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A survey on awareness and perception regarding post covid mucourmycosis in general medical and dental practitioners and its impact on orthodontic treatment.

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Abstract

Aim: Mucormycosis is an opportunistic frequently fulminating fungal infection that is caused by organism of class zygomycetes. This article aims to create awareness and perception regarding post covid mucourmycosis in general medical and dental practitioners and its impact on orthodontic treatment.

Objectives: To create awareness and to know the perception regarding post covid mucourmycosis in general medical and dental practitioners and to know its impact on orthodontic treatment.

Material & Method: Descriptive, cross-sectional survey, conducted through a web-based self-administered questionnaire with 22 questions addressing various aspects of Orthodontic treatment necessity. Study was carried out using google form 142 general medical and dental practitioners responded to questionnaire.

Results and conclusion: A total of 142 participants were there in the study. The participants were from different regions in India. The majority of participants were females then males. The dental practitioners had good knowledge about the orthodontic treatment and had a positive attitude toward it.

Keywords: post covid mucourmycosis, general medical and dental practitioners, Awareness, orthodontics, perception

Introduction

Coronavirus disease 2019 (COVID-19) has been testing the world health care system since its arrival. World health Organization (WHO) launched a SOLIDARITY Clinical Trial just to manage the overall mortality, need of assisted ventilation and duration of hospital stay;

however, it had little or no effect as intended, only corticosteroids were proven effective against severe and critical cases. Hence, much focus has been given to early symptoms and testing. Upon infection, COVID-19, symptomatic cases have demonstrated flu-like symptoms mainly aggravating to fulminant pneumonia and acute respiratory distress in several cases. There are several oral symptoms which have been reported as well. Symptoms of altered taste sensation

Coated tongue has been a relatively common finding, while other symptoms that may be caused by SARS-COV-2 infection directly; or indirectly affect the oral mucosa due to debilitating general health and/or use of therapy drugs. These additional symptoms have been reported as dry mouth, oral ulcers, periodontal diseases and superinfection by bacteria and fungi.[1]

Mucormycosis is an opportunistic frequently fulminating fungal infection that is caused by a saprobic organism of class zygomycetes. Spores liberated in air can be inhaled by the human host. Paltauf in 1885 first reported such a disease and coined the term “mycosis mucorina” which later changed as “mucormycosis.” Mucormycosis of the hard palate is an unpropitious sign. Rich vascularity of the palate postpones its necrosis, but this fungus erodes the arteries leading to thrombosis and then to necrosis.[2]

Mucormycosis of the hard palate is generally seen as necrotic ulceration or sloughing of the palatal mucosa. COVID-19 has been associated to appearance of oral mucosal lesions in form of irregular ulcers, petechiae, erythematous plaque and small blisters presented on keratinized and non-keratinized mucosal sites of buccal mucosa, tongue, lips, gingiva and palate. While mild COVID cases have presented with oral lesions along with respiratory symptoms, patients under medication and hospitalization developed oral manifestations 7 to 24 days post initial symptoms. Coinfections from Herpes simplex virus, Cytomegalovirus, Treponema pallidum and Epstein-Barr virus were rule out from diagnosis after testing in one study; however, other infections autoimmune and inflammatory disorder were not excluded. this survey gives us knowledge about the CAM and its effect on orthodontic treatment and their preventive measures.[3]

Subjects and methods

This survey is a descriptive quantitative study based on a questionnaire with 22 questions.

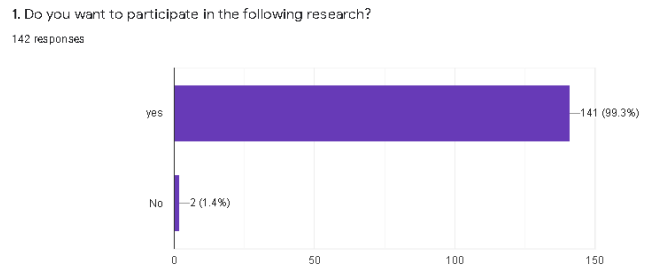
Online survey was prepared on Google forms and published on social media platform like Facebook and WhatsApp. Responses were auto populated in Google forms. Collected responses were evaluated statistically. Total 142 responses from private general and dental practitioners from various demographic areas in India were gathered in duration of 50 days.

