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RESEARCH ARTICLE

AWARENESS AMONGST DENTAL PRACTITIONERS REGARDING THE CHANGE IN INFECTION CONTROL PROTOCOLS DURING COVID-19 PANDEMIC

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Abstract

Background and Objectives: Dentists are at a higher risk of acquiring COVID-19 than the lay persons due to exposure of aerosols and saliva. Hence, Centre for Disease Control (CDC) has updated the protocols that need to be implemented during COVID-19 pandemic. The study aimed at evaluating the awareness among the dental practitioners regarding the interim changes in infection control protocols recommended by CDC during the pandemic and implementation of the same in the clinical practise.

Materials and Methodology: Four hundred general dental practitioners and specialists participated in the study(n=400). The study was conducted as an anonymous web-based survey and responding to the survey was considered implicit consent. The survey had 17 questions addressing the respondents' characteristics, awareness about the changes in protocol by CDC and implementation of the same in the waiting area, operatory and postoperative care respectively.

Results: The results of the study indicated that the awareness amongst the dental health care professionals both in general and specialised practise regarding the interim infection control protocols was relatively good. However, there were certain protocols that weren't implemented owing to some difficulties faced by the dentists in their clinical practise.

Interpretation and Conclusion: In spite of the relatively good knowledge regarding the interim infection control protocols, implementation of certain protocols was found to be lacking. Hence, the awareness regarding these guidelines must be increased through various continuing education programs and short-term courses on infection control and cross infection management during covid-19 pandemic.

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Introduction:-

On March 11, 2020, World Health Organisation (WHO) characterised COVID-19 as a pandemic.¹ The disease spreads primarily by human to human transmission through small droplets from the nose or mouth, of an infected COVID-19 person. Out of the infected individuals 2% of them are asymptomatic.²

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Dentists, apart from working very intimately with the patient are routinely exposed to saliva, aerosols and blood. All these factors put them at a higher risk of acquiring COVID-19 than the lay persons.^{2,3} As the incubation period of the virus is up to 14 days, they can inadvertently infect other patients as well resulting in a “bundle of infection”.² Hence, Centres for Disease Control and Prevention (CDC) has updated the protocols that need to be implemented in the operatory during COVID-19 pandemic.⁴

This study aimed at evaluating the awareness among the dental practitioners regarding the interim changes in infection control protocols by CDC during the pandemic and implementation of the same in the clinical practise.

Materials And Methodology:-

The study was conducted as an evaluative survey of private dental practices in the state of Karnataka, India. The recruitment email described the study as follows: “Awareness amongst dental practitioners regarding the change in infection control protocols during COVID-19 pandemic.”. A web-link to an anonymous web-based survey was included in this email. Responding to the survey was considered implicit consent. No follow-up emails were sent. A total of 400 general dental practitioners and specialists participated in the survey (n=400).

The survey had 4 parts and 17 questions. Part 1 consisted of questions on the respondents’ characteristics and general knowledge regarding the changes in the infection control protocols. Part 2, 3 and 4 addressed the respondents’ knowledge regarding the changes in protocol by CDC and implementation of the same in the waiting area, operatory and postoperative care respectively. A pilot study was conducted before finalising the study with 25 participants to vindicate the study.

The data recorded was downloaded and entered in excel spread sheet and analysed by statistical software (SPSS 12.0 for Windows, SPSSInc., Chicago, USA) for descriptive statistics.

Results:-

Table 1 shows the characteristics of the respondents participating in the study. Table 2 addressed the respondents’ awareness about the changed protocols. Table 3 illustrates the pre-appointment changes implemented in accordance with CDC protocols. Table 4, 5 and 6 arrays the assessment of changes implemented in the waiting area, operatory and the post-operative care respectively.

Table 1:- Characteristics of The Respondents .

