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Assessing the level of awareness and knowledge of post Covid 19 Mucormycosis among trainee dentists of Aurangabad Maharashtra: A questionnaire based study

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Abstract

Aim: The aim of this study was to assess the level of awareness amongst trainee dentists of dental college regarding post COVID 19 mucormycosis.

Method: A survey was conducted amongst 197 participants, which included final year B.D.S. students & B.D.S. interns of dental college in Aurangabad Maharashtra, to assess their level of awareness regarding post COVID 19 mucormycosis and steps to be taken for its prevention.

Result: The majority of the trainee dentists could answer most of the questions correctly.

Conclusion: The majority of trainee dentists were found to be fairly knowledgeable about post COVID 19 mucormycosis.

Keywords: COVID 19, Mucormycosis, Trainee Dentists.

Introduction

Mucormycosis, the black fungus has emerged as a new challenge for doctors. COVID 19 pandemic has been creating havoc among the general population and health care system of world. Post COVID 19 mucormycosis has emerged massively in the second wave in India. A COVID 19 survivor who has already suffered the brunt of a disease which affects almost all the systems of human body has to also face the deadly fungal disease.

Most common type of mucormycosis is the rhino-maxillary disease.[1] Mucormycosis (phycomycosis, zygomycosis) is an acute opportunistic infection caused by a saprophytic fungus found in soil, bread molds, and decaying fruits and vegetables. Numerous predisposing risk factors are associated with mucormycosis, although most cases have been reported in poorly controlled

diabetics or in patients with hematologic malignant conditions. Involvement of the oral cavity usually appears as palatal ulceration or necrosis and occurs as a result of infection in the nasal cavity or paranasal sinuses. Patients often exhibit facial cellulitis and anesthesia, nasal discharge, necrotic turbinates, fever, headache, and lethargy. Without appropriate treatment, the disease spreads into the orbit and brain and results in death. [2]

We are learning more about the new and long-term manifestations of the COVID 19 infection. Its association with invasive mucormycosis sinusitis is dangerous and must be given serious consideration. Uncontrolled diabetes and over-zealous use of steroids are two of the main factors aggravating the illness, and both of these must be properly checked. If infected, early surgical intervention and intravenous anti-fungal treatment should be sought for management, as a good prognosis and less fulminant disease course can be achieved in cases of post coronavirus mucormycosis.[3]

Since this illness exhibits symptoms related to the oral cavity & the maxillofacial complex, the present study was conducted, so that the dentists may identify this illness in its nascent stage & immediate treatment initiated.

Materials and Methods

A questionnaire consisting of 21 multiple choice questions was circulated by social media, among the trainee dentists and their responses were received. Only those dental students who were in final year of B.D.S. & who were pursuing B.D.S. internship were included in this study. The duration of the study was 1 week. The questionnaire was sent by social media to 197 trainee dentists, out of which 150 responses were received.

Questions

1. Is post COVID 19 mucormycosis transmitted through contaminated oxygen supply lines?

A. Yes

B. No

C. No idea

2. Should you suspect post COVID 19 mucormycosis in a patient with palatal ulcer, who has been treated for COVID 19?

A. Yes

B. No

C. No idea

3. Mobile teeth are present in which conditions?

A. Periodontitis

B. Mucormycosis

C. Both

4. Which one of the following is the differential diagnosis of post COVID 19 mucormycosis?

A. Osteoarthritis

B. Haemophilia

C. Necrotizing sialometaplasia

5. Which of the following age groups is most vulnerable to post COVID 19 mucormycosis?

A. 10 years to 30 years

B. 30 years to 50 years

C. 60 years & above

6. Periorbital erythema & oedema are seen in which conditions?

A. Blowout fracture of the orbit

B. Post COVID 19 mucormycosis

C. Both

7. The nasal discharge in post COVID 19 mucormycosis is

A. Black & purulent

B. Green

C. Watery

8. Which drug is used in treating post COVID 19 mucormycosis?

A. Amphotericin B

B. Amoxycillin

C. Tetracycline

9. What is the role of antiviral drugs & corticosteroids in making a COVID 19 patient prone to post COVID 19 mucormycosis?