- First 4 questions are regarding the personal and contact details.
- Following 4 questions are about awareness regarding post covid mucourmycosis
- Next questions are regarding general and oral manifestations for candida associated mucourmycosis.
- Following questions are regarding the effect of CAM on orthodontic treatment and duration of treatment being practiced and availability of various preventive, interceptive and corrective procedures at the clinic.

- Next question is regarding level of awareness for diagnosis and treatment planning to general medical and dental practitioners.
- Final questions are for desire to upgrade the knowledge for orthodontic diagnosis and treatment planning and opinion regarding the need for change of curriculum for the same.

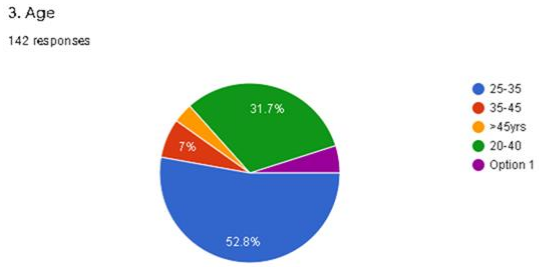
Graph 1: Describes responses from general medical and dental practitioners

Graph 1 There were 142 responses from private general and dental practitioners from various demographic areas in India were gathered in duration of 50 days.



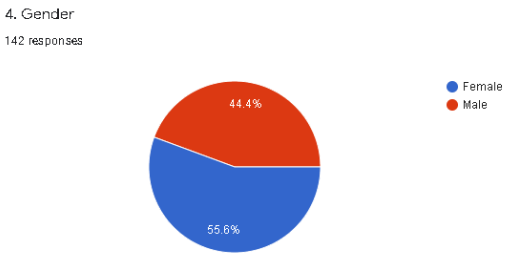
Graph 2: describes email id from general medical and dental practitioners

Graph 2 describes email id from general medical and dental practitioners it is mandatory



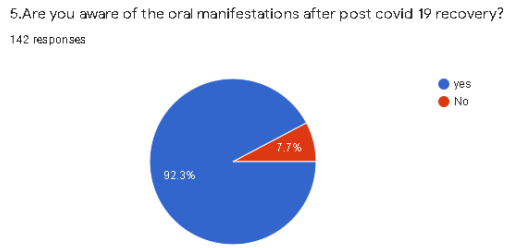
Graph 3: describes age of general medical and dental practitioners.

Graph 3 describes age of general medical and dental practitioners. The most common age group of responders were 25 to 35 years respondents (52.8%). respondents (31.7%) have 20 to 40 years of age, where are (7%) have 35 to 45 years. Only (4 %) have age ranging above 45 years.



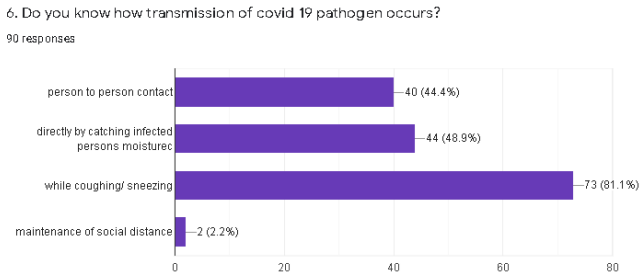
Graph 4: graph shows distribution of practitioners according to sex

Graph 4 The study participants were 142 responses from private general and dental practitioners from various demographic areas in India the study group comprised 44.4% males and 55.6% female practitioners. The graph shows distribution of practitioners according to sex. This indicates that females have more knowledge and awareness about CAM.



