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Orthopaedic Practice in Covid Times

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Abstract
AIM of the work *: To study the changes in Orthopaedic practice, patient care during Covid-19 Pandemic.*
Patients and methods*: The change in number of patients , nature of injury , sex ratio of patients reporting to casualty in Tier-3 Hospital are compared and the necessary precautions which were taken to ensure safety of everyone.*
Results *: The number of patients reduced significantly. It was seen that the male: female ratio among the patients increased further . Earlier Road Traffic accident was the main contributing factor for injury which now was replaced by Physical Assault.*
Conclusion: *Orthopaedic healthcare services in India is suffering a drastic cutback due to COVID-19. A drastic reduction in arthroscopic procedures like cruciate ligament reconstruction and an almost total shutdown of elective total joint arthroplasty were reported. Mainly emergency trauma cases were being operated. Long-term consequences cannot be predicted yet. The described disruption in orthopaedic healthcare services has to be viewed as historic.*

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I. Introduction

In December 2019, a novel coronavirus (nCoV) termed "SARS-CoV-2", announced by the World Health Organization (WHO) as being responsible for the outbreak of COVID-19, was reported. 1 , 2 The incidence of the SARS-CoV (Severe Acute Respiratory Syndrome coronavirus) in 2002 and 2003 and the MERS-CoV (Middle East Respiratory Syndrome coronavirus) in 2012 showed the potential for the transmission of newly emerging CoVs from animal to human and person to person. 3 , 4 , 5 In total, seven human coronaviruses (HCoVs) have now been discovered, including HCoV229E, HCoV-OC43, HCoV-NL63, HKU1, SARS-CoV, MERS-CoV and SARS-CoV-2. 6 , 7

Coronaviruses belong to the order Nidovirales in the family coronaviridae. **Coronavirinae** and **Torovirinae** subfamilies are divided from the family. The subfamily **Coronavirinae** is further divided into four genera: **Alpha**, **Beta**, **Gamma** and **Deltacoronavirus**. 15Phylogenic analysis revealed that SARS-CoV-2 is closely related to the beta-coronaviruses. Similar to other coronaviruses, the genome of SARS-CoV-2 is positive sense single stranded RNA [(+) ssRNA] with a 5′cap, 3'UTR poly(A) tail. The length of the SARSCoV-2 genome is less than 30 kb, in which there are 14 open reading frames (ORFs), encoding non-structural proteins (NSPs) for virus replication and assembly processes, structural proteins including spike (S), envelope (E), membrane/matrix (M) and nucleocapsid (N), and accessory proteins. 16 , 17

COVID-19 symptoms are observed approximately 5 days after incubation. 18 The median time of symptom onset from COVID-19 incubation is 5.1 days, and those infected display symptoms for 11.5 days. 19 This duration was shown to have a close link with the patient's immune system and age. Gastrointestinal symptoms include diarrhea, vomiting and anorexia, recorded in almost 40% of patients. 20 , 21 Up to 10% of patients with gastrointestinal symptoms show no signs of fever or respiratory tract infections. 22 COVID-19 has also been linked to hypercoagulable disease, elevating the risk of venous thrombosis. 23 There are also records of neurological symptoms (such as fatigue, dizziness and disturbed awareness), ischemic and hemorrhagic strokes, and muscle damage. 24 Many extrapulmonary symptoms comprise skin and eye manifestations. Italian researchers have identified skin manifestations in 20% of patients. 25 The clinical outlook for children can progressively worsen as a result of respiratory failure, which could not be corrected

within 1–3 days by traditional oxygen (i.e. nasal catheter 26) in severe cases; the hallmarks are septic shock, sepsis, extreme and continuum bleeding as a result of coagulation abnormalities, and metabolic acidosis. 27

