



KNOWLEDGE, AWARENESS AND ATTITUDE OF ORAL AND MAXILLOFACIAL SURGEONS TOWARDS PATIENT MANAGEMENT DURING THE COVID-19 PANDEMIC- A QUESTIONNAIRE STUDY

Maxillofacial Surgery

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ABSTRACT

Aim: To assess the knowledge, awareness and attitude of Oral and Maxillofacial surgeons towards patient management during the COVID-19 pandemic.

Design: To address the COVID-19 challenge adequately, modifications for a new normal practice will have to be adapted in managing patients at the maxillofacial unit.

Methods And Material: 100 practicing Maxillofacial surgeons of Tamil Nadu were recruited in the study during last week of May 2020. A 20 item questionnaire assessing the knowledge on SARS CoV-2 infection, necessary modifications and precautions for a safer practice was sent through mail and responses were obtained in a day's time.

Statistical Analysis: The data was analysed with SPSS (version v.21.0) for Microsoft.

Results: More than 80% of the participants were aware of the protective precautionary measures and a proportion of them were unsure about the added protective adaptations like using a PPE, incorporation of tele-consulting services or in patient isolation and management that needs adequate light thrown on it.

Conclusions: In such a clouded situation with this virus, it is required of every maxillofacial surgeon to take wise call in their practice with prevention of virus transmission being the primary goal to keep the patient and the healthcare team out of harm's way.

KEYWORDS

SARS CoV-2, COVID 19, Oral Surgery, Maxillofacial Surgery, Pandemic, Triage

INTRODUCTION:

The maxillofacial surgeons, in view of their boundary of service are one among the endangered community of this COVID-19 viral catastrophe. Their role in preventing disease transmission is significant especially in a second highly populous nation with zooming cases every hour. Unlike the previous pandemics our generation combated, this one is highly contagious, affecting all age groups, diverse in its presentation, exorbitant infectivity with soaring mortality. It is essential to revisit our practice system and restructure it with extra-cautions, infection preventing regulations that would render a safer service. This study intends to assess how aware the present day maxillofacial surgeons are to adapt to this pandemic and adopt a secure work environment because failing to adapt to the new-normal situation could potentially pose an unseen threat to the community.

Subjects And Methods:

A questionnaire based prospective analysis was done in the last week of May 2020, on 100 practicing oral and maxillofacial surgeons of different parts of Tamil Nadu. 20 questions pertaining to the knowledge on COVID-19 disease, awareness about appropriate precautions to be taken to prevent contraction of the infection, judgement and attitude towards the clinical practice and patient management (Table 1) were structured and sent by mail. After a day data from the response were subjected to statistical analysis.

Statistical Analysis:

All the data obtained were entered in Microsoft excel sheet and analysed using the software SPSS (version v.21.0). Frequency distribution table was drawn for all the questions.

RESULTS:

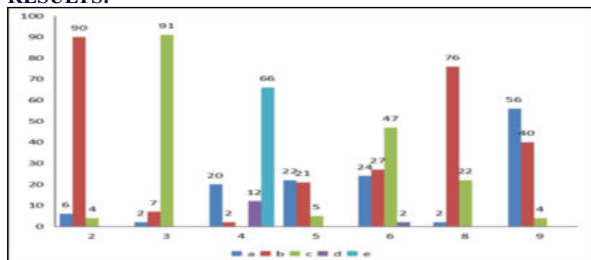


Figure 1: Results Of The Section A: Knowledge On The Infection And

Maxillofacial Patient Selection

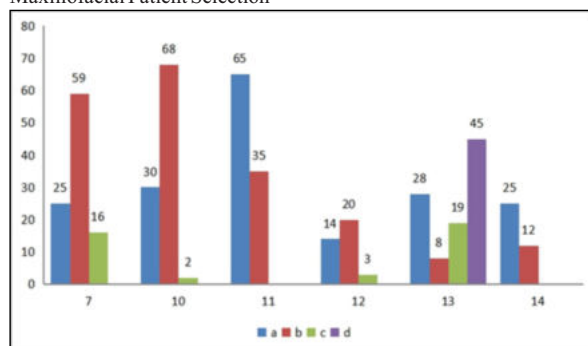


Figure 2: Results Pertaining Section B: Precautionary Protective Measures To Be Taken In A Maxillofacial Practice.