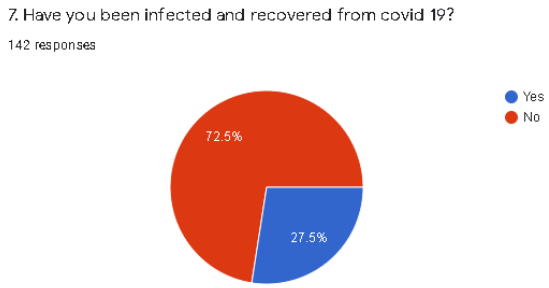
Graph 5: graph shows awareness of oral manifestations after post covid19 recovery

Graph 5 graph shows awareness of oral manifestations after post covid19 recovery from various demographic areas in India. The study group comprised 92.3 % practitioners were aware of oral manifestations after post covid19 recovery 7.7 % practitioners were not aware of oral manifestations after post covid19 recovery.



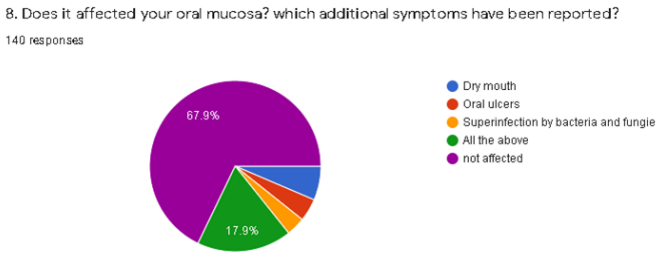
Graph 6: graph shows awareness about transmission of covid19 pathogen

Graph 6 graph shows awareness about transmission of covid19 pathogen. 73 practitioners (81.1%) responded that transmission of covid19 pathogen occurs while coughing/sneezing. 44(48.9 %) practitioners responded that transmission of covid19 pathogen occurs directly by catching infected persons moisture. 40 (44.4%) practitioners responded that transmission of covid19 pathogen occurs person to person contact. (2.2 %) practitioners were not aware about transmission of covid19 pathogen.



Graph 7: graph shows infection and recovery rate of covid19 pathogen

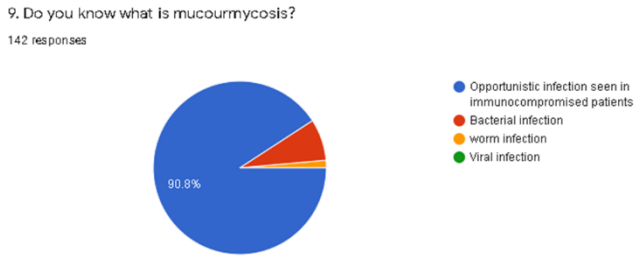
Graph 7 graph shows infection and recovery rate of covid19 pathogen. 72.5% practitioners responded that they are not infected with covid19 pathogen. 27.5% practitioners responded that they are infected with covid19 pathogen



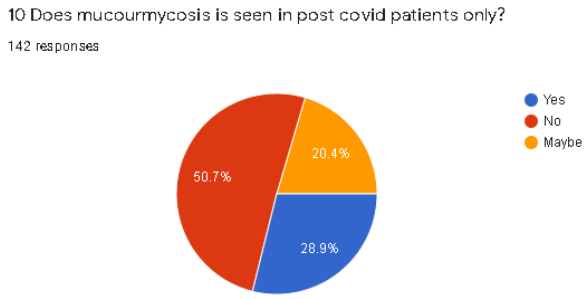
Graph 8: graph shows awareness about oral manifestations of covid19 pathogen

Graph 8 graph shows awareness about oral mani festations of covid19 pathogen. (67.9 %) practitioners responded that their oral mucosa was not affected. (17.9 %) practitioners responded that transmission of covid19 pathogen occurs directly and affected their oral mucosa showing signs like dry mouth, oral ulcers, and superinfection by bacteria and fungi by catching infected persons moisture. 40 (44.4%) practitioners responded that transmission of covid19 pathogen occurs person to person contact. (2.2%) practitioners were not aware about transmission of covid19 pathogen.