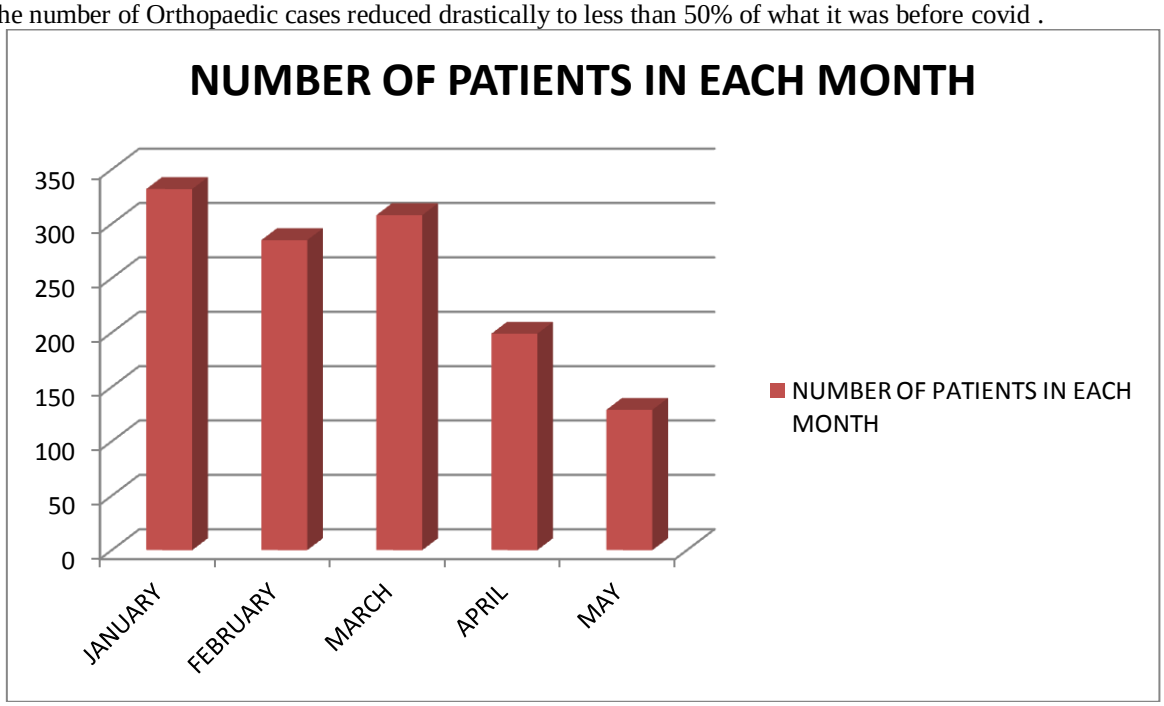
India is a developing country with around 1.3 billion population, 2nd largest in the world after China. In India, there is one allopathic doctor per 10,926 population [28], which is below WHO's recommendation of 1:1000 [29], putting tremendous pressure on the health care system in India due to COVID-19. The first case of COVID-19 was reported on 30th January 2020 and the number has reached 2,94,39,076 as on 12th June 21, with 3,70,407 deaths. To control first wave, on 25th March 2020, Prime minister of India announced a nationwide 3-week lockdown to prevent community transmission in India. This lockdown was extended further. For second wave respective state governments were given responsiblity and lockdown is imposed in many states . We have no idea when this lockdown gets released. Even after the release of lockdown, the situation will not be the same as in the past and we have to be more careful in attending patients.

The hospitals are becoming hot zones for the treatment as well as transmission of COVID-19 due to a rise in the community transmission . Orthopaedic surgeries including both elective and emergency procedures (trauma patients) require operation theatres which are high-risk areas for transmission of COVID-19, risks health care workers contracting this illness and decreasing the resources available to the population of India during this pandemic. The high prevalence of COVID-19, limited resources and staff, increased risks of transmission and the burden on health systems during this pandemic; keeping all this in mind, the health system must act immediately and support essential surgical care while protecting patients and staff and conserving valuable resources.

