



Prosthodontics

KNOWLEDGE AND AWARENESS AMONG POST-GRADUATE DENTAL PROFESSIONALS REGARDING MUCORMYCOSIS AND ITS PROSTHETIC REHABILITATION IN GUJARAT

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ABSTRACT The purpose of this study was to evaluate knowledge and awareness of post-graduate dental professionals regarding mucormycosis and its prosthetic rehabilitation. A questionnaire consisting of 15 multiple-choice questions was prepared online. A total of 200 post-graduate dental professionals from different branches in Gujarat were randomly selected, and the questions were sent to them in the form of google link via email. Upon receiving of the completed questionnaires, the data were statistically analysed. A total of 145 responses were received; among which 79.3% were MDS students and 20.7% were MDS faculty/practitioners. All the data from each participant have been stored in the form of an excel spreadsheet. Results of all the questions were analysed online by google analytics. The knowledge and awareness about mucormycosis disease was found to be average among post-graduate dental professionals. For its prosthodontic rehabilitation, nonsurgical methods were practiced by more participants than implant supported rehabilitation.

KEYWORDS : Mucormycosis, Maxillofacial Prosthesis, Prosthetic Rehabilitation

INTRODUCTION

Fungi are a major part of the ecosystem. With over 50,000 fungal species identified in the world, only about 0.1% (over 250 fungal species) are recognized as human pathogens.¹ Their incidence and diversity have increased dramatically in recent years. Mucormycosis, a potentially

deadly infection, is caused by the fungus of the order Mucorales.² But in past few years, it has been remembered because of the speed with which it can progress and its correlation with COVID19 disease. It is the acutely fatal fungal infection known to man. Mucormycosis is best known for its rhino-cerebral presentation even though it can infect the lungs, central nervous system, gastrointestinal tract, skin etc.³ Progressing through the stages of rhinomaxillary, rhino-orbital and rhino-orbito-cerebral mucormycosis, it is rapidly fatal in 50 to 80%. It primarily affects immunocompromised patients, more commonly diabetics but seldom infects a healthy host.⁴ The clinical hallmark of invasive mucormycosis is tissue necrosis resulting from angioinvasion and subsequent thrombosis.⁵ Two aggressive treatment, antifungal agents and surgical excision are commonly instituted.

This survey was undertaken to evaluate the knowledge and awareness of post-graduate dental professionals regarding mucormycosis and its prosthetic rehabilitation. The objectives of this study were to check for the basic knowledge of the post-graduate dental professionals about clinical sign and symptoms of mucormycosis as well as treatment and to identify the approach of prosthodontic rehabilitation they commonly undergo for a mucormycosis patient.

MATERIAL AND METHODOLOGY

This study was conducted via a questionnaire consisting of 15 multiple-choice questions. The questions consisted of information regarding COVID19 infection and vaccination, basic details about mucormycosis disease and its prosthetic rehabilitation. Inclusion criteria for this study was that the participant should be a post graduate (MDS) student or MDS faculty member and/or MDS private practitioner. This questionnaire was first distributed randomly to 10 selected participants for validation before conducting the final survey. Later, 145 response from post-graduate dental professionals in Gujarat

were received. The study participants were post graduate students, faculty members and/or private practitioners. The survey was conducted for around 1 month of time period after initial mailing, whereby any response after that period was not included. Confidentiality of the information provided was assured and participation was voluntary.

RESULTS

Among all the participants, 79.3% were MDS students and 20.7% were MDS faculty/practitioners. (Fig. 1)

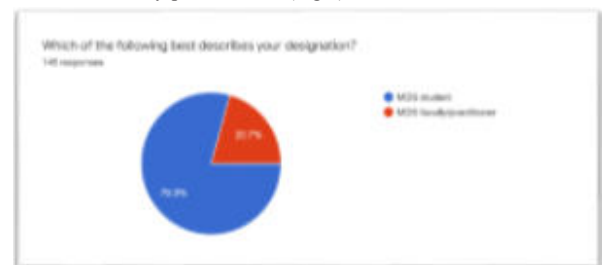


Fig.1

Among all the participants, 82.1% were having total clinical experience up to 8 years, 13.8% were having clinical experience of 9 to 12 years and rest 4.1% were having clinical experience of 13 or more years. (Fig.2)

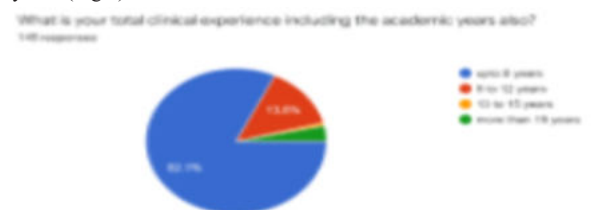


Fig.2

Among all the participants, 49% have never done corona and mucormycosis ward duty. 29.7% have did only corona ward duty, 17.2% have did both duty while only 4.1% participated in mucormycosis ward duty. (Fig.3)