Graph 9: graph gives idea about mucourmycosis

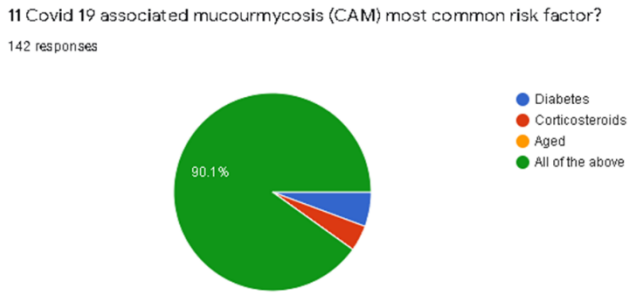


Graph 9 graph gives idea about mucourmycosis. (90.8 %) practitioners responded that mucourmycosis is an Opportunistic infection seen in immuno compromised patients. (8%) practitioners responded that muco Ur mycosis is Bacterial infection. (2%) practitioners responded that mucourmycosis is Worm infection.



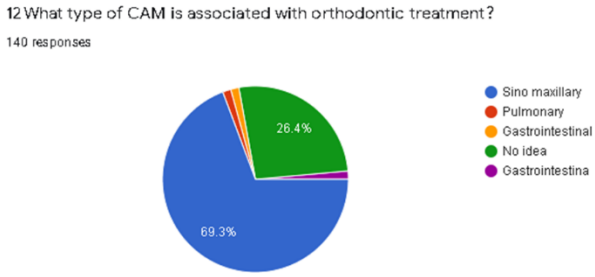
Graph 10: graph shows incidence of mucourmycosis in post covid patients

Graph 10 graph shows incidence of mucourmycosis in post covid patients. (50.7%) practitioners responded that mucourmycosis is not seen only in post covid patients. (28.9 %) practitioners responded that mucourmycosis is seen only in post covid patients. (20.4%) practitioners responded that mucourmycosis may be seen only in post covid patients.



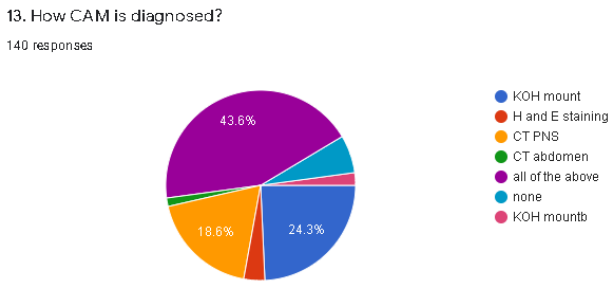
Graph 11: graph shows awareness about muco ur mycosis risk factors.

Graph 11 graph shows awareness about mucourmycosis risk factors. (90.1 %) practitioners responded that muco ur mycosis is seen most commonly in diabetic, aged and patients taking corticosteroids. (5 %) patients with diabetes are on high risk. (5 %) patients on corticosteroids are on high risk.



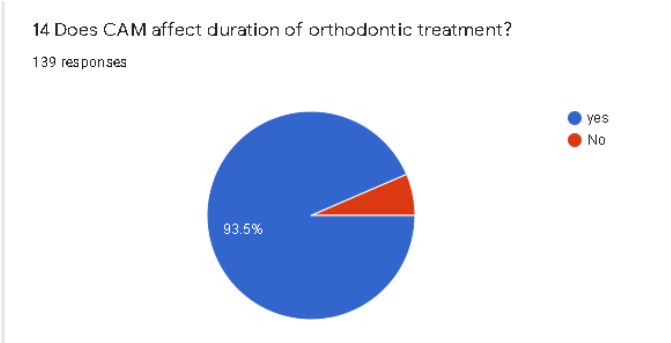
Graph 12: graph shows type of CAM associated with orthodontic treatment.

Graph 12 graph shows type of CAM associated with orthodontic treatment. (69.3 %) practitioners responded that mucourmycosis is seen most commonly in sinumaxillary region (26.4 %) patients have no idea about CAM associated with orthodontic treatment. (1.5 %) patients have gastrointestinal CAM. (1.5 %) patients have pulmonary CAM.