Orthopaedic Patients During Lockdown Period

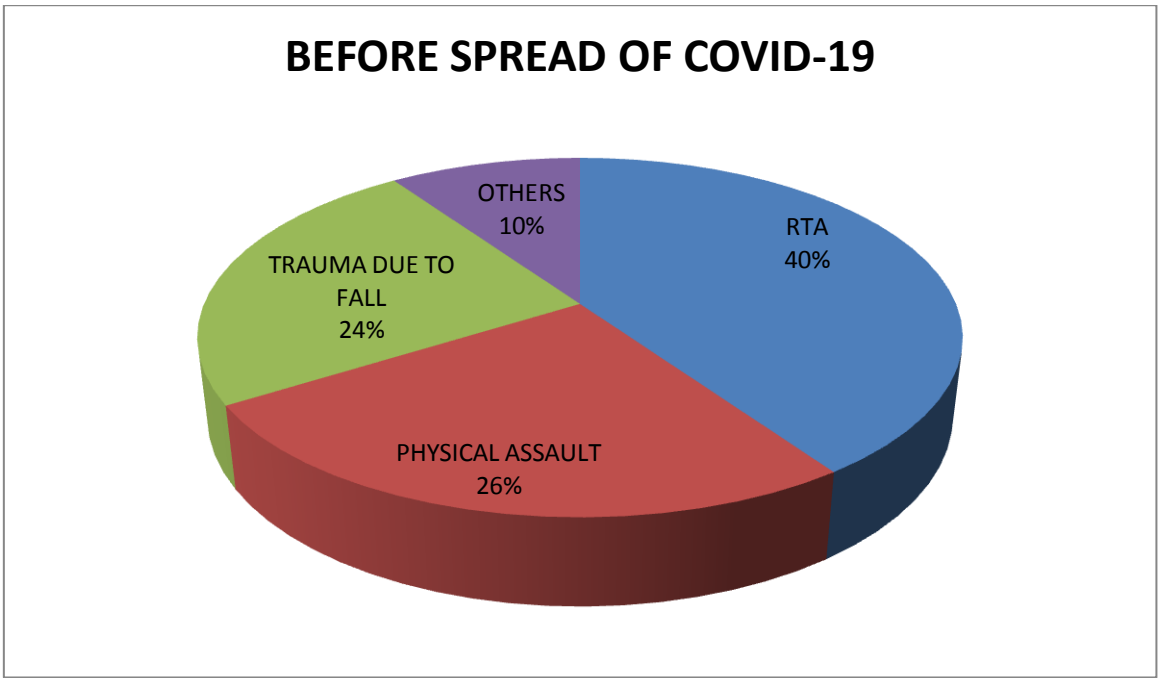
- Trauma.
- History of fall at home, the neck of femur fracture in elderly.
- History of assault.
- Severe cervical or lumbar pain.
- Post-operative cases for wound dressing or suture removal.
- Postoperative surgical site infections.
- Elective cases with severe symptoms

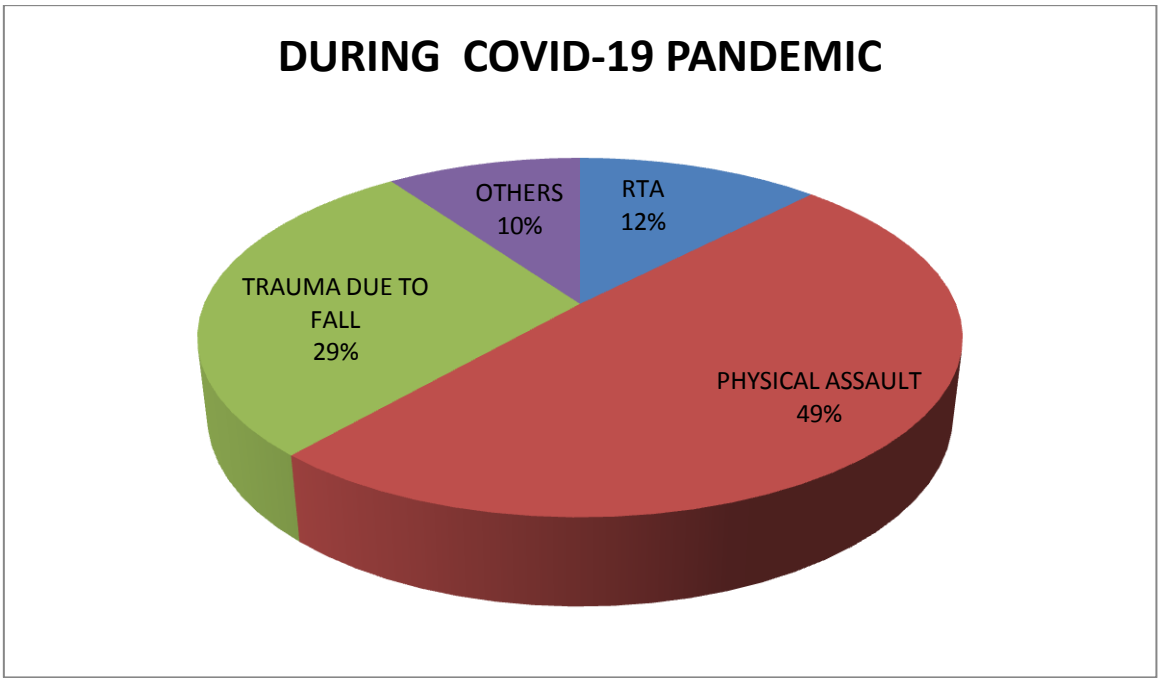
The number of Orthopaedic cases reduced drastically to less than 50% of what it was before covid .



