID-19 positive.

It is recommended to rule out thrombocytopenia as there is preliminary evidence that thrombocytopenia may occur in COVID-19 patients with severe clinical symptoms[13].

The routine asepsis technique should be followed. In a laboratory study, COVID-19 showed that virus particles could survive on plastic longer than in cardboard; If available, it may be considered to use sterile paper covers instead of plastic ones[4]. In patients with COVID-19 encephalitis, it should be attempted to prevent contamination by not allowing the cerebrospinal fluid (CSF). Free drip after lumbar puncture, as the virus is isolated from the CSF[14].

Although we have not observed the sensitivity of COVID-19 positive pregnant women to hypotension following the neuraxial technique, a single small case series report states that there may be excessive intraoperative hypotension when prophylactic vasopressors are not used[15].

The dose of sedation may need to be reduced before the procedure to avoid any respiratory distress that would require oxygen support. A safe local anesthetic dose (LA) should be calculated and used; Blocks should be performed under ultrasound guidance to reduce the risk of local anesthetic systemic toxicity (LAST)[16]. Similarly, the risk-benefit status of peripheral nerve blocks and facial plan blocks to be applied for analgesic purposes should be evaluated on a patient basis. If the block is to be performed under GA, and the patient needs to be repositioned, there is a risk that the tracheal tube will detach. Therefore, if appropriate, it may be more relevant to choose a block (e.g., TAP blocks) that does not require a change of position (e.g., TAP blocks) instead of requiring a change of position (e.g., Erector Spinae Plane Block). Both neuraxial anesthesia and peripheral nerve block should be thoroughly tested for block success before starting surgery to minimize the need for conversion to GA. In peripheral nerve block applications, extra waiting time should be allowed until the block is fully seated to reduce the risk of transformation. If an intraoperative conversion is required for GA, an emergency airway procedure should be performed, as described in the literature[17].

Figure 1. Ecommendations for Urgent Peri-operative Pathway of Clinically suspected/confirmed COVID-19 Patients

Triage

- Hand Hygiene
- Recommended PPE
- Special attention for enviromental and self contamination
- Placeface mask on patient
- Detailed clinical and travel history
- Pay attention to social distance

Induction Room

- Enhanced hand hygiene
- Recommended PPE
- Request the most experienced naesthesiologist
- Minimize airway manipulation
- Special attention for enviromental and self contamination

Recommended

- Regional Anesthesia
- Pre-oxygenation
- Nasal oxygen under mask
- Deep anesthesia, neuromuscular blockage
- Anti-emetics

Avoid

- General Anesthesia
- Awake intubation techniques
- Positive pressure ventilation
- Flexible suction catheter

Operating Room

- Limit OR traffic
- Electrocautery at low power as possible
- Avoid long use of electrocautery
- Collect tissues, fluids, specimens in a sealed bags
- Consider negative-presssure room
- Dedicated OR, segregated team
- Disinfect Or stricly after each patient
- Take 45 minutes between each case before using the same operation room

Recovery

- Separate those with covid-19 symptoms from others
- Adequate nutrition
- Fluid hydration
- Electrolyte balance
- Temparature, CRP, ESR, ferrittin level, platelet count monitoring

RESULTS

The demographic findings of 128 cases were taken into operation in our operating theater during the 2 months when the pandemic peaked and summarized in Table 1.

Table 1. Demographic Data

Recommended quantities fort he urgent periopetative pathway of clinically suspected or confirmed COVID-19 patients. OR=operating room, PPE= personal protective equipment, CRP= C-reactive protein, ESR=eritrocyte sedimentation rate

Male	46	35,9
Female	82	64,1
Covid or suspected	36	28.1
Non-Covid	92	71,9
Concomitant disease	61	47,7
Variable	Mean±SD	
Age(y)	40,5± 18,7	
BMI	2,9±0.3	
Data are presented as mean (standard deviation) or n (%), as indicated		

American society of Anesthesiologists Score (ASA) is a physical Status Classification System has been in use for over 60 years. The purpose of the system is to assess and communicate a patient's pre-anesthesia medical co-morbidities. The classification system alone does not predict the perioperative risks, but used with other factors (eg, type of surgery, frailty, level of deconditioning), it can be helpful in predicting perioperative risks. ASA I is a normal healthy patientand ASA IV is a patient with severe systemic disease that is a constant threat to life. The ASA scores of 128 patients are summarized in Table 2.