	Frequency (n)	Percentage
GENDER		
Male	149	37.2
Female	251	62.8
PROFESSIONAL STATUS		
General Dental Practitioner	172	43
Specialist	228	57
Total	400	100.0

Table 2:- Respondents’ awareness about the changed CDC protocols.

		Frequency	Percent
Are you aware of the revised CDC guidelines for dentist for COVID 19 Pandemic?	Maybe	94	23.6
	No	38	9.5
	Yes	267	66.9

Table 3:- Pre-appointment implementation of the changed CDC protocols.

		Frequency	Percent
Are you practising TELEDENTISTRY?	No	208	52.1
	Yes	191	47.9
Are you TRIAGING patients based on the CDC guidelines?	No	106	26.6
	Yes	293	73.4
Sufficient time interval between appointments?	No	11	2.8

	Yes	388	97.2
Reducing waiting period of patients and requesting the patient to reduce the number of personnel accompanying them?	No	10	2.5
	Yes	389	97.5

Table 4:- Implementation of the changed CDC protocols in the waiting area.

		Frequency	Percent
Is a HEALTH DECLARATION by the patient essential before undertaking any dental procedure?	Don't Know	12	3.0
	No	15	3.8
	Yes	372	93.2
Recording the temperature and oxygen saturation?	No	31	7.8
	Yes	368	92.2
Non- touch dispensers for hand sanitizers?	No	06	1.5
	Yes	394	98.5
Physical barriers like glass and plastic windows in the reception area?	No	129	32.3
	Yes	270	67.7
Removal of frequently touched areas like magazine and toys?	No	33	8.3
	Yes	366	91.7

Table 5: Implementation of the changed CDC protocols in the operatory

		Frequency	Percent
Have you changed the ventilation of the operatory based on the revised CDC guidelines?	No	150	37.6
	Yes	249	62.4
Have you implemented disposable physical barriers for non-sterilisable objects like tubing, computers, dental chair?	No	88	22.1
	Yes	311	77.9
Are you using PPE based on risk associated with the procedure?	No	16	4.0
	Yes	383	96.0
Are you well versed with the donning and doffing of PPE?	No	39	9.8
	Yes	360	90.2
Are you implementing the use of preoperative mouthwash?	No	35	8.8
	Yes	364	91.2
Are you using alternative procedures like chemo-mechanical caries removal, silver diamine fluoride, non-restorative caries control?	No	229	57.4
	Yes	170	42.6
Have you implemented measures to minimize aerosol generation like four handed dentistry, high evacuation suction?	No	73	18.3
	Yes	326	81.7

Table 6: Implementation of the changed CDC protocols in postoperative care.

		Frequency	Percent
Do you change the PPE after every patient?	No	169	42.4
	Yes	230	57.6
Are you aware of the BIOMEDICAL WASTE disposal post doffing?	No	30	7.5
	Yes	369	92.5
Do you disinfect the entire operatory and the waiting area after each patient?	No	68	17.0
	Yes	331	83.0
In case of exposure to a COVID positive patient, are you aware of the protocols to be followed?	No	39	9.8
	Yes	360	90.2

Discussion:-

Dental treatments require the professional to work in close proximity to the patient. Apart from this the use of rotary instruments, high speed handpieces, three-way syringes and surgical instruments result in substantial aerosol production. All this contribute to higher risk of infection of COVID-19 to the dentist and can further result in cross infections. In dire situations it can also result in the dentist becoming the primary source of infection.⁵ Cross infection can be defined as the transmission of infectious agents between patients and staff within a clinical environment.³ Infection control, thus plays a pivotal role in the prevention of spread of infection.⁶

The CDC released the updated interim reopening guidance for dental settings on 28th August 2020.⁴ These guidelines have been reorganized into two sections; recommended infection prevention and control practices for routine dental healthcare delivery, and recommended practices when providing dental healthcare for a patient with suspected or confirmed SARS-CoV-2 infection. According to the updated guidelines, dental settings should balance the need to provide necessary services while minimizing risk to patients and dental healthcare personnel. Following are the guidelines that have been recommended by the CDC taking into consideration the COVID-19 pandemic:

