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Evaluate the Effects COVID-19 Pandemic in Saudi Arabia on the Field of Orthopedics: Review Article

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Abstract: ***As the COVID-19 pandemic continues to spread across Saudi Arabia, as many other health departments or specialties within the field of medicine and surgery, COVID-19 has affected the field of orthopedics to a greater extent, This might have affected not only the timely and effective care for orthopedic patients but also have resulted in new directions and plans in the field of orthopedics that will shift the care degree. In addition, orthopedic surgeons might experience challenges in providing effective and required for their patients with an overall decline of care due to COVID-19 pandemic. Moreover, it is also essential to reflect on the future directions and changes that need to be adopted by the health specialists working in the field of orthopedics. This can include the reopening of facilities for elective surgery. Given the current circumstances, much remains unknown about COVID-19. It is important that individuals continue to follow guidance of Saudi ministry of health, that said, the Saudi of Orthopaedic Surgeons like to share some important considerations that individuals should consider before making any decisions.***

I. INTRODUCTIONS

COVID-19 has a wide-ranging influence on surgical practice, including workforce and staffing difficulties, procedural prioritization, and intraoperative viral transmission risk, as well as an impact on surgical education. When attending patients with a risk of infection or transmission of COVID-19 and comorbidities in the outpatient and inpatient hospital setting, orthopedic surgery and its branches necessitate safety procedures. The disease's capsular capacity to attach to metallic and plastic surfaces has just been discovered [(1)].

The current coronavirus disease (COVID-19) pandemic has revolutionized healthcare in Saudi Arabia an unprecedented Resource reallocation, socioeconomic confinement and reorganization of production activities are current challenges being faced inside Saudi Arabia regions, in a frame of uncertainty and fear. Hospitals have been restructured to provide the best care to COVID-19 patients while adopting preventive strategies not to spread the infection among healthcare providers and patients affected by other diseases [(2)]. The idea of urgency has changed dramatically, as have the indications for elective therapies. Furthermore, despite their initial employment, some physicians have been recruited into COVID-19 departments, resulting in a significant reorganization of both inpatient and outpatient treatment [(3)]. The pandemic has had a profound impact on orthopaedic everyday practice. Surgical criteria have been revised, with elective cases being postponed as soon as possible and urgent procedures needing extra care, especially in suspected or COVID-19 patients [(4)].

This has made a strong impact on inpatient management, with the requirement for a specialized staff, patient seclusion, and visitation restrictions. Outpatient visits, on the other hand, have been curtailed to decrease interaction between patients and hospital employees, with significant implications for post-operative care quality and the human aspect of medical practice [(5)]. The purpose of this review is to assess the impact of the COVID-19 pandemic on orthopaedic practice in Saudi Arabia. The future directions in the area of orthopedics in light of COVID-19 will be focused on proper surgical indication, perioperative care, and the safe management of both inpatients and outpatients.

II. OPERATING ROOM MANAGEMENT IN COVID-19

Original work plans are required for the development of isolation operating theatres, particularly in orthopedics. Infection prevention measures, the use of surgical and anesthetic tools, cautious mobility, and the duties of each OR team member are all part of the plans. All COVID-19 patients are treated in a negative pressure OR with an anteroom on the side of the operating theatre complex and a unique route [(6)]. To decrease the danger of infection, it's crucial to understand the airflow inside the OR. An intake tube allows outside air into each theatre, while an exhaust tube allows air to exit. Negative pressure is achieved by lowering the quantity of air flowing into the input tube while keeping a constant volume of air flowing out of the exit tube. This may be done in two ways: first, by shutting the blades of the air volume control valve in the input tube; and second, by closing the blades of the air volume control valve in the outlet tube [(7)].

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III. PROTOCOL OF ORTHOPEDIC SURGERY DURING OF COVID-19

During the COVID-19 pandemic, orthopedic surgery was continued for oncology and emergency cases. Saudi Arabia has a high rate of polytrauma and fractures as a result of car accidents. However, during the COVID-19 pandemic, these rates were likely low due to the lockdown. In Saudi Arabia, most cities went into partial lockdown, which progressed to full lockdown for a few weeks before returning to partial lockdown [(8)].

Routine preoperative testing for COVID-19 has not been undertaken, most likely due to logistical constraints. To detect possible instances, an acute respiratory disease screening tool has been used as part of the Best Care system (an electronic medical record system) for all hospital admissions, including all patients scheduled for surgery. Escorts for patients are also vetted. If the result is high, the patient or escort is swabbed and tested before to operation [(9)].

In the operating room, measures such as using a negative pressure room, wearing full personal protective equipment to protect staff, reducing traffic throughput, and removing all but essential staff members from the room during aerosol-producing procedures have been implemented to deal with confirmed cases (e.g., during intubation)[(10)].