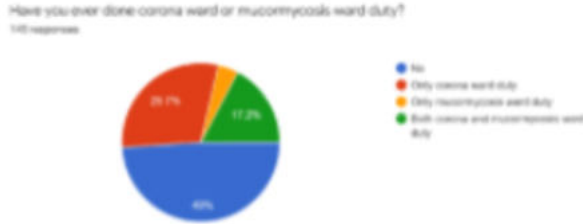


Fig.3
Among all the participants, 93.8% have been vaccinated with second dose at the time of this survey and 6.2% were either vaccinated with a single dose or planning for vaccination. (Fig.4)

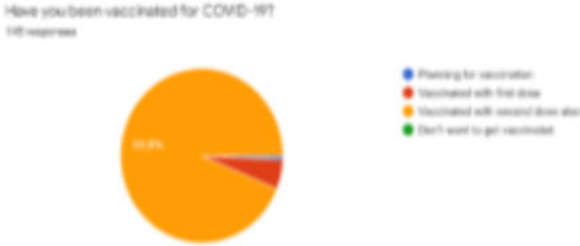


Fig.4
Among all the participants, 77.2% were never diagnosed with COVID19 virus infection and 12.4% were diagnosed with the infection before vaccination. Apart from these 10.4% were diagnosed with the infection after first or second dose of vaccination. (Fig.5)

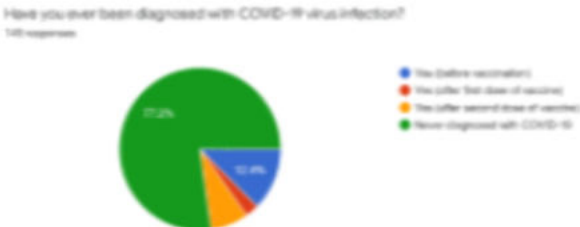


Fig.5
Results showed that 88.3% of participants believed that steroid medications, nasal intubation and hyperglycaemia can become a risk factor for mucormycosis. (Fig.6)

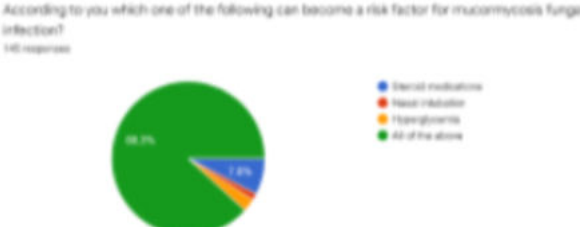


Fig.6
Middle age adult (53.1%) and old age group (44.8%) was believed to be most frequently affected. (Fig.7)

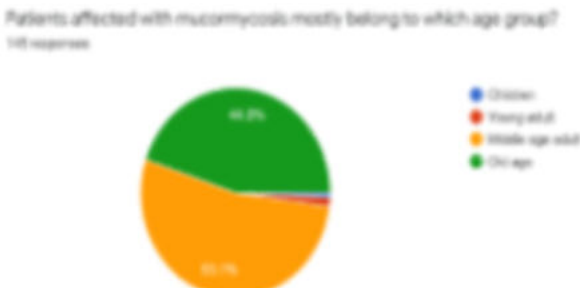


Fig.7
Majority of participants believed that there is no gender prevalence (61.4%), followed by male gender prevalence (32.4%). (Fig.8)



Fig.8
Amphotericin B was most commonly used anti-fungal agent in treatment according to 66.2% participants followed by voriconazole and ketoconazole and/or amphotericin B combined by 33.8% of participants. (Fig.9)

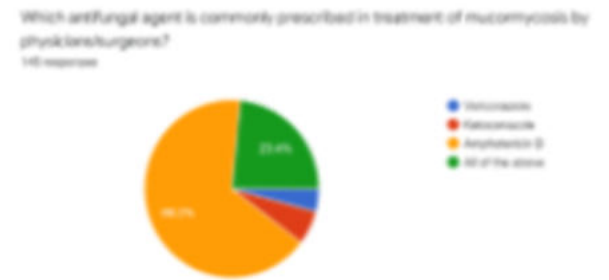


Fig.9
According to 42.8% of participants any of the part of oral cavity was equally found to be missing at the time of rehabilitation followed by 28.3% for anterior hard palate, 24.8% posterior hard palate and 4.1% for soft palate. (Fig.10)



Fig.10
Self-cure acrylic obturator relined with soft liner (50.3%) was most commonly used method, followed by heat cure acrylic obturator (40%). (Fig.11)

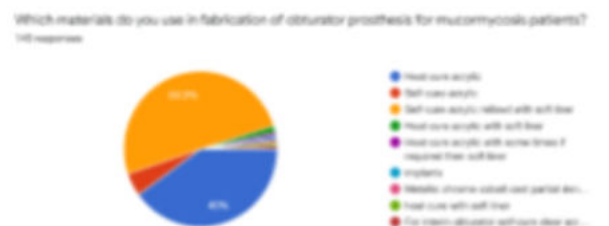


Fig.11
For the retention purpose, 35.9% participants choose to engage anatomic undercut in obturators which was almost equal to 35.2% participants who choose Osseo-integrated implants. (Fig.12)