A. These drugs lower the immunity of the patient

B. These drugs provide nutrients to the fungi

C. No idea

10. Which of the following groups does post COVID 19 mucormycosis affect the most?

A. Road traffic accident victims

B. Sportsmen

C. Immunocompromised individuals

11. How does post COVID 19 mucormycosis affect organ transplant patients?

A. These patients are on immunosuppressant medications which makes them vulnerable to opportunistic infections

B. The fungus has affinity for transplanted tissues

C. No idea

12. The visceral types of post COVID 19 mucormycosis are

A. Cardiac, urinary, neurological

B. Pulmonary, gastrointestinal, rhinomaxillary

C. Skeletal, osseus, endocrinal

13. Rhinomaxillary form of post COVID 19 mucormycosis occurs due to

A. Inhalation of the fungus by the succeptible individual

B. Ingestion of the fungus by the succeptible individual

C. Innoculation of the fungus by the succeptible individual

14. The infection of the rhinomaxillary form of post COVID 19 mucormycosis arises in

A. Lateral wall of the nose & maxillary sinus

B. Throat & pharynx

C. Epiglottis

15. The infection of the rhinomaxillary form of post COVID 19 mucormycosis spreads by

A. Lymphatic invasion

B. Peristalsis

C. Arterial invasion

16. The infection of the rhinomaxillary form of post COVID 19 mucormycosis causes the following arterial changes

A. Thrombosis

B. Fibrosis & ischaemia

C. Rupture of endothelial lining

17. The reddish black nasal discharge seen in rhinomaxillary form of post COVID 19 mucormycosis is due to

A. Necrosis of the nasal turbinates

B. Lysis of the fungus due to antifungal treatment

C. None of the above

18. The palatal ulcers seen in rhinomaxillary form of post COVID 19 mucormycosis are

A. Superficial but chronic

B. Superficial but heal quickly

C. Large & deep causing denudation of the underlying bone

19. Radiographs of involved paranasal sinuses in a patient of rhinomaxillary form of post COVID 19 mucormycosis show

A. Complete radioluscency

B. Mucoperiosteal thickening

C. Trabeculation

20. The histopathological finding of a specimen of rhinomaxillary form of post COVID 19 mucormycosis shows

A. Treponema

B. Cocci

C. Hyphae

21. Diabetics are prone for post COVID 19 mucormycosis because

A. High glucose content of tissues

B. Lowered blood supply to the tissues

C. All of the above

Answer Key: 1 to 2A, 3 to 6C, 7 to 9A, 10C, 11A, 12B, 13 to 14A, 15C, 16B, 17A, 18C, 19B, 20 to 21C

Results

The 150 responses received, are comprehensively presented in following observation table and pie charts.

Qn.	A Responses (%)	B Responses (%)	C Responses (%)
1	131(87.3)	10(6.7)	9(6)
2	144(96)	5(3.3)	1(0.7)
3	20(13.3)	4(2.7)	126(84)
4	14(9.3)	17(11.3)	119(79.3)
5	5(3.3)	44(29.3)	101(67.3)
6	4(2.7)	23(15.3)	123(82)
7	136(90.7)	2(1.3)	12(8)
8	144(96)	4(2.7)	2(1.3)
9	143(95.3)	6(4)	1(0.7)
10	5(3.3)	4(2.7)	141(94)
11	142(94.7)	5(3.3)	3(2)
12	16(10.7)	131(87.3)	3(2)
13	127(84.7)	12(8)	11(7.3)
14	143(95.3)	5(3.3)	2(1.3)
15	43(28.7)	9(6)	98(65.3)
16	39(26)	29(19.3)	82(54.7)
17	62(41.3)	84(56)	4(2.7)
18	15(10)	13(8.7)	122(81.3)
19	30(20)	41(27.3)	79(52.7)
20	22(14.7)	8(5.3)	120(80)
21	30(20)	5(3.3)	115(76.7)

