

Orthopaedic Practices In Post Covid Era

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Today, life of every person in this world can be divided into, BC and AC i.e. before corona and after corona. This is the amount of impact the novel corona virus has made, not only in India, but globally. Reasons are many. The novel corona virus is highly contagious, virulent and lethal especially in high risk groups. Since there is no treatment or vaccine available till date, prevention of spread of infection remains the main stay of treatment. This can be accomplished by stopping the spread of infection from the source via droplets or aerosols, which can be done by covering mouth and nose, social distancing, frequent hand washing and regularly disinfecting surfaces.

We the Orthopaedic surgeons working as health workers, due to nature of our work are more susceptible and vulnerable. Furthermore, Orthopaedic surgeries are aerosol generating procedures, which make them further more susceptible to infection. Our practise is further complicated by illiterate and reckless patients, untrained and irresponsible staff, deficient, shortage and unavailability of quality control equipment's, increased financial burden and daily changing irrational government policies. We have already seen our colleagues getting infected and even some have lost their life. Hence, for protecting ourselves, family members and our patients, we need to evolve, develop strategies and modifications, in our life as well as in orthopaedic practises so as to prepare and prevent rather than repair and rent the mis-happening. Further, we do not know as yet what complications and physiological responses will be encountered in post COVID-19 scenario. Hence with minimal current literature available, a balanced, pragmatic approach should be undertaken.

Various papers and articles have suggested guidelines, modifications and standard operative procedures to deal with pandemic situation. Planning is the key factor, in addition to the guidelines and standard

operative procedures (SOP) as given by health care organisations. We as Orthopaedicians, also need to plan and modify our practices at each level relating to OPD, admission and surgeries, following all the standard precautions at all the times.

Patients visit in OPD or hospitals, should be minimized by favouring telemedicine or emails if possible, and favouring consultation by prior appointment only. Try to make definitive diagnosis and final treatment decision at first consultation only. Patient prioritisation in favour of non-operative strategies be emphasized. Referrals and transfers for investigation and radiology especially multiple times should be minimized and must outweigh the potential benefit of intervention, particularly for patients in vulnerable groups. Alternative resources such as written and web-based information should be used maximally.

Guard outside the clinic or hospital, can be trained to screen and isolate the suspected patients by taking fever history or by use of thermal screening. In OPD, clinicians should preferably use eye protection shield (face-mask or goggles) and N95 mask which can be re-used again after 5 days of incubation, whereas use of triple layer mask is sufficient for orthopaedic patients attending OPD. Mask dispensers can be installed in OPD and hospitals, so that the no touch mask can be prescribed to the patients coming without mask. The waiting room should be modified to have adequate room ventilation, so that there is at least 1meter distance between the patients allowing limited and restricted patient movement. The risk of infection, in healthcare workers can minimized by use of Personal protective equipment (PPE), which should be used correctly and safely even while donning and doffing. If possible, staff and helpers should work in rota's so that all are not exposed and you can have a reserve team if needed. In hospitals, surgical workforces are likely to be further depleted, as they might be

working in rota in half strength and rest might be reserved, quarantined or isolated, hence in these times, sub-specialty services may be difficult to run. These healthcare workers should be educated, aware and trained so that they change their behaviour in favour of maintaining social distancing, following standard precautions, frequent hand hygiene, refraining touching their eyes, nose, and mouth with potentially contaminated gloved or un-gloved hands, cleaning and disinfection of equipment and environment. If possible, use disposable equipment, if not possible then frequent cleaning and disinfection between each patient, be done. Avoid touching or frequently sanitize contaminated environmental surfaces e.g. door handles and light switches. Television, warnings, banners, disclosures and posters should be installed in OPD's with instruction to cover nose and mouth, maintaining social distancing and information and other preventive measures which can create awareness among people. Best practices for safely managing health care waste should be followed. Thorough cleaning and disinfection prior, between and after the use of OPD's as well as the operating theatre facilities should be re-enforced.