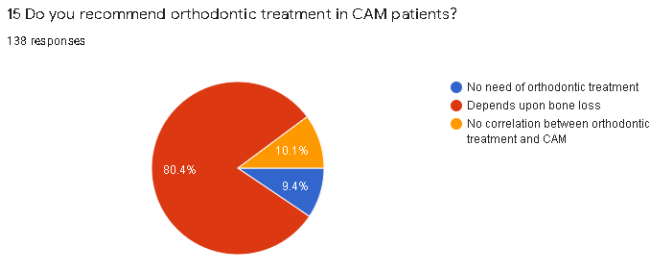
Graph 13: graph gives idea about diagnosis of CAM.

Graph 13 graph gives idea about diagnosis of CAM. (43.6 %) practitioners responded that CAM diagnosed by KOH mount, H and E staining, CT PNS, CT abdomen. (24.3 %) practitioners responded that CAM diagnosed by KOH mount, H. (18.6%) practitioners responded that CAM diagnosed by CT PNS. (5.5 %) practitioners responded that CAM diagnosed by none of the factors. (12.5 %) practitioners responded that CAM diagnosed by H and E staining.



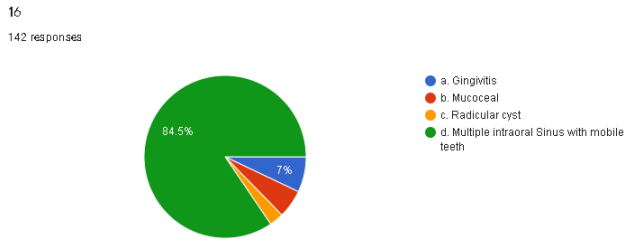
Graph 14: graph showing effect of CAM on duration of orthodontic treatment.

Graph 14 graph shows awareness about mucourmycosis. (93.5 %) practitioners responded that mucourmycosis affects duration of orthodontic treatment. (6.5 %) practitioners responded that mucourmycosis does not affects duration of orthodontic treatment.



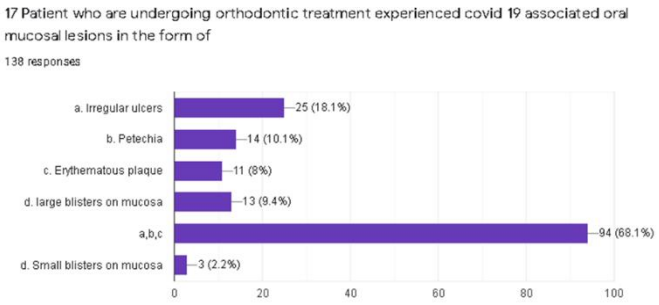
Graph 15: graph showing correlation of orthodontic treatment and CAM.

Graph 15 graph showing correlation of orthodontic treatment and CAM. (80.4%) practitioners responded that orthodontic treatment depends on bone levels. (10.1%) practitioners responded that there is no need of orthodontic treatment in CAM. (9.4%) showing no correlation of orthodontic treatment and CAM.



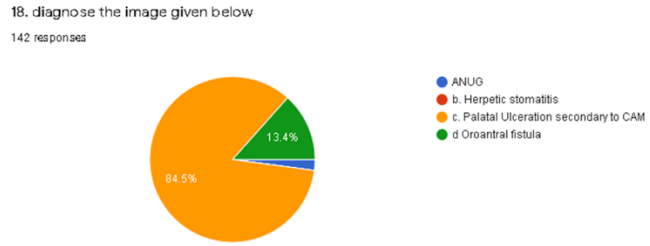
Graph 16: graph showing type of mucosal lesion associated with CAM.

Graph 16 graph showing type of mucosal lesion associated with CAM. multiple inraoral sinus with mobile teeth is associated with CAM (84.5%) practitioners noticed this. (7%) practitioners responded gingivitis is associated with CAM. (5.5%) practitioners responded mucoceal is associated with CAM. (4.5%) practitioners responded radicular cyst is associated with CAM.