A hospital scientific committee was formed to examine new reports and research, confirm the data, and give evidence-based recommendations for COVID-19 management to all clinical departments. Criteria for preoperative assessment of surgical patients were introduced in the third edition of their guidelines. Preoperative COVID-19 testing became standard for all surgical patients in late May 2020, with the exception of urgent level 1 cases (i.e., those requiring life-saving or limb-preserving surgery), which are handled as COVID-19 positive during surgery prior to receiving test results [(11)].

Delays in elective orthopedic surgery would affect patient care, especially given the uncertainty surrounding the COVID-19 pandemic's longevity. Patients requiring surgery for a spinal problem, arthroplasty revision, a benign tumor, or pediatric pathology, for example, may see their clinical situation deteriorate over time. As a result, they began to consider a de-escalation policy that could be coordinated with Saudi Arabia's current strategy [(12)].

IV. PROTECTIVE FROM COVID -19 DURING ORTHOPEDICS

Coronavirus is spread mostly via aerosol flushing. COVID- 19 may adhere to practically any surface and has a life span of 1 to 24 hours1; thus, touching these surfaces with the hands or having any contact via the face or any mucosa surfaces may allow the virus to enter the body. Viral infections can also be transmitted via human-human contact. In its asymptomatic latency phase, the virus may be infectious for up to two weeks. We encourage the usage of N-95 masks by patients and physicians who are in constant touch with patients [(13)].

Maintaining a 1m interpersonal distance is critical for minimizing viral particle spread during social and clinical contacts. For example, the virus may survive up to 3 hours in aerosols and up to 2–3 days on cardboard [(14)]. Aeration of confined settings, effective use of personal protective equipment (PPE), regular hand hygiene and surface cleaning are thus necessary measures to ensure worker safety. All patients should wear a medical mask in public settings, according to the WHO. Several varieties of face masks are currently available, each with varied filter efficiency. Surgical masks are intended to avoid intraoperative contamination and have not been shown in laboratory tests to protect against droplet spread. Surgical masks, on the other hand, have been shown to lower the risk of influenza and SARS-CoV transmission, most likely by preventing the dispersion of bigger droplets [(15)].

V. COVID-19 AND THE FUTURE DIRECTION OF ORTHOPEDICS

Patients should be carefully selected for surgery by both physicians and surgeons. Before making any decisions, there are a few things to consider. It is important to keep in mind that not all patients are of equal age and need; consequently, patients who require arthroplasty operations are frequently older and have comorbidities, which may increase their risk of complications and death if they undergo any treatment during COVID-19. The COVID-19 virus may also be present in these people, and they may not show any symptoms, therefore it's important to take additional precautions during this pandemic. In addition, older patients may require more rehabilitation services following surgery, as well as more postoperative follow-ups, than younger patients [(16)].

Additionally, as older individuals with comorbidities are at higher risk of hospital-acquired infections, surgeons may need to start holding clinics with younger, asymptomatic patients without identified risk factors. As a result, telemedicine and digital health might be utilized to offer care to older individuals. On-line technologies are used to study the symptoms of the elderly and frailer patients. It is possible, however, to take the required steps to offer these elderly individuals [(17)].

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VI. COVID-19 AND TELEMEDICINE IN ORTHOPAEDICS

Telemedicine is described as the provision of health care to patients without the requirement for them to visit a medical institution. This method has numerous advantages: it can give care that would otherwise be unavailable, enhance the quality of screening programs, lower health-care expenditures, and so on. On the contrary, some of the drawbacks of telemedicine include the disintegration of the doctor-patient connection and patient mistrust of health information obtained remotely [(18)]. Telemedicine has been used in the surgical field to improve the practice of surgeons in treating their patients. During the COVID-19 pandemic, orthopedic surgeons must reach patients without a face-to-face consultation [(19)].

The Ministry of Health in Saudi Arabia has launched various software to help the country utilize telemedicine. Patients infected with COVID-19 can access medical assistance via these applications. One app, Rest Assured or Tetamman, particularly provides healthcare support to citizens or residents who are under home isolation or quarantine. Another application is "SEHA," which provides patients with consultations and diagnostic services. Users of telemedicine have expressed widespread satisfaction with the method's effectiveness and efficiency. The COVID-19 epidemic has pushed caregivers to seek other methods of providing patients with safe orthopedic therapy [(20)].

VII. IMPACT CORONAVIRUS PANDEMIC ON OUTPATIENT ORTHOPEDIC CLINICS

Saudi Arabia's orthopedic outpatient clinics have undergone many phases of adaptation to the COVID-19 epidemic. Initially, Health care workers, patients, and escorts undergo a temperature check upon entering the main hospital or the ambulatory care center, where antiseptic preparations and sanitizers are available in all areas. The clinics were held on a regular basis. With the escalation of preventative measures, the Most Responsible Physician was requested to evaluate the list of booked patients and determine which patients should be seen in person based on their clinical state and which could be postponed [(21)]. Active orthopedic oncology patients, as well as new patients, were exempt. The following stage witnessed the establishment of virtual clinics. Patients in orthopedics alerted 48 hours ahead of time by SMS message from a call center to prepare for a phone call. If the patient's condition necessitates a physical examination, the team schedules an appointment in the hospital, where all members of the orthopedic team, as well as the patients, are required to wear surgical masks and gloves. Prescriptions may be written and delivered remotely, eliminating the need for patients to visit the pharmacy [(22)].

