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Management of dental emergencies at tertiary dental care center, Rohtak during COVID-19 pandemic

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Abstract

Aim: To assess the pattern of emergency dental services provided at the tertiary dental care center, Rohtak during COVID-19 pandemic.

Method: Retrospective data analysis was done from the Out-Patient Data registers of the Department treating emergency dental services during COVID-19 pandemic i.e. Department of Oral Medicine and Radiology, Oral and Maxillofacial Surgery, Pedodontics and Conservative and Endodontics from March 2020 till October 2020. Data was entered into Microsoft Excel.

Results: It was retrieved that maximum patients during the study period seek treatment due to pulpal and periapical pain (43.53%), periodontal pain (7.5%), infected root stumps and mobile teeth (7.18%). Major emergency services were provided in form of extractions (29%), RCTs (21%), restorations (10%), and inter-maxillary fixations (4.2%).

Conclusion: The study concludes that most patients in dental emergency were provided with adequate treatment in accordance with the COVID-19 guidelines. The actions now should aim towards assessing the barriers faced by people on account of not receiving dental care and for the consequences that may arise in the light of rapid increase of infection or subsequent wave of reinfection.

Keywords: COVID-19, SARS-CoV 2, emergency dental services

Introduction

COVID-19/ SARS-CoV 2 emerged as public health havoc in December 2019, having its emergence in Wuhan City of Hubei province of China. It has affected 200 countries globally. COVID-19 is caused by Coronaviruses which belong to the Coronaviridae family [1]. World Health Organization (WHO) declared CoVID-19 a global pandemic on the 11th March 2020. COVID-19 had hit India quite severely. The first case was reported in the state of Kerala in January 2020. As per 7 May 2021, 2.19 crore population got infected and amongst which 2.38 lakhs died [2].

The impact of the disease is far-reaching, with government implementation of following of standard protocols, social distancing to complete lockdown around the globe. The symptoms of COVID-19 resemble that of ordinary flu in many but in severe cases, range to that of severe acute respiratory failure with patient in need of ventilation system which might result in death. The COVID-19 infection can spread via small droplets and aerosols containing the virus, from an infected person's nose and mouth as they breathe, cough, sneeze, sing, or speak. Other people are infected if the virus gets into their mouth, nose or eyes [3]. The person can also get infected through contact transmission i.e. when someone comes into direct contact with an infected person or touches a surface that has been contaminated [4]. Lancet recently publishes the report lead by a group of 6 experts which states the scientific evidence in support of airborne transmission of SARS CoV-2 [5].

Fallahi *et al* [6] reported that the highest infection potential among all health care professionals was for dentists, dental assistants, and dental hygienists, as they are in close contact with patients, and exposed to spatter of patient's secretions, saliva, and aerosol. Aerosol-generating procedures (AGPs) are widely performed worldwide in oral health care settings (high-speed

air-rotors, ultrasonic scalers, three-way syringes, intra-oral periapical radiographs or coughing by infected patients without maintaining respiratory hygiene protocols) [7]. This poses the dental clinic to serve as a potent epicenter for further transmitting the disease to the dentists as well other patients visiting dental clinic. Due to the imposed lockdown in the country from March 25, 2020; all the services came to halt except the emergency services. The patients were triaged before entering the clinic and only patients in urgency were provided treatments. DCI on 7 May 2020 gave regulations for categorizing patients into emergency and urgency [8]. Dental treatment was only provided in these cases and all other elective treatments were deferred. The guidelines stipulate standard operating procedures for protection of dental healthcare personnel, their families, contacts, and their patients from the transmission of the virus. While it is important to provide treatment for patients with acute dental infections, the primary goal has been to prevent transmission of infection among patients as well as dental healthcare personnel [9].

Considering the risk of transmission of SARS-CoV-2 through dental treatment procedures, only emergency dental care services were provided in the tertiary dental care center, Rohtak with adoption of standard protocols given by the Ministry of Health, Government of India, Dental Council of India as well as guidelines from Government of Haryana and Pt. BD Sharma University of Health Sciences during COVID pandemic times.

The study was conducted in the Department of Public Health Dentistry to assess the emergencies for which the patients were seeking emergency dental services during COVID times and the pattern of emergency dental services provided in the Department of Oral and Maxillofacial Surgery, Department of Conservative and Endodontic, and Department of Pedodontic.