1. Consider if elective procedures, surgeries, and non-urgent outpatient visits should be postponed in certain circumstances.
2. Implement Teledentistry.
3. Screen and triage everyone entering a dental healthcare facility for signs and symptoms of COVID-19.
4. Monitor and manage DHCP (Dental Health Care Personnel).
5. Create a process to respond to SARS-CoV-2 exposures among DHCP and others.
6. Implement universal source control measures like changes in waiting area, ventilation protocols, changes in the operatory and post-operative care.
7. Encourage physical distancing.
8. Consider performing targeted SARS-CoV-2 testing of patients without signs or symptoms of COVID-19.
9. Implement universal use of Personal Protective Equipment (PPE) which are further divided into two categories;

For DHCP working in facilities located in areas with no to minimal community transmission

For DHCP working in facilities located in areas with moderate to substantial community transmission.⁴

The current study assessed the awareness about the interim guidelines by CDC amongst both general practitioners (43%) and specialists (57%) (Table1). Majority of the practitioners (90.5%) were fully/partially aware of the revised guidelines which indicates that larger part of the respondents have enough knowledge to implement the required changes in their practices (Table2). In spite of this the number of respondents practicing teledentistry was considerably less (47.9%) which could be attributed to reasons like inadequate communication by the patients to the dentists and difficulty to accurately diagnose all clinical scenarios virtually⁷. Moreover, adherence to triaging protocols was lacking which could be due to difficulty in categorising emergency and non-emergency cases and insistence of the patient for immediate treatment. (Table 3).

Majority of the practitioners had implemented all the required measures in the waiting area except for instillation of glass or plastic barriers in the reception. This could be ascribed to the fact that most of the participants believed that PPE along with N95 masks are sufficient to limit the exposure of the personnel⁸ (Table 4). The survey also addressed the questions on changes made by the practitioners in their operatory (Table 5). Changes in the ventilation of the operatory were incorporated only by a very few practitioners (37.6%) instead of which the practitioners employed sufficient time intervals between each patient and allowed the next patient to enter only after room decontamination procedures were completed or used multiple operating rooms.⁵ Almost all the practitioners were aware about the use of PPE based on risk associated with the procedure (96%) but, relatively less number were well versed with donning and doffing of PPE (90.2%). The use of alternative procedures like chemo-mechanical caries removal, silver diamine fluoride and non-restorative caries control was found dearth (42.6%) due to lack of knowledge and difficulty in incorporating a new procedure in routine practice. The questions which addressed the post-operative care showed that only 57.6% of the respondents changed the PPE after every patient. Most of the respondents were aware about proper biomedical waste disposal post doffing (92.5%) and would also disinfect the entire operatory after every patient (83.0%) (Table-6).

Most of the difficulties faced by the practitioners in implementation of protocols can be resolved by online workshops and discussions³ for helping the practitioners to hone their skills for virtual consultations and donning and doffing of PPE. More stringent criteria for categorising emergency and non-emergency cases for triaging should be implemented.

The practitioners should be continuously monitoring the concentration of cases in the vicinity of the dental health care facility and signs of community spread and follow the use of PPE as given by CDC.

Conclusion:-

Dentistry is one of the most high-risk professions considering the COVID-19 pandemic. The results of the current study indicated that the awareness amongst the dental practitioners regarding the interim infection control protocols is relatively good. In spite of this, implementation of certain protocols was found to be lacking. Hence, the awareness regarding these guidelines must be increased through various continuing education programs and short-term courses on infection control and cross infection management during covid-19 pandemic. Moreover, the angst among the patients regarding the spread of infection should be acknowledged and they should be fortified regarding the necessary precautions taken to curb the infection if at all they need to visit a dental clinic.

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