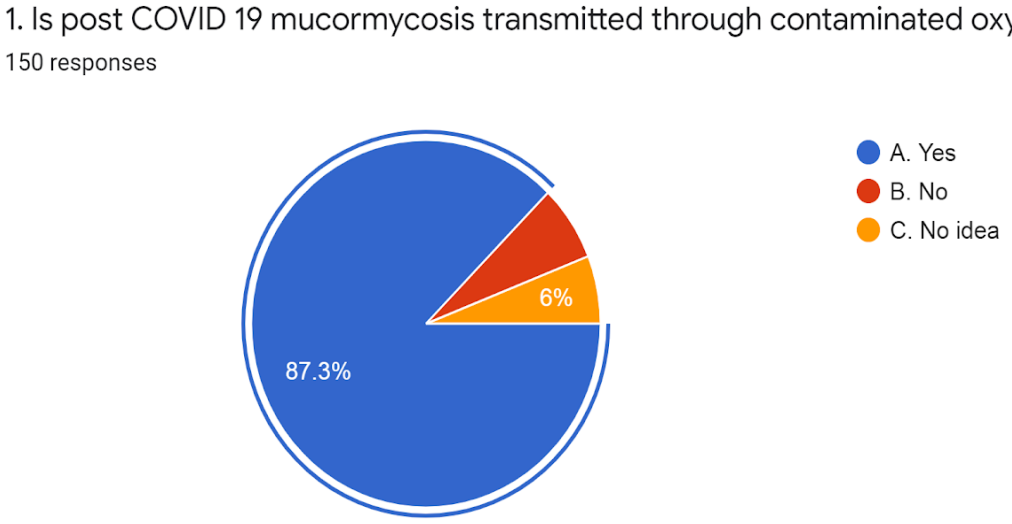
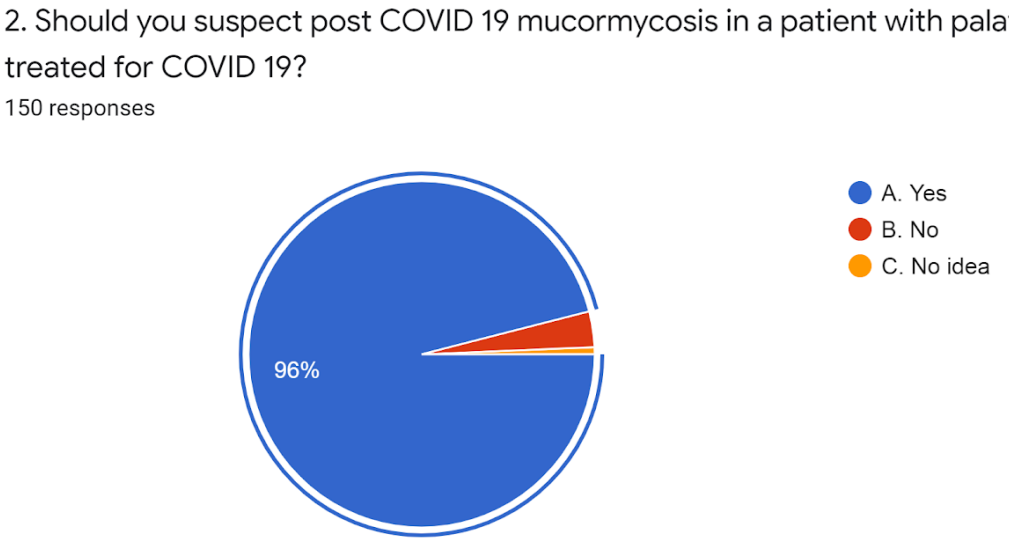


Figure 1



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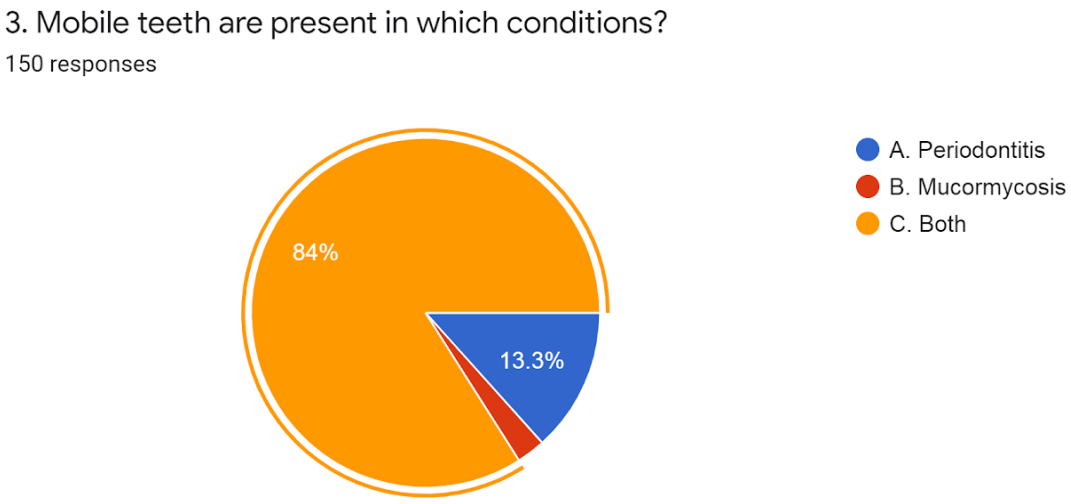