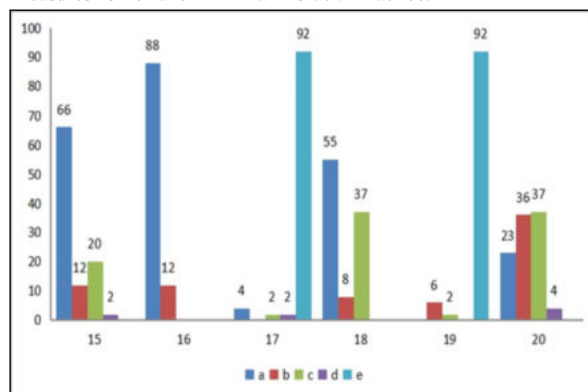


Figure 3: Results of section C: Maxillofacial Emergency Management

Out of the 100 participants, 62 of them had a professional experience of less than 5 years, while 23 had 5-10 years and 15 above 10 years. The assessment of responses was broadly divided into three components: a) knowledge on COVID-19 disease and patient evaluation (Fig 1), b) protective measures that should be incorporated in everyday practice (Fig-2), c) Maxillofacial emergency and management (Fig 3).

DISCUSSION:

Since the reporting of first case of Corona Virus Disease-2019(COVID-19) pandemic on 30 January 2020, India is seeing a rapidly escalating number of infected cases despite the effective infection control measures taken by government. While the government combats to contain the spread of infection and healthcare system tirelessly works towards managing this grave situation, a pressure exists on continuing the emergency and routine medical services for the 1.3 billion people of the country. With a high rate of infectivity, this virus puts every person at the defence a potential candidate for getting infected. The viral transmission is through the respiratory droplets and the rate of transmission from the affected to the other individuals depends on the varied mode of transmission from the former. Since the upper respiratory tract harbours high viral loads, the healthcare workers working in and around this region are at a higher risk of contracting the infection. This makes the oral and maxillofacial surgeons a prime vulnerable group and it is required of them to restructure the practice protocols to avoid unnecessary cross-infection as well as provide efficient patient services. Thus it is essential for every maxillofacial surgeon to have basic knowledge of the ongoing pandemic along with the precautionary measures to be incorporated in everyday practice.

Though the spread of infection is through the respiratory droplets and contact transfer, when it comes to procedures of the oral and maxillofacial region highest risk of transmission is found to be associated with the aerosols generating procedures (as cited 90% of participants) like airway suctioning, abscess drainage, use of high speed handpieces, tracheostomy and in such cases virus transmission is plausible as it remains viable and infectious in aerosols for hours. Salivary and blood contaminated objects (10%) acts as fomites and contributes to significant proportion of untraceable viral transfer. In such a situation, as a general precaution it is safe to have a well-ventilated working area and minimal number of staffs, well disinfected after every procedure and using prompt protective measures¹.