Dislocations, minor injuries, stab and penetrating non-contaminated wound without neurovascular deficit and minor to moderate abscess can be treated in the emergency department itself without admission. Most paediatric injuries, upper limb fractures and stable lower limb fractures have high rates of union and can be managed non-operatively, recognising that some patients may require late reconstruction. Delayed primary fixation of up to three months following injury may be acceptable if predictable favourable outcomes in delayed surgeries are weighed against the risks of surgeries. Patients with poly-trauma, pelvic, acetabular and hip fractures with major haemorrhage, open fractures, compartment syndrome and exsanguinating injury all require emergent resuscitation and management. Only absolute indication should be taken for surgery, like limb or lifesaving surgery, septic arthritis, prosthetic joint infection, amputations and re-implantation, crush injuries, cauda-equina syndrome,

abscess and infections. Joint replacement and ligament reconstruction can be done at a later stage. Plan and facilitate the surgery such that multiple visits of patient to the OT and admission can be avoided. Re-surgery like, flaps, bone grafting, soft tissue reconstruction, skin grafting and amputations can be avoided by proper planning. Non-union, malunion or elective orthopaedic and spinal surgery should be deferred. Emphasize on reducing hospital admission and minimising length of stay by encouraging early discharge or day care surgery, if possible.

If surgery is planned, then patients as well as the staff both need to be tested prior, for COVID-19. Isolation prior to surgery will help to reduce transmission further. Surgeries should be planned only when appropriate supportive equipment e.g. ventilators, PPE and intensive care unit beds for post-operative care following surgery are available. Since Orthopaedic surgeries are aerosol-generating procedures use PPE, including gloves, long-sleeved gowns, balaclava, eye protection or face shield and powered air purifier respiratory (PARP) are recommended for all healthcare workers in OT. If PARP is not available then, N95 with goggles and balaclava with additional face shield covering skin to maximum can reduce infection risk. Use of laminar flow, positive pressure, space suits, pulse lavage or powered tools, drills, saw, reamers, suction irrigation reaming and other aerosol generating equipment's etc is not recommended. Shifting to un-reamed intramedullary nails, hand reamers and hand drills can be helpful. Surgery should be preferentially being done in adequately ventilated room, with negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second in facilities with natural ventilation. Surgical theatre capacity is likely to be working with decreased strength, as they are likely to be redeployed to support non-surgical specialties, still then, unnecessary individuals in the room should be avoided. Use of suction with electro-cautery for smoke evacuation is recommended. Use of absorbable sutures, clear visible dressing and removable slabs or splits can reduce patient revisit for suture removal, dressings or cast

removal to hospital or clinic and prevent exposure. After surgery, proper donning off of the PPE kit is equally important as proper donning of kit to prevent infection, which needs to be practiced. Post-operative follow-up, dressing, antibiotics should be managed on telemedicine or remote consultations (e.g. telephone or video consultation), so as to avoid their hospital re-visit and face-to-face interaction. Appropriate arrangements to evaluate common post-operative complications at one stop visits be done. Enhanced recovery programmes, targeted video or home based rehabilitation will help in safe and early rehabilitation.

Ours is a developing country with limitations and hence we need to use resources judiciously. Proper allocation and optimisation of resources is necessary. One advantage in this time is Ayushman Bharat Yojna, which is world's largest health insurance scheme fully financed by the government of India, covering 107.4 million poor and vulnerable entitled families for health care hospitalization across public and private empanelled hospitals and involving more than 101 orthopaedic procedures and 12 polytrauma procedures enrolled in this scheme. Testing and treatment

of COVID-19 is available for free under this Ayushman Bharat Yojna (scheme).

Rest, recuperation and psychological support is equally needed in addition, not only to the surgeon but all the team members. Hence, we Orthopaedic surgeons need to be flexible, dynamic, reactive and collaborative and show leadership in these testing times. Safety of the patients and the staff is foremost important hence conservative or minimal invasion methods with shorter hospital stay and short surgical times should be preferred. We should balance optimum treatment of a patient's condition against clinical safety and resources. The guidelines are not absolute and are continually evolving and updated; hence we need to be frequently in touch with new updated recommendations via web education and news along with feedback from our patients, till we can resume normalcy approved by the appropriate state health authorities. Possibly a second wave can occur so we must prepare ourselves by strictly following the policies of disinfection of surfaces, regular hand hygiene and social distancing in anticipation. We must seek this time as an experience and opportunity to focus on improving ourselves.

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