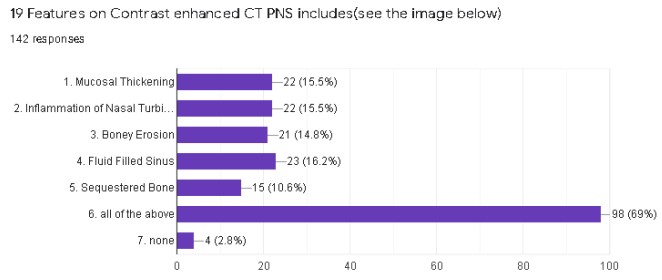
Graph 17: graph shows Patient who are undergoing orthodontic treatment experienced covid 19 associated oral mucosal lesions in the various form

Graph 17 graph shows Patient who are undergoing orthodontic treatment experienced covid 19 associated oral mucosal lesions in the various form. (68.1%) practitioners responded that Patient who are undergoing orthodontic treatment experienced covid 19 associated oral mucosal lesions in the various form such as irregular ulcers, petechia, erythematous plaques, and large blisters. (18.1%) practitioners responded that Patient who are undergoing orthodontic treatment experienced CAM in the form of irregular ulcers. (10.1%) practitioners responded CAM lesions as petechia and (8%) in the form of erythematous plaque. (9.4%) associated with large blisters on mucosa.



Graph 18: graph showing image of lesion associated with CAM

Graph 18 graph showing image of lesion associated with CAM (84.5%) practitioners responded that CAM shows palatal ulceration secondary to CAM. (13.4%) practitioners responded that image shows oroantral fistula. (2%) practitioners responded that image shows ANUG.

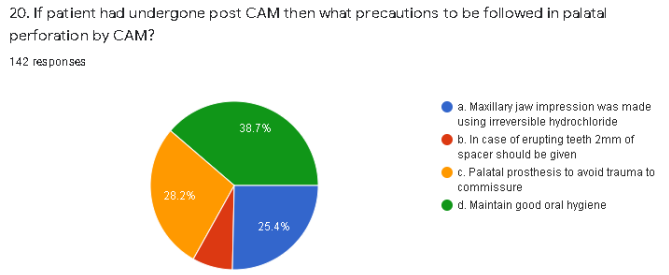


Graph 19: graph showing image of Features on Contrast enhanced CT PNS

Graph 19 graph showing image of Features on Contrast enhanced CT PNS. (69%) practitioners responded that Contrast enhanced CT PNS shows mucosal thickening, inflammation of nasal Turbinate, Bone Erosion, Fluid Filled Sinus, and Sequestered Bone. (16.2%) practitioners responded that Contrast enhanced CT PNS shows Fluid Filled Sinus. (14.8%) practitioners responded that Contrast enhanced CT PNS shows Bone Erosion,

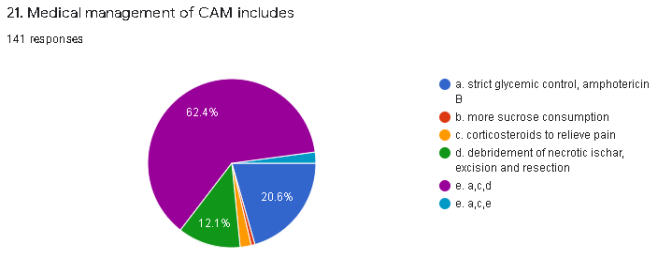
(15.5%) practitioners responded that Contrast enhanced CT PNS shows mucosal thickening, and inflammation of nasal Turbinate, (10.6%) practitioners responded that

Contrast enhanced CT PNS shows Sequestered Bone.



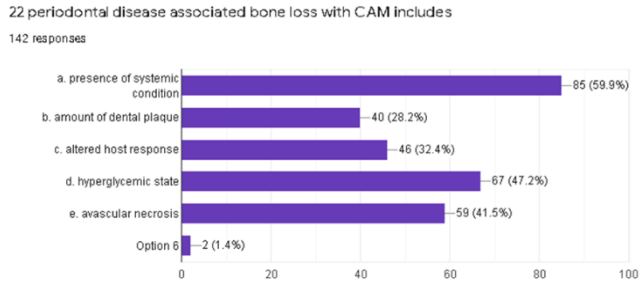
Graph 20: graph shows what precautions to be followed in palatal perforation by CAM

Graph 20 graph shows what precautions to be followed in palatal perforation by CAM (38.7%) practitioners advised to Maintaing good oral hygiene. (28.2%) practitioners advised Palatal prosthesis to avoid trauma to commissure. (25.4%) practitioners advised to take Maxillary jaw impression using irreversible hydrochloride when required. (7.9%) practitioners advised to give 2mm of spacer in case of erupting teeth.