Material and Methodology

A Retrospective Data Analysis, starting from March 2020 to October 2020 was conducted in the Department of Public Health Dentistry (PHD) in the tertiary dental care center, Rohtak. The data extraction was done only after permission was sought from the concerned authorities i.e. Head of the Department of the respective departments prior to the study. All the patients reporting from March 2020 to October 2020 were enrolled in the study. This includes individuals who reported to Department of Oral Medicine and Radiology (OMR) with acute pain, swelling, trauma or any other dental emergency and individuals who accessed treatment from the Departments of Oral and Maxillofacial Surgery (OS), Pedodontics and Conservative and Endodontics. Retrospective data mining was done from the Out-Patient Data and treatment registers of the Department of Oral Medicine and Radiology, Oral and Maxillofacial Surgery, Pedodontic and Endodontic. All the patients reporting in the department for various complain and seeking emergency dental treatment were recorded. The data was entered into Microsoft Excel spreadsheets and were plotted in a tabular form to assess all the major complains for which patient seeks emergency care and the emergency dental treatment provided to them during the COVID-19 times. Results were presented in form of text, tables and figures.

Results

A total of 6,166 patients reported in Department of Oral Medicine and Radiology from May 2020 to October 2020; 52.8% (3259) were males and 47.2% (2907) were females (Table 1 and figure 1). The out-patient services were completely put on hold in the month of April 2020. A reduction of 83% has been observed in the out-patient number from March 2020 to May 2020.

Table 1: Patient demographics and outcomes for the attendees from April 2020 to October 2020

| Patient demographic | | N* (%) | |
|---|-----------------------------------|---|------------------------|
| | | Male | Female |
| | | 3259 (52.8) | |
| | | 2907 (47.2) | |
| | | Total OPD | Patient Treated N *(%) |
| Patient-reported in various Departments from April 2020- October 2020 | | Oral Medicine and Radiology | - |
| | | Oral and Maxillofacial surgery | 1455 (100) |
| | | Pedodontics | 542 (48.1) |
| | | Endodontics | 1364 (29.7) |
| Diagnosis | | Pulpal Pain | 2398 (38.8) |
| | | Periodontal pain | 463 (7.5) |
| | | Root stumps and mobile teeth | 443 (7.18) |
| | | Trigeminal Neuralgia/ MPDS/ Neuropathic pain/ TMJ disorders | 386 (6.2) |
| | | Periapical pain | 292 (4.73) |
| | | Abscess/ orofacial swelling | 207 (3.4) |
| | | Oral mucosal lesion/ premalignancy/malignant lesion | 213 (3.4) |
| | | Trauma/ Fracture | 142(2.3) |
| Management | Aerosol Generating Procedures | Surgical Extractions | 98 (3%) |
| | | RCTs | 693 (21%) |
| | | Restorations | 327 (10%) |
| | Non-Aerosol Generating Procedures | Simple Extractions | 970 (29%) |
| | | Sutures | 123 (3.7%) |
| | | Inermaxillary fixations | 139 (4.2%) |
| | | Others | 959 (29%) |

*N= Number of patients.

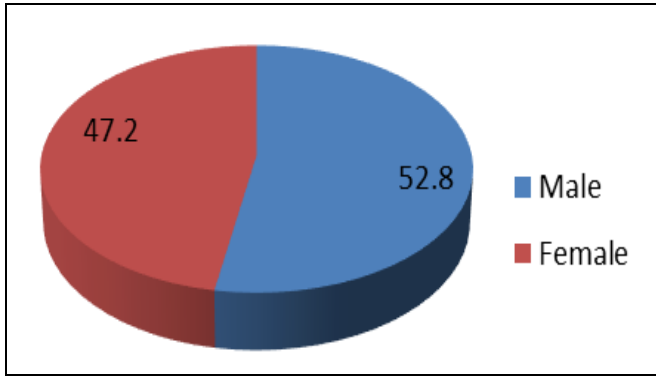


Fig 1: Gender-wise distribution of patient reported in Department of Oral Medicine and Radiology from April 2020- October 2020

Most people who seek treatment during the frightening pandemic times were mostly in pain. Figure 2 depicts that most patients consulted due to pulpal pain (38.8%), followed by periodontal pain (7.5%). Another major reason to visit was infected root stumps and mobile teeth (6.2%). Three hundred and eighty-six patients visited the Department of Oral Medicine with the problem of Trigeminal Neuralgia/ Neuropathic Pain/ MPDS/ TMJ disorders. The patients reporting due to periapical pain constitutes 4.73% of the total patients. An equal proportion of patient reported with complain of abscess/ oro-facial swelling and Oral mucosal lesion/ premalignancy/ malignant lesion (3.4%). The Department of Oral and Maxillofacial Surgery encountered 142 (2.3%) trauma cases.