VIII. CONCLUSION

An orthopedic surgery's and other services have been impacted by the COVID-19 pandemic. In different parts of Saudi Arabia, the frequency of certain operations has reduced substantially, affecting patients' quality of life and general well-being. Because COVID-19 has abruptly disrupted most orthopedic procedures and activities in both outpatient and operating room settings, orthopedic surgeons must devise some clever strategies to overcome these obstacles without jeopardizing patient care, such as using telemedicine technology to care for patients when needed. The most significant thing we've learnt while dealing with the COVID-19 epidemic is the necessity of efficient communication and early action with strategies. The preparations and activities implemented during the COVID-19 outbreak in Saudi Arabia are believed to have been extremely effective in preventing additional harm and to have provided numerous lessons that may be used to any comparable crises in the future.

IX. ACKNOWLEDGMENT

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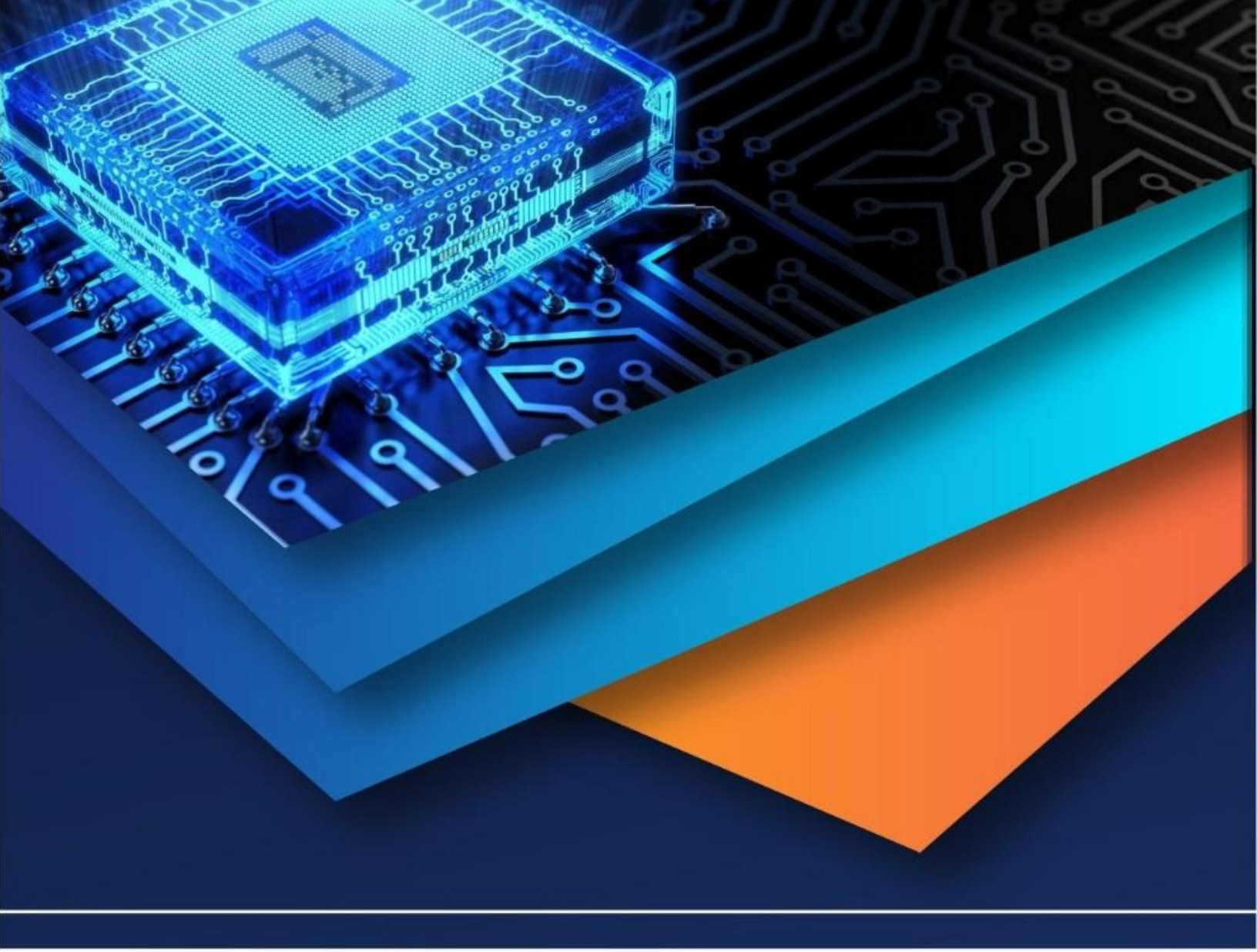
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