MODE OF INJURY :

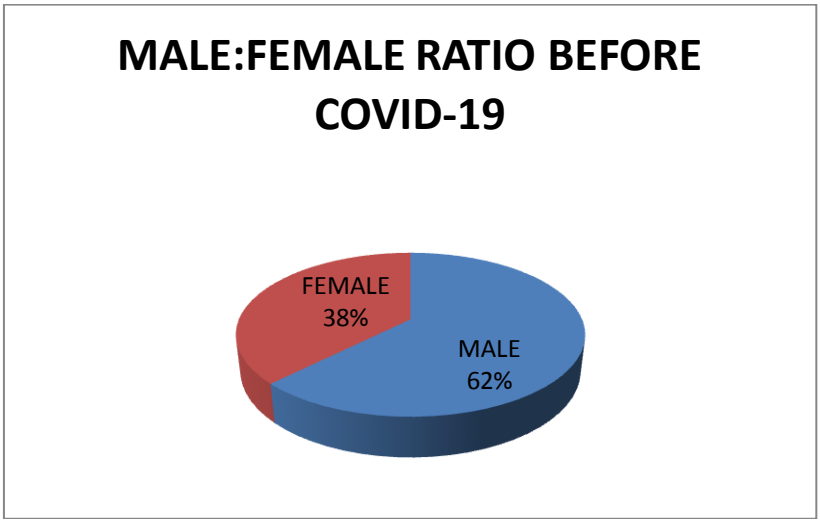
Prior to covid-19, patients were admitted with variety of modes of injury. During the covid phase drastic decrease in ROAD TRAFFIC ACCIDENTS were seen , courtesy lockdown, and hence increase in PHYSICAL ASSAULT was seen.

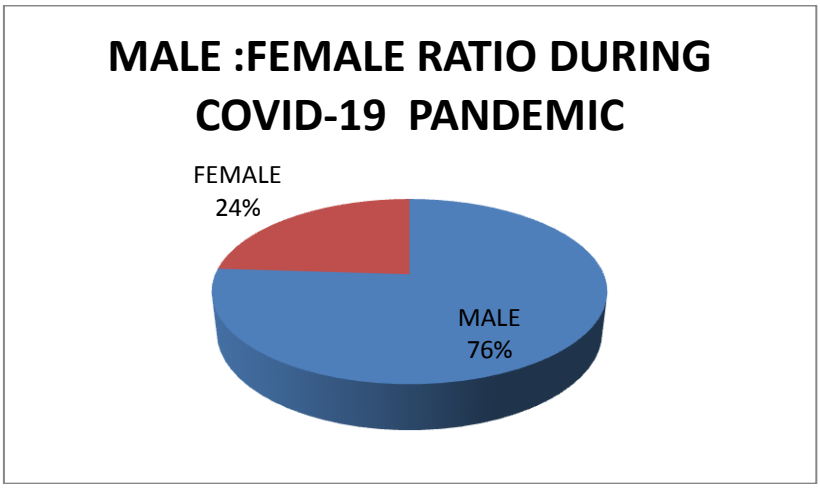

BEFORE SPREAD OF COVID-19
OTHERS
10%
RTA
40%
TRAUMA DUE TO
FALL
24%
PHYSICAL ASSAULT
26%


DURING COVID-19 PANDEMIC
OTHERS
10%
RTA
12%
TRAUMA DUE TO
FALL
29%
PHYSICAL ASSAULT
49%

MALE:FEMALE RATIO

Before the pandemic, of all the patients that reported to the hospital 38% were females and 62% were males. During the covid phase this ratio increased further as there were 24% females and 76% males amongst those that visited the hospital.





Following Steps were taken to Create a Safe Working Environment

- **Ensure Safe Working Environment**

The examination area in the emergency especially door handles, working stations and frequently used items were cleaned regularly three times a day with 1% hypochlorite/lysol. It was ensured that the healthcare staff including the doctor, nurses and paramedical staff had no signs and symptoms related to COVID-19 infection or any contact with COVID patients in the past 14 days. Wherever possible the health care staff wore a personal protective equipment (PPE) in the emergency, if not then at least wear an N-95 mask/double surgical mask, a surgical gown, examination gloves and shoe covers. Health care staff, patients and their attendants were educated about Covid-19.