While the speciality encompasses wide variety of patient complaints from a mobile tooth requiring extraction to worst perceived pain of life threatening conditions like trauma, tumor or infection, careful selection of the treatment population is very important. Maxillofacial triage could help in prioritizing procedures wherein most surgeons are clear about the elective and emergency procedures but a faint line between the urgent and moderate procedures might confuse them in deciding. In our study, while 18% of the participant surgeons preferred taking up only the emergency services (deep head and neck infections with airway obstruction or haemorrhagic states), 31% had additional urgent group with the emergency (Infections without airway obstruction, malignancies, open comminuted fractures, orbital decompression, tracheostomy), 8% advocated treating the first two and also the intermediate procedures (benign tumors, TMJ surgeries, large cystic lesions, closed fractures, craniofacial malformations with sleep apnoea) and finally 43% suggested to treat any patient if tested negative for the virus and with proper PPE. Though such a patient will be of no threat but will seek a treatment, one should be aware of the shortage of resources during this situation and focus of the healthcare on critically ill patients of COVID-19. When an elective case reports 57% of the lot preferred managing initially with medications and upon any secondary flare ups or complications they moved in for surgical management as a means of resource conservation and reducing the risk of transmission in cases where medications can relieve the patient of the symptoms, 22% deferred the treatment until active spread of infection has been contained in their zone as a means of reducing the viral transmission while 21% suggests taking up the case with proper PPE in view of avoiding a secondary complication and providing a comprehensive patient care. Zimmerman et al suggests to collaborate services with general dentistry and otolaryngology wherever possible so as to focus on exclusive maxillofacial care to the patients. Also strategies have to be developed that facilitate the return to a situation in which the full scope of procedures is provided again, once the peak of the COVID-19 pandemic has been overcome. SARS-CoV-2 might accompany healthcare over a longer period. However, from a certain point of time onward, COVID-19 should no longer hamper comprehensive patient treatment, including elective surgery².

When patients reports to the maxillofacial clinic, it is imperative to assess the risk of potentially contracting the infection from them. A variety of measures can be taken up for a preliminary assessment in the form a questionnaire that includes complete epidemiological data,

(details of the patient, travel history, any contact history etc., associated symptoms) or using a non contact thermometer or infrared thermal scanner. In our study 76% of the participants preferred using a self reporting questionnaire with epidemiological and current status of the patient before examination which can give a direct lead to identifying a positive case and 22% preferred using a non-contact thermometer or infrared scanner as dictated by the World Health Organization, that would give a present day status of the patient and avoid any bias of information in case of a questionnaire. When the examination necessitates a surgical procedure it is absolutely essential to rule out the status of infection of the patient to ensure safety of the healthcare personal as well as the patient. While 40% of the study population suggests to obtain a laboratory test for COVID only if symptomatic for three days prior to reporting which is in accordance with the Indian Council of Medical Research guidelines for testing, 56% suggests to consider all the patients to be infected and obtain a confirmatory laboratory test to avoid risk of transmission from an high risk asymptomatic patient or a carrier. This is supported by Zimmerman et al and they also highlight the adoption of tele-health approaches in patient management protocol. However in a diverse developing country like India the effectiveness of tele-consulting in maxillofacial practice is questionable and influenced by various factors like the region, availability of resources, different sectors of patients and their complaints. Result from our study shows that 24% considering it to be very useful, 27% are open for a trial and 47% find it to be of limited use only. With the rising number of infected population the proportion of patients recovered from COVID seeking maxillofacial services will also increase in the forthcoming days. The procedures are safe on them after a negative confirmatory test (91% were aware in our study).

Though the demands on the healthcare personnel are high, the importance of personal protection cant be underestimated. The surgeons are directed to use Personal Protective Equipment to safeguard themselves by reducing the exposure during any procedure. The PPE encloses goggles, face-shield, mask, gloves, coverall/gowns (with or without aprons)³, head cover and shoe cover and the standard protocol for donning and doffing with proper disposal has to instilled by every surgeon. In our study, 65% of them said to be aware of the standard protocol of donning and doffing the PPE while 35% were unaware but open to get trained before the use. While 63% of them were correct about the donning of PPE, less than 50% were correct in the doffing. Cluster of cases of SARS among health care worker due to lack of knowledge in the sequence of steps has been previously reported in 2006 pandemic of SARS CoV-1³. This requires reinforcement of the techniques and the rationale of suggesting a protocol to avoid inadvertent contracting of infection. Also 30% of the study population who use PPE during their practice found it very difficult and uncomfortable while 68% reported it to difficult but could be managed for few hours. Because of the frequent exposure to saliva, sputum, and other body fluids, they are exposed to a high risk of viral transmission¹. Even during a clinical examination it is highly recommended to use surgical mask, the use of goggles and gloves. The patients may be provided with antiseptic mouth rinses composed of hydrogen peroxide and povidone iodine, chlorhexidine to reduce the viral load in the oral cavity. Studies suggest that hydrogen peroxide and povidone iodine mouthrinses to have superior virucidal efficacy⁴ when compared to chlorhexidine with a spectrum encompassing SARS-CoV, MERS-CoV, influenza virus A (H1N1) and rotavirus after 15 seconds of exposure⁵. 59% in our study opted for using hydrogen peroxide-povidone iodine mouthrinses. The world health organization has declared that hand hygiene is extremely important to prevent the spread of the COVID19 virus. It also interrupts transmission of other viruses and bacteria causing common colds, flu and pneumonia, thus reducing the general burden of disease. Use of alcohol based hand-rubs or antimicrobial soaps are recommended as a measure of hand hygiene and 63% of the response favours using both. Hand hygiene should be performed immediately after removing any kind of personal protective equipment. It must be ensured that cleaning and disinfection procedures are followed consistently and correctly in the examination room after each patient⁶.