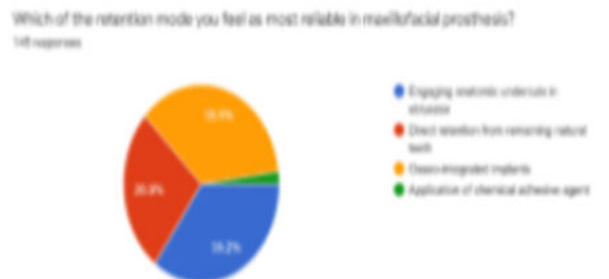


Fig.12

However, 70.3% of participants have never done an implant supported rehabilitation, followed by the 14.5% participants who have placed implants as well as fabricated prosthesis, 9% who have only placed implants and 6% who have only fabricated prosthesis. (Fig. 13)



Fig.13

Among all the participants, 51.7% have never used any of the implants in their maxillofacial practice, 20% have used conventional as well as zygomatic/nasal/pterygoid implants, 15.9% have only used zygomatic/nasal/pterygoid implants and 12.4% have only used conventional implants. (Fig.14)



Fig.14

DISCUSSION

The result of this study showed that majority of participants were having clinical experience up to 8 years which is because most of the participants were post graduate students. Moreover, a huge number of participants were vaccinated with second dose of vaccine and very few are either vaccinated with the first dose or planning for it. Increased vaccination and following protocols lead to decrease in level of infection among the dental practitioners which is reflected in the results. 3/4th of participants were never been diagnosed with COVID19 virus infection and among the other 1/4th of participants, half of them were infected before vaccination and other half infected after first or second dose of vaccination.

Almost half of the participants had never done corona and/or mucormycosis ward duty. Even among the participants who had done any type of duty majority goes towards corona ward duty that shows that very a smaller number of post-graduate dental professionals got the chance to do mucormycosis ward duty. This can be the reason for the lack of sufficient awareness observed among participants regarding mucormycosis disease in this survey. However, sufficient knowledge of participants was getting reflected regarding variety of risk factors associated with mucormycosis disease.⁵⁻⁶

Almost half of the participants believed that middle age adults were mostly affected with these disease and other half believed that old age adults were affected. Among all the participants, almost 2/3rd of them believed that there was no gender prevalence whereas rest of the majority believed that male gender prevalence was there. According to Manesh *et al* in 2019, there is male gender prevalence and middle age adult group is mostly affected by this disease. Difference in response can be attributed to smaller number of patients encountered by that individual or shorter clinical experience particular for mucormycosis disease.⁶⁻⁷

Amphotericin B was the commonly used antifungal agent in treatment of mucormycosis. However, in this survey, 1/3 of the participants had also voted for other antifungal agents like ketoconazole or voriconazole which are never being used. This shows lack of awareness regarding treatment protocol for mucormycosis disease among few of the dental professionals. In this survey almost half of the participants had answered that anterior and posterior as well as soft palate were found to be missing at the time of rehabilitation. But commonly missing part of oral cavity is only anterior hard palate.⁶ However, these might be attributed to individuals who might have encountered cases with extensive surgical procedure or recurrence of mucormycosis.

More than a half of the participants fabricated an obturator using self-cure acrylic resin and relined it with soft liner at the time of rehabilitation. Nearly half of them used heat cure acrylic resin for fabrication of an obturator prosthesis. Use of self-cure acrylic resin should be limited in mucormycosis patients as these patients require extreme maintenance of hygiene which might be difficult with the surface properties of self-cure resin as compared to heat cure. Also use of soft liner can become a risk for secondary infection because it promotes fungal growth over its surface.⁷⁻⁸

Fabrication of intraoral maxillofacial prosthesis like obturator always comes with the challenge of retention.⁸ For achieving retention there are few methods which also vary from case to case. In this survey, nearly 1/3rd of participants preferred retention from remaining natural teeth which is a reliable method, more than 1/3rd of participants preferred engaging anatomic undercuts and more than 1/3rd recommended Osseo-integrated implants. Basically, these three methods were equally preferred by the participants.

However, more than 2/3rd of participants had never done an implant supported rehabilitation in any of the mucormycosis patient. Even from all those who had placed implants in mucormycosis patient, very few had done implant supported prosthesis. Among them, majority had preferred use of zygomatic/pterygoid/nasal implants rather than conventional implants. These can be attributed to strange anatomic structure left behind after surgical resection of mucormycosis lesion.⁹

CONCLUSION

The knowledge and awareness about mucormycosis disease was found to be average even in post-graduate dental professionals. For its prosthodontic rehabilitation, nonsurgical methods were practiced more by participants rather than implant supported rehabilitation. More research work as well as screening programs should be conducted to increase awareness of this deadly disease among participants.

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