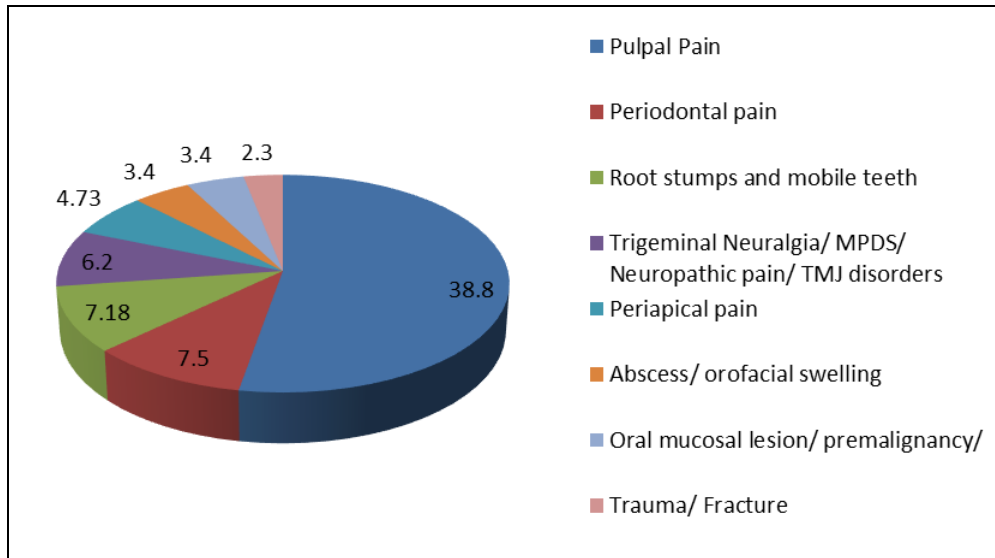


Fig 2: Diagnosis for which patients seek consultation from May 2020- October 2020

Provision of emergency dental treatment was continued in April 2020 in the Departments of Oral and Maxillofacial Surgery, Pedodontics and Endodontics. Table 1 depicts that majority of the patients got their teeth extracted (29%)

followed by root canal treatments (21%). Figure 3 depicts that importance was given to prevent as far as possible the generation of aerosols and hence 66% of the procedures performed were non-AGP.

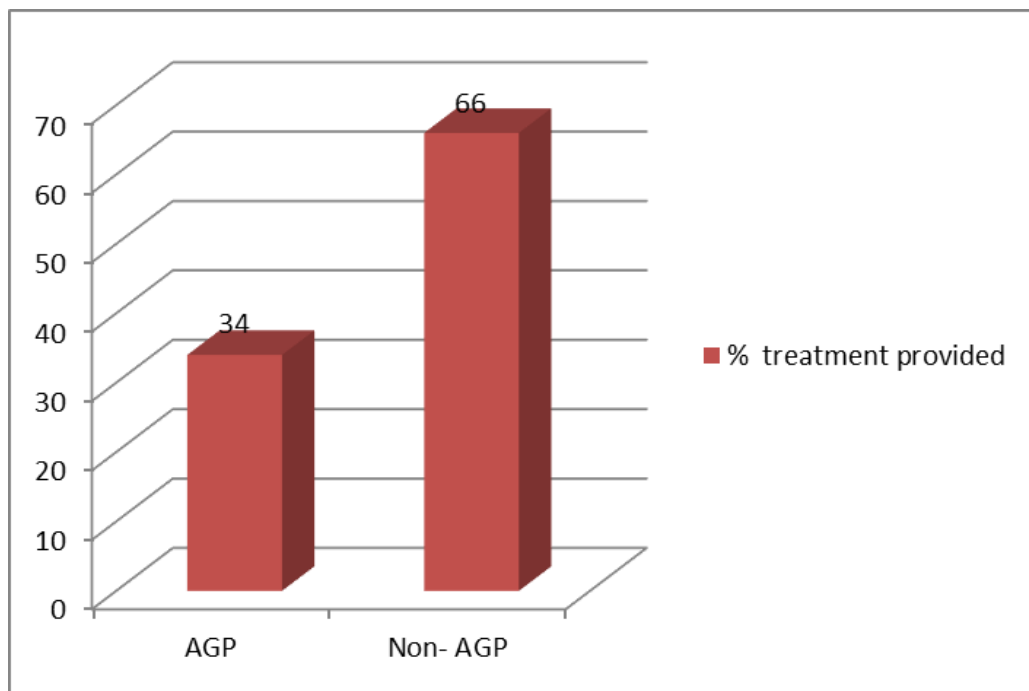


Fig 3: Patients underwent Aerosol Generating Procedures (AGP)/ Non- Aerosol Generating Procedures (Non-AGP)

Discussion

The study was undertaken in order to assess the conditions for which patients seek dental care even in the frightful pandemic situation and to what extent a public tertiary dental care center, Rohtak, Haryana was able to serve patients in accessing dental care in emergencies. After being declared as a global pandemic, COVID-19 took no time in prompt propagation across various nations of the globe and became an unprecedented challenge to public healthcare and government systems [10]. As of 5 April 2021, more than 131 million cases have been confirmed, with more than 2.85 million deaths attributed to COVID-19, making it one of the deadliest pandemics in history.