Though it is essential to rule out the infection status of a patient before any procedure with a laboratory confirmatory test for the novel corona virus, managing a case at the emergency department often has to be done without delay. To ensure the safety of the surgeon attending, it is necessary to obtain the laboratory investigation but at the same time to address the emergency a preliminary examination to rule out life

threatening conditions, with a proper protection of the attending can be carried out so that a definitive clinical examination or any procedure can be done after obtaining the lab results. The same was claimed by 88% of our study population. Also 66% of them supported treating a post-trauma maxillofacial fracture case as conservatively as possible, while 20% of them prefer to treat the case with ORIF under general anaesthesia with PPE and 12% of them prefer treating the cases with ORIF under local anaesthesia wherever applicable. Whenever a patient is admitted, until a negative lab test result is obtained, isolation from the other patients must be ensured. The patient must be provided with a mask and emphasised about hand hygiene measures to prevent viral transmission. In the ward, infected and non-infected patients should be separated. Temperature monitoring should be conducted twice a day for all patients. Only after testing for the virus the patient should be taken up for surgery. In case of emergency, consider the patient to be positively infected and take ensure adequate safety measures. In the operating room it is essential to follow maximum precautionary protection possible since it potentiates highest risk of viral transmission. This includes use of negative pressure with the aim to reduce dissemination of the virus, a proper PPE, minimal staff during intubation, minimal assistants during the procedure, highly skilled team to reduce the operating time (as claimed by 92% of the participants). Also wherever applicable 55% of them suggest going in for an extraoral approach than intraoral approach to minimize salivary contamination. Reducing aerosol formation to a minimum should be a priority. Excessive water cooling for handpieces, saws, ultrasonic devices, and piezoelectric devices should be avoided. Instead of

drilling screw holes, self-drilling screws should be used. The use of osteotomes should be considered wherever possible. Electric cautery should be avoided or performed with the lowest power possible and a smoke evacuation system. A time interval of 15 min must pass after the patient has left the operating room before cleaning and disinfection can start. Also, waste management must follow well-defined rules⁷. A postoperative case should be isolated and monitored carefully until the patient stabilizes. While about half of the surgeons enrolled in the study prefer discharging the patients as soon as possible the other half prefers isolated care by professionals with no contact policy and communicating through electronic devices until discharged. With such a practice changing situation it is mandatory to adapt and readapt the practice guidelines and recommendations as each one of it would address only the snapshot of the situation. A change in orientation of Oral and Maxillofacial surgery from providing the full scope of the specialty with a high percentage of elective surgery to reducing the service to urgent and emergency surgery until a structured comprehensive management protocol is essential.

CONCLUSION:

Efficient strategies need to be brought in the Oral and Maxillofacial surgical practice to successfully render patient services during the SARS CoV- 19 viral pandemic with no nosocomial virus transmission. This requires sound knowledge on the disease process, epidemiology, changing scenario of the same, timely updating of protocols and necessary practice modifications has to be done accordingly until the disease has been knocked out successfully.