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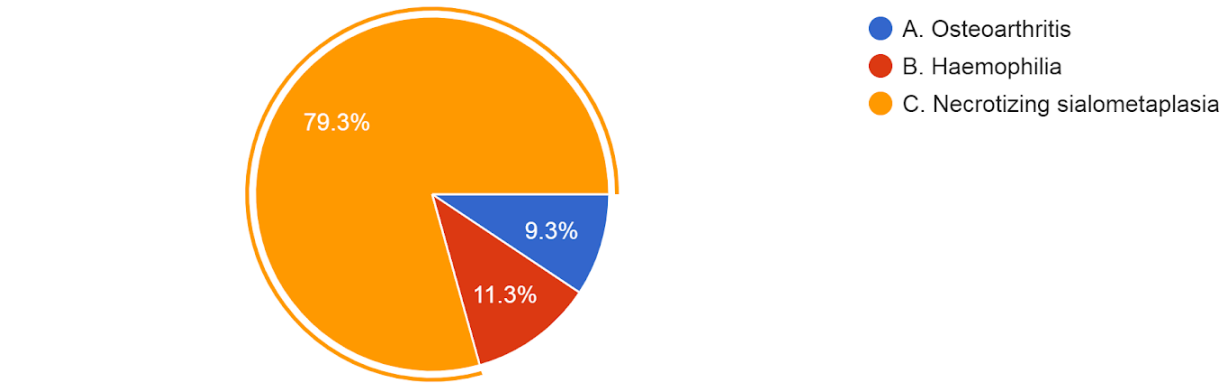

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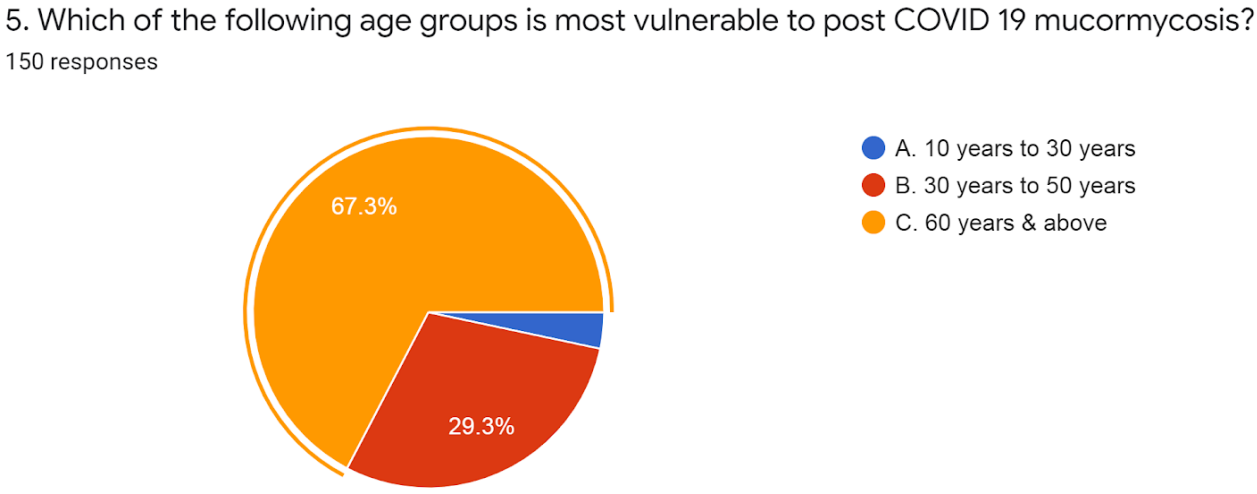