Dental procedures are considered as one of the high-risk procedures for cross-infection and transmission. Hence, dental offices may act as a hotspot for virus transmission, putting health professionals at high risk of SARS-CoV-2 infection and patients at risk of nosocomial infections.

Therefore, the Ministry of health and family welfare on 19th May 2020 issued a dental advisory for dental professionals [11]. The guidance also gathered a strong similar perceptiveness from the Dental Council of India and Indian Dental Association who recommended that these protocols must be exercised strictly. All routine and elective dental procedures were deferred until any new policy/guidelines are issued and only emergency services were permitted.

It was observed in the present study, that 6,166 patients reported in the total duration from April 2020 till October 2020; which is much higher number when compared to any previous study in the literature but it can be attributed to the time duration selected for the study. Other studies have a much less period. There was complete halt to Out-Patient services in April 2020. Out-patient services began in May, 2020. Approximately the same proportions of male and female reported in the OPD (52.8% v/s 47.2) which is in accordance with the study of Haquin Guo [12] *et al*, AM Kranz [13] *et al*, Pajpani *et al*. [14] and Kristian Blackhall [15] *et al*.

A decline of 83% in the OPD services has been observed in May 2020 when OPD services resumed since the lockdown was announced in the month of March 2020. This was much greater to those reported by Haquin [12] *et al* and Mehrotra *et al* [16].

The most common cause to seek emergency dental service in the present study is pulpal pain (38.8%), followed by periodontal pain (7.5%), root stump/ Mobile teeth (7.18%), trigeminal neuralgia or any other neuropathic pain or TMJ disorder (6.2%). The combined proportion of periapical and pulpal pathologies leading to pain are 43.5% which becomes the most common cause to seek emergency dental care. This is in line with the studies done by Haquin Guo *et al* [12] Sanford Grossmann *et al* [17] Ashish Shrestha *et al* [18] Dashrath Kafle *et al* [19] and Pajpani *et al* [14]. The proportions of patients seeking emergency dental care due to abscess/ swelling /space infection are 3.4% and those reporting due to trauma/ fracture are 2.3%. The observations in previous studies show a much higher range [12, 14, 15, 20].

Emergency services like extraction (29%) of the teeth causing pain, sutures/ intermaxillary fixations (7.9%) in case of orofacial trauma and pulpectomies (21%) were the main treatment provided in the Departments of Oral and Maxillofacial Surgery, Endodontic and Pedodontic. Most patients were managed alone in the Department of Oral Medicine and Radiology itself. After enquiring about the chief complaint they were managed using the '3A protocol' (advice, analgesia, antimicrobials) [21] The rest patients were

referred to the respective departments for provision of emergency services. Measures were undertaken to treat patients with procedures requiring minimum aerosols generation. The Aerosol Generating Procedures (AGP) performed were surgical extractions, emergency access openings and restorations which constituted about 33%. While on the other hand Non-Aerosol Generating Procedures (non-AGP) which constitutes about simple extractions, sutures and intermaxillary fixations formed the major part of the treatment (64%). A similar proportion was also observed in studies done by Sanford Grossmann and Pajpani *et al*. [14, 17].

COVID 19 has brought forth the issue of pandemic preparedness. The need of the hour is to strengthen the core capabilities along with the public health and clinical infrastructure of developing countries [22]. More research should be done to determine the effect of COVID-19 on dental service use, and potential scenarios should be well designed, according to the findings of this report. However, this study serves as a scaffold in devising and planning further studies. The current actions should concentrate on gathering more information and preparing for the implications that may occur as a result of a rapid increase in infection or eventual wave of reinfection by focusing on preparedness in delivering urgent dental care services.

Conclusion

The dental professionals will continue seeing a challengeable future ahead. The treatment will necessitate following strict protocols with the implementation of patient screenings, triaging, prioritizing cases, team rotations and robust standard infection control measures. These modifications can help expand access to emergency care, reduce patient exposure, and manage provider and supporting staff exposure. The most common reason for seeking emergency dental treatment in our study was due to pulpal and periapical pain followed by periodontal pain. Extraction of the involved teeth was the major treatment provided.

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