Table 2. ASA Scores

		Frequency	Percent
ASA	**I**	7	5,5
	II	99	77,3
	III	16	12,5
	IV	6	4,7
	Total	128	100,0

According to TARD recommendations, regional and neuraxial anesthesia methods have been proposed in terms of transmission risk in the pandemic process. Although general anesthesia is riskier in terms of transmission, there may sometimes be no other option in emergency

cases. Therefore, our general anesthesia rates were higher (Table 3)

Table 3. Type of anesthesia

	Frequency	Percent
General Anesthesia	66	51,6
Neuroaxial Anesthesia	42	32,8
Periferic Nerve Blocks	3	2,3
Sedo-analgesia	17	13,3
Total	128	100,0

Chest computered tomography (CT) is used to diagnose novel coronavirus disease, as an essential complement to the reverse-transcription polymerase chain reaction (RT-PCR) tests. Chest CT has a high sensitivity for the diagnosis of COVID-19. Chest CT may be considered as a primary tool for the current COVID-19 detection in epidemic areas[18]. For patients that present with typical symptoms, who have a presumed Covid-19 prevalence of -40-50 %, a negative test should be interpreted with caution, and a repeat test may be needed[20]. We tried to finalize PCR tests of patients before entering the operating theatre. We succeeded in 84.4% of the patients, but the remaining cases were taken to the operating theatre without waiting for the test results (Table 4).

Table 4. PCR Tests before operations

		Frequency	Percent
PCR	**negative**	20	15,6
	positive	108	84,4
	Total	128	100,0

We know that covid-19 infection increases mortality in patients with concomitant disease. Severe acute respiratory syndrome coronavirus infections can cause pulmonary and systemic inflammation, leading to multi-organ dysfunction in patients at high risk. Acute respiratory distress syndrome and respiratory failure, sepsis, severe cardiac injury, and heart failure were the most common critical complications during exacerbation of COVID-19. The major comorbidities of the fatality cases include hypertension, diabetes, coronary heart disease, cerebral infarction, and chronic bronchitis (20). Concomitant disease was present in 47.7% of the cases and mortality rate is %4,7 (Table 5).

Table 5. Exitus rates

		Frequency	Percent
Exitus	**No**	122	94,5
	Yes	6	4,7
	Total	128	100,0

Emergency characteristics did not change in stock during the pandemic process. Cases by branches are summarized in tables 6 and 7. Obstetrics and cesarian section operation is the winner. Although we recommend elective cesarean delivery, there is a paucity of data to drive these recommendations. The final choice for the delivery method needs to consider the parturient's condition, the wishes of the parturient, and the obstetrician's advice. The potential for transfer of the virus to the fetus during vaginal delivery is not known. All mothers had a singleton pregnancy. No intrapartum death, neonatal death, or severe neonatal asphyxia was observed. Five neonates were born prematurely, but none had a birth weight under 2,500 g.

Cardiovascular operations, which are accepted as high-risk with the pandemic board decision of our university, were canceled.

Table 6. The number of operations by department

		Frequency	Percent
Branch	**Obstetrics and Gynecology**	42	32,8
	Orthopedics	5	3,9
	Gastroenterology	14	10,9
	Thoracic Surgery	13	10,2
	interventional radiology	1	,8
	Chest diseases	4	3,1
	Urology	8	6,3
	General Surgery	29	22,7
	Otolaryngology Surgery	3	2,3
	Neurosurgery	5	3,9
	Oftalmology	1	,8
	Pediatric Surgery	2	1,6
	Cardiovascular Surgery	1	,8
	Total	128	100,0

Table 7. Number of operations by case types

	Frequency	Percent
C-section	39	30,5
Septic arthritis	1	,8
Endoscopy	13	10,2
Pneumothorax	1	,8
Interventional radiology	1	,8
Endobronchial ultrasound	3	2,3
Fiberoptic bronchoscopy	1	,8
Percutaneous Endoscopic Gastrostomy	1	,8
Double J-stent Placement	6	4,7
Breast Cancer	17	13,3
Tracheostomy	1	,8
Appendectomy	7	5,5
Bullectomy	7	5,5
Bone Fractures	4	3,1
Medical Curettage	1	,8
Malignancy	14	10,9
External Ventricular Drainage	2	1,6
Ileus	4	3,1
Corneal Perforation	1	,8
Ampuatation	1	,8
Removing Foreigh Body (eye)	1	,8
Embolectomy	1	,8
Video-assisted Thoracic Surgery	1	,8
Total	128	100,0

CONCLUSION

In conclusion, this global outbreak represents a big problem for health care systems. Medical staff should be aware of the mode of transmission, protective measures, and thereby execute appropriate changes in hospitals. Appropriate preparation, meticulous control, strict submission to precautions are essential for the health and safety of frontline workers as anesthesiologists.

The anesthesia informed consent was signed by the patient or relative in the isolation ward or operating room to avoid the possibility of virus spread.

Note

The opinions and assertions contained herein are the private opinions of the authors and are not to be construed as official or reflecting the views of the Namık Kemal University. Guidance and information are changing rapidly; therefore, we recommend to continue to update the protocol as needed.

Declaration of conflicting interests

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Ethical Statement

The author are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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