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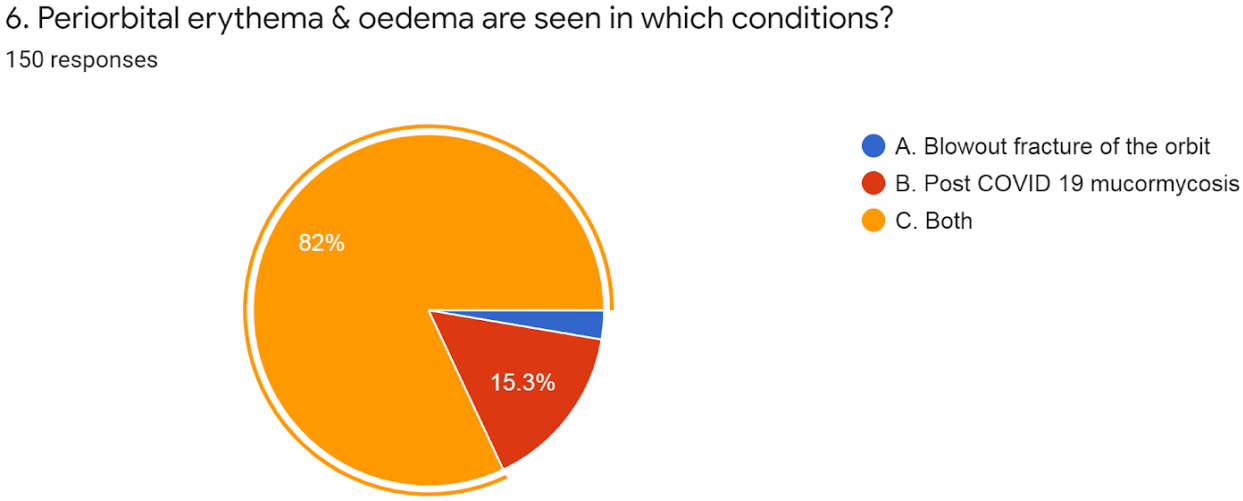

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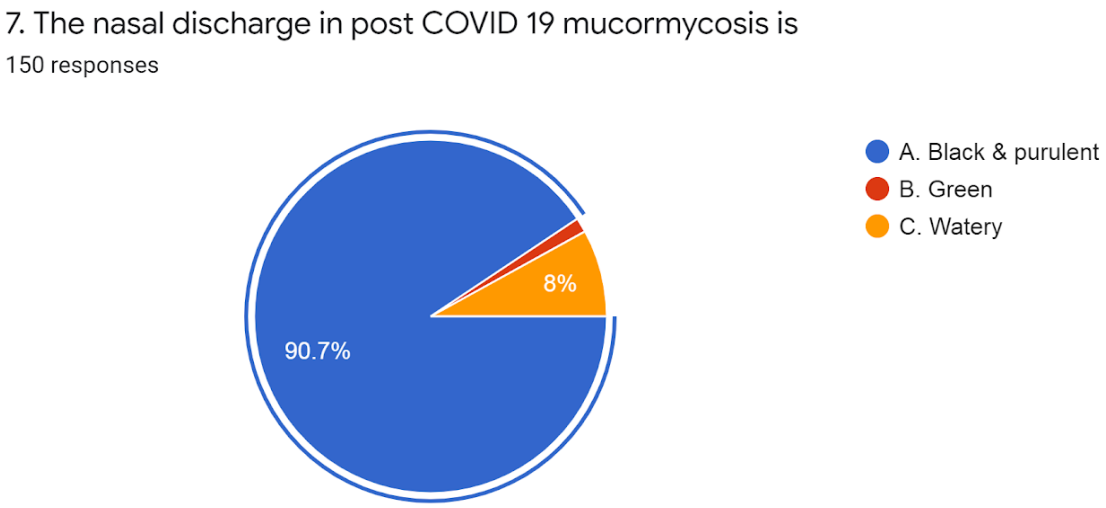