Graph 21: graph gives idea about medical management of CAM

Graph 21 graph gives idea about medical management of CAM. (62.4%) practitioners advised for strict glycaemic control, amphotericin B, corticosteroids to relieve pain, debridement of necrotic is char, excision and resection. Maintaing good oral hygiene. (20.6%) practitioners advised for strict glycaemic control, amphotericin B. (12.1%) practitioners advised debridement of necrotic is char, excision and resection. (2.5 %) practitioners advised for corticosteroids to relieve pain. (0.5 %) practitioners advised for more sucrose consumption.



Graph 22: graph gives idea about periodontal disease associated bone loss with CAM

Graph 22 graph gives idea about periodontal disease associated bone loss with CAM.

(59.9 %) practitioners says that periodontal disease associated bone loss with CAM due to presence of systemic conditions. (47.2 %) practitioners says that hyperglycaemic state leads to periodontal disease associated bone loss with CAM. (41.5%) practitioners says that avascular necrosis leads to periodontal disease associated bone loss with CAM.

Discussion

The ongoing coronavirus disease 2019 (COVID-19) pandemic has disrupted every aspect of our life. The need to provide high-level care for an enormous number of patients with COVID-19 infection during this pandemic has impacted resourcing for and restricted the routine care of all non-COVID-19 conditions. Since the beginning of the pandemic, the people living with rare disorders, who represent a marginalized group of the population even in a normal world, have not received enough attention that they deserve. Due to the pandemic situation, they have experienced (and experiencing) an extreme inadequacy of regular clinical services, counselling, and therapies they need, which have made their life more vulnerable and feel more marginalized. Besides, the clinicians, researchers, and scientists working on rare genetic diseases face extra challenges due to the pandemic.[1,5]

Zygomycoses are severe angioinvasive infections caused by common filamentous fungi, the zygomycetes. These ubiquitous opportunistic fungi can cause infections with high lethality in immuno compromised or diabetic patients. Whatever the route of infection (inhalation of airborne spores, ingestion, or direct skin inoculation), the hyphae invade blood vessels, causing tissue infarction and necrosis. In healthy persons, innate immunity is sufficient to prevent infection, except in cases of massive contamination after traumatic inoculation of contaminated soil. Patients with phagocytic dysfunctions caused by neutropenia or ketoacidosis, as well as patients with high iron serum concentrations, are at high risk of developing zygomycosis. These underlying conditions can influence clinical presentation and outcome. The rhino cerebral presentation is the most frequently reported localized symptom followed by pulmonary, cutaneous, cerebral, gastrointestinal, and disseminated infections. In the rhino cerebral or pulmonary forms, patient death rates are reported to be as high as 60% because of delayed diagnosis or delayed therapeutic management. Treatment strategies are based on high doses of any lipid formulation of amphotericin B, associated with large surgical resections when possible.[6]

In this survey on mucormycosis 142 responses from private general and dental practitioners from various demographic areas in India were gathered it shows awareness of oral manifestations after post covid19 recovery. The study group comprised 92.3 % practitioners were aware of oral manifestations after post covid19 recovery 7.7 % practitioners were not aware of oral manifestations after post covid19 recovery.