Table 1 : 20 Item Questionnaire With The Response Choices

SNO	QUESTIONS	A	B	C	D	E
1)	Years of experience	less than 5	5-10 years	more than 10 years		
2)	Highest risk of transmission of SARS CoV-2 is associated with?	Salivary contamination	Blood during the procedure	Aerosols generated from high speed handpiece	Abscess drainage procedures	
3)	When can the COVID -19 recovered patients suitable to receive oral surgical procedure	Immediately after isolation	First 24 hrs after isolation	At least 72 hrs after isolation	After one molecular test negative	
4)	Maxillofacial triage categories that you prefer treating during this pandemic	Emergency	Emergency, Urgent	Emergency, Urgent, Intermediate	Emergency/Urgent/Intermediate/Low	Any categories if tested negative/with PPE
5)	Opinion regarding treating an elective maxillofacial outpatient reporting for minor oral surgical procedure?	Defer the treatment until the pandemic settles in your region	Use PPE and provide appropriate treatment	Initially opt for medical management and go for surgical procedure in case of emergency	Refer the patient to a government hospital	
6)	What is your opinion about teleconsulting in maxillofacial surgical practice during this pandemic?	Very useful	Can be tried	Limited use only	Not useful at all	
7)	Precautionary disinfection measures that you would choose before a clinical intraoral examination of a patient	chlorhexidine mouthwash	hydrogen peroxide and povidine iodine	Not necessary during examination, used in case of any procedure done		
8)	How do you assess a patient as a potential risk of transmitting the virus?	History (family history/ medical history/ travel history/professional history)	Use a questionnaire including the history, any symptoms of COVID 19 infection, Suspected contact spread etc	Use a non contact thermometer or infra red scanner		
9)	Is it necessary to obtain a COVID testing for a patient before a procedure as a measure of reducing the risk of contracting the infection	Consider all patients as infected and obtain a COVID test prior to the procedure	Ask for the test if the patient has symptoms of COVID 19 for more than three days	Not necessary if procedure done with PPE		
10)	How comfortable is to do a surgical procedure with a Personal Protective Equipment	Very difficult and uncomfortable	Difficult but can be managed for few hours	Not so difficult and can manage until a day	No difficulty and comfortable	
11)	Are you aware of the steps to put on, remove and dispose a PPE?	yes	No, but can get help when needed			
12)	What is the correct sequence to wear a PPE	mask- face shield- gown- glove	mask- gown- faceshield- glove	gown-faceshield-mask-gloves	gown- mask- face shield -	
13)	What is the correct sequence to remove a PPE	Gown-Face shield-mask-gloves	Gown-gloves-face shield-mask	Gloves-Face shield-Gown-mask	Gloves-gown-face shield-	
14)	What hand hygiene measure do you prefer?	Alcohol based hand rub	Soap and water	Both		
15)	How do you prefer managing a post trauma maxillofacial fracture case during this pandemic?	As conservative as possible	ORIF under LA in maximum possible cases	ORIF under GA with PPE	Ref to a Government centre	

16)	How do you prefer managing an emergency maxillofacial case at casualty ?	Do preliminary examination with maximum protection available and defer until testing for COVID 19 done	Do testing for COVID 19 and then proceed with examination			
17)	Precautions to be taken in an operating room	PPE including FFP respirator with valve and faceshield	Minimal staffs in the OR	Negative pressure established in OR	Minimal presence during intubation	All of the above
18)	Preferred approach during the procedure?	Extraoral approach	Intraoral approach	Both		
19)	Measures to reduce aerosol formation in OR	Avoiding excess water cooling of handpieces	Self-drilling screws preferably	Use of osteotomes wherever needed	Avoiding cautery	All of the
20)	How do you insist postsurgical care of a patient treated due to a maxillofacial emergency	Provide with isolated care with minimal attenders	Discharge the patient as soon as possible after he stabilizes postsurgically	Isolated care by professionals with no contact policy with outsiders and communicate through electronic modes	Distancing the patient from others in the ward	

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