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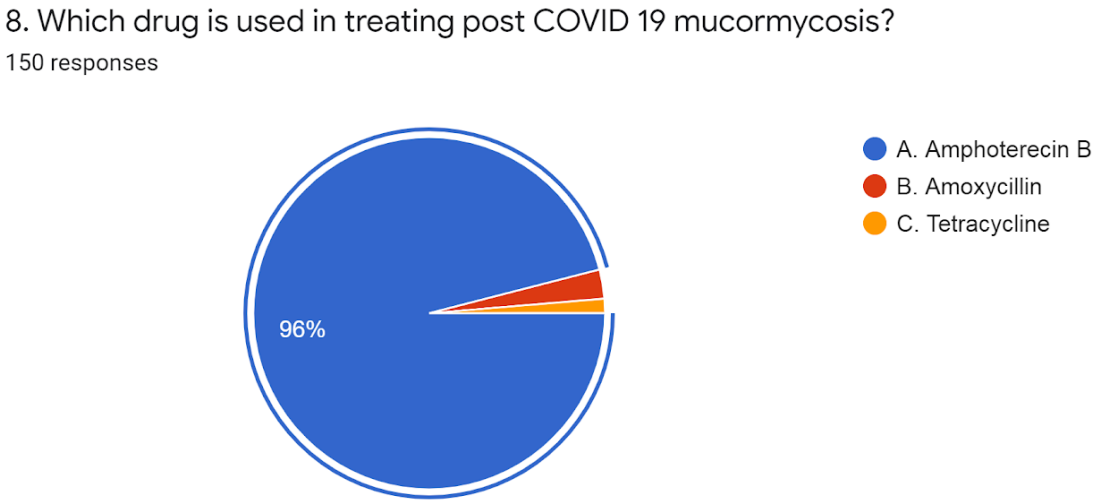

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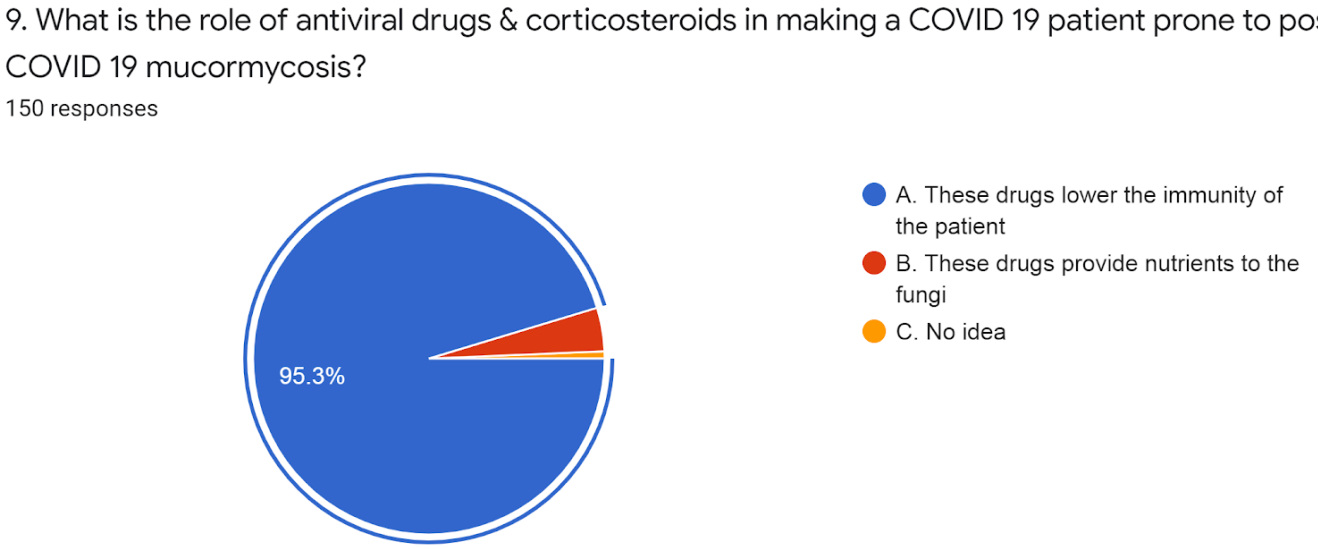

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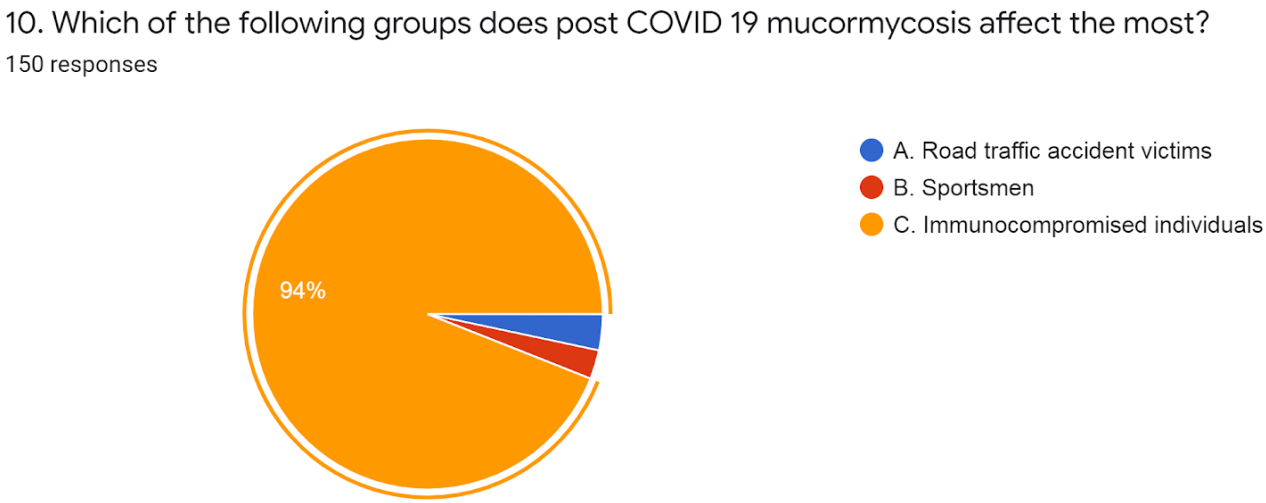

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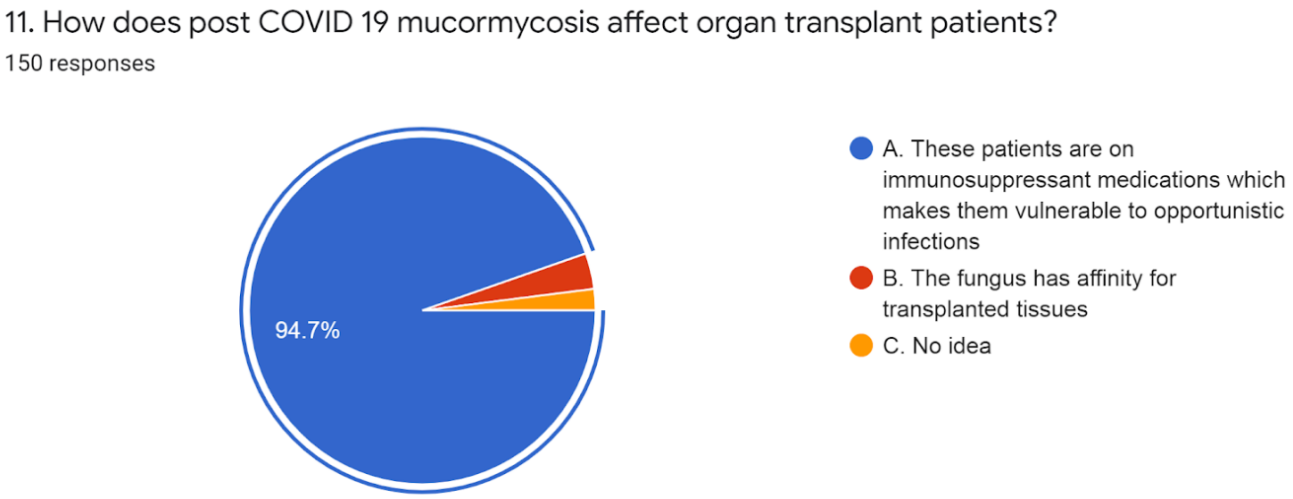

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