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Impact of Covid -19 (coronavirus) pandemic in specialty of Orthopaedics: The Indian scenario

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Abstract

Coronaviruses are a family of viruses affecting human beings through animal transmission causing viral pneumonia leading to severe acute respiratory syndrome. In this article, we analysed the effect of the COVID-19 pandemic on the orthopaedic practice and its repercussions on patient care. In this article we tried to highlight the challenges faced by the healthcare professionals in the wake of coronavirus pandemic, difficulties in patient care and the possible solutions while helping combating the pandemic.

Keywords: Covid 19, orthopaedics, pandemic, healthcare

Introduction

The novel coronavirus was first discovered in Wuhan, China in December 2019 from the wet seafood market ^[1]. Coronavirus disease (COVID-19) was declared a public health emergency worldwide by mid-February 2020. Worldwide COVID-19 has impacted the daily life of people, shutting down economies, impacting livelihood of the people, burdening the healthcare sector and endangering life of the people. COVID-19 is a virus that spreads from person to person through contact. The primary symptoms of this disease are fever, dry cough, breathing difficulties, chills, bone and muscle pain. No effective treatment is available at present and vaccine is currently under development. This COVID-19 has also affected the orthopaedics field impacting the surgeries and patient care. Since the pandemic outbreak, there has been a shortage of doctors and healthcare staff to provide the healthcare services. Even the ventilators, medicines and other critical medical equipment are under shortage worldwide. ^[2] In India, orthopaedic departments in hospitals have heavy influx of patients routinely. COVID-19 outbreak has made the current scenario more complex and challenging for healthcare providers. There are approximately 20,000 orthopaedic surgeons available for a population of approximately 1.25 billion, i.e. one surgeon for every 62,500 people ^[3]. Though lockdown decreased the road side accidents initially, but after unlocking of the lockdown road side accidents have been rising, requiring orthopaedic care and services.

Challenges

The hospitals have high risk of transmission of COVID-19 due to a rise in the community transmission ^[4]. Orthopaedic surgeries require operation theatres which are prone for transmission of COVID-19 due to aerosols generated during various procedures, risking the life of surgeons and health care workers who are at high risk of contracting this illness and decreasing the resources available to the population during this pandemic. In our country India, which is already overpopulated, there has been a high prevalence of COVID 19 cases. With limited resources at our hand, it is necessary to provide essential surgical care and conserve medical resources that can be channelled to the affected patients. In the present scenario, the accurate status of COVID-19 in our population cannot be fully ascertained; therefore, performing any kind of orthopaedic surgery without work-up of COVID-19 involves risk to the whole operation theatre staff and doctors. Unavailability of testing facilities due to lack of infrastructure along with high cost poses a challenge to do diagnostic tests in each and every patient. Furthermore, with a false-negative rate of 30%, its reliability is questionable ^[5].

Increasing the infrastructure required for performing tests would help in fighting this pandemic.

Management strategies

Orthopaedic daily practice has been drastically changed during the pandemic. Most elective surgeries, have been deferred ensuring that personal protective equipment (PPE), intensive care unit (ICU) beds and additional workforce would be redirected to tackle the COVID-19 pandemic. On the other hand, conditions including traumatic amputation, crush injuries, compartment syndrome and polytrauma still demand urgent care and cannot be delayed. As surgery requires working in a confined space in close contact with the patient for a long time, the risk of coronavirus transmission during the procedure is reasonably high. Conservative treatment of fractures should be adopted wherever possible to decrease the number of surgical procedures performed and protecting the healthcare staff from unnecessary exposure. A non-operative management should always be favoured over surgical intervention during the pandemic. The major routes of Covid 19 transmission are through respiratory droplets and contact with contaminated surfaces. In addition, exhalation of respiratory secretions during aerosol-generating procedures may produce highly virulent airborne particles. Symptomatic patients are the primary source of infection. Asymptomatic subjects also spread the disease and are more dangerous in spreading the disease and should not be neglected. Maintaining an interpersonal distance ≥ 1 m is essential to minimize viral particle dissemination^[6]. Hence, aeration of closed environments, appropriate use of Personal Protective Equipment (PPE), frequent hand hygiene and surface decontamination are mandatory. Unnecessary imaging studies should be avoided to avoid the risk of contamination of surfaces. The imaging surfaces should be disinfected after every patient to curb the spread of coronavirus.

Operation theatre precautions

Suspected or confirmed COVID-19 cases should be treated in a separate and a dedicated area, away from other zones of the hospital, thus minimizing risk to other patients and healthcare staff^[7]. Operative personnel should be reduced to the minimum and unnecessary movement inside operation theatre should be strictly discouraged. Surgery should be performed in negative-pressure operation rooms to avoid the dissemination of the virus outside the theatre. Surgical techniques that reduce the operative time should be considered to decrease the exposure time, thereby reducing the risk of virus transmission. Although electrosurgical and high-speed devices (e.g. saw, drill) used during orthopaedic surgery generate aerosols, limited literature is presently available regarding the risk of virus spread through aerosols produced during the surgery. Suction devices should always be used to reduce aerosols generated during motorized procedures used during the surgery^[8]. Use of absorbable sutures, if possible, is advisable to reduce the need of additional post-operative visits. Alternate teams should be created and should be on standby, if required to replace a team that goes on quarantine due to exposure to an infected patient, so that patient care and services are not interrupted. Even the Covid 19 negative patients should be dealt with full precautions while operating in the theatre as taken for a Covid 19 positive patient. Before leaving the theatre, the surgeon should remove sterile gown and gloves and follow an accurate hand hygiene. PPE should be sequentially removed, starting from the lead garment followed by the surgical hood, goggles,

shoe covers and the respirator. Proper disposal of the removed PPE is mandatory. Hand disinfection should be meticulously done after removing PPE.

COVID control strategies: Summary

1. Managing fractures conservatively
2. Performing Covid 19 testing for every patient to be operated
3. Deferring elective surgeries wherever possible
4. Dedicated area for Covid positive patient
5. Following preventive measures at all levels
6. Use of personal protective equipment (PPEs) during surgery
7. Minimizing follow up of patients. Telephonic follow up can be done wherever possible
8. Discharging patients early from the hospital
9. Sanitizing all the surfaces and equipment that come in contact with the patient
10. Following all the standard operating procedures as mandated by the Govt of India
11. Numbers of ICU beds (and ventilators) available must be supplemented
12. Telemedicine and online meetings must be encouraged

Discussion

Patients presenting with an orthopaedic emergency such as joint dislocations and open fractures should be managed promptly and their management should not be delayed. These emergencies require effective surgical care and adequate precautions should be taken to curb transmission of infection to other patients and health care professionals. Guidelines published by the Indian Orthopaedic Association should be followed by every orthopaedic surgeon across the country.^[9] Safety of all healthcare providers should be of highest priority in every setting as they are the frontline warriors in this battle with the pandemic. Many healthcare workers have already succumbed to the coronavirus disease in spite of the best human efforts. Providing adequate protection equipment and safe working environment should be given highest priority and should be monitored by the govt.

Conclusion

COVID-19 has disrupted our daily life in ways that were unprecedented. The fight against the coronavirus has brought together different nations on a world stage, working together in this battle. This pandemic can be controlled through collective efforts, following mandatory precautions and hygiene practices and developing effective treatment.

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