73 practitioners (81.1%) responded that transmission of covid19 pathogen occurs while coughing/sneezing. 44(48.9 %) practitioners responded that transmission of covid19 pathogen occurs directly by catching infected persons moisture. 40 (44.4%) practitioners responded that transmission of covid19 pathogen occurs person to person contact. (2.2 %) practitioners were not aware about transmission of covid19 pathogen. 27.5% practitioners responded that they were infected with covid19 pathogen. (67.9 %) practitioners responded that their oral mucosa was not affected. (17.9 %) practitioners responded that transmission of covid19 pathogen occurs directly and affected their oral mucosa showing signs like dry mouth, oral ulcers, and superinfection by bacteria and fungi by catching infected persons moisture. 40 (44.4%) practitioners responded that transmission of covid19 pathogen occurs person to person contact. (2.2%) practitioners were not aware about transmission of covid 19 pathogen

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(93.5 %) practitioners responded that mucourmycosis affects duration of orthodontic treatment. (6.5 %) practitioners responded that mucourmycosis does not

affects duration of orthodontic treatment (80.4%) practitioners responded that orthodontic treatment depends on bone levels. (10.1%) practitioners responded that there is no need of orthodontic treatment in CAM. (9.4%) showing no correlation of orthodontic treatment and CAM graph showing type of mucosal lesion associated with CAM. multiple inraoral sinus with mobile teeth is associated with CAM (84.5%) practitioners noticed this. (7%) practitioners responded gingivitis is associated with CAM. (5.5%) practitioners responded mucocele is associated with CAM. (4.5%) practitioners responded radicular cyst is associated with CAM.

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The survey gives idea about medical management of CAM. (62.4%) practitioners advised for strict glycaemic control, amphotericin B, corticosteroids to relieve pain, debridement of necrotic is char, excision and resection. Maintaing good oral hygiene. (20.6%) practitioners advised for strict glycaemic control, amphotericin B. (12.1%) practitioners advised debridement of necrotic is char, excision and resection. (2.5 %) practitioners advised for corticosteroids to relieve pain. (0.5 %) practitioners advised for more sucrose consumption. (59.9 %) practitioners says that periodontal disease associated bone loss with CAM due to presence of systemic conditions. (47.2 %) practitioners says that hyperglycaemic state leads to periodontal disease associated bone loss with CAM. (41.5%) practitioners says that avascular necrosis leads to periodontal disease associated bone loss with CAM.

Conclusion

A questionnaire study evaluated the awareness about post covid mucormycosis, regarding general and oral manifestations for candida associated mucourmycosis.

From the study done it was found that the subjects had:

Good knowledge about post covid mucormycosis, its causes and different treatment modalities.

They have positive attitude and perception towards orthodontic treatment.

They have desire to upgrade the knowledge for orthodontic diagnosis and regarding the effect of CAM on orthodontic treatment and duration of treatment being practiced and availability of various preventive, interceptive and corrective procedures at the clinic

Future scope

- The sample size is less so further study can carried out with large sample size.
- Number of responses were more from female than male so equivalent sample for male and female can be done to reduce bias.

References

1. Chowdhury SF, Sium SM, Anwar S. Research and management of rare diseases in the COVID-19 pandemic era: challenges and countermeasures. Frontiers in Public Health. 2021 Apr 15; 9:346.

2. Bitar D, Van Cauteren D, Lanternier F, Dannaoui E, Che D, Dromer F, Desenclos JC, Lortholary O. Increasing incidence of zygomycosis (mucormycosis), France, 1997–2006. Emerging infectious diseases. 2009 Sep;15 (9):1395.

3. Agrawal K, Chakola S. COVID-19 and Diabetes Mellitus. Psychology and Education Journal. 2021 Feb 4;58 (2): 566-74.

4. Prakash H, Chakrabarti A. Global Epidemiology of Mucormycosis. J Fungi [Internet]. 2019 Mar 21 [cited 2021 May 13]; 5 (1). Available from: https:/ /www. ncbi. nlm. nih. gov/pmc/articles/PMC6462913/

5. Therakathu J, Prabhu S, Irodi A, Sudhakar SV, Yadav VK, Rupa V. Imaging features of rhino cerebral mucormycosis: A study of 43 patients. Egypt J Radiol Nucl Med. 2018 Jun 1;49(2):447–52.

6. Rhino - or bito - cerebral mucormycosis: Magnetic resonance imaging Lone PA, Wani NA, Jehangir M - Indian J Otol [Internet]