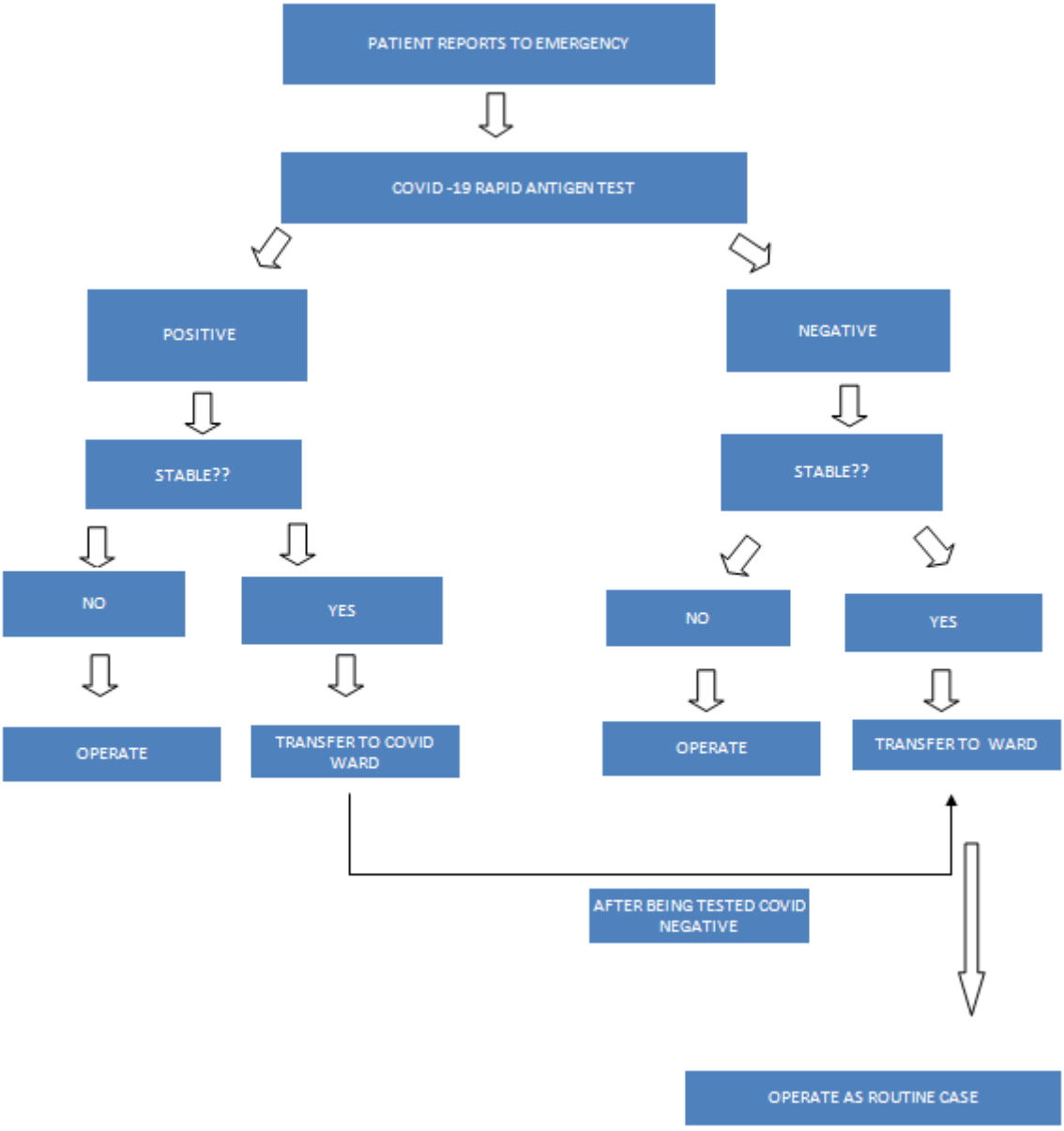
- **How Patients were attended?**

Apart from mask, hand sanitizer and a disposable glove box was available at emergency for all staffs. In case of trauma, it was not possible to wear a mask for the patient in all cases, it was at least ensured that attendants used a mask**.** History of COVID-19 like symptoms and any history of contact were obtained both from patient and attendant and a COVID -19 Rapid Antigen Test was performed at the entrance itself . If there were any positive history or positive reports then both patient and attendants were isolated and extra precautions were taken. All the patients were resuscitated and treated irrespective of COVID status.

- **How patients were treated ?**

After initial resuscitation and routine investigations the patients that needed urgent surgery were operated as early as possible while stable patients were transferred from emergency to wards of respective units. Patients were asked to avoid unnecessary gatherings and other safety precautions like wearing masks. It was taken care that the patients were allotted beds with proper distancing. The health care workers like Doctors and nurses wore faceshield and N95 masks during daily rounds and while administering medicines. Patients were given investigation slip which they had to take to MICROBIOLOGY DEPARTMENT and from there a staff would come and collect samples for COVID-19 RTPCR. They had to collect the reports after 3-4 days. If positive they were sent to isolation wards and those with negative reports were planned for conservative management or operation as the case may be. After being tested negative they were transferred back to wards of respective unit. Operative procedures were same as before.

The patients were treated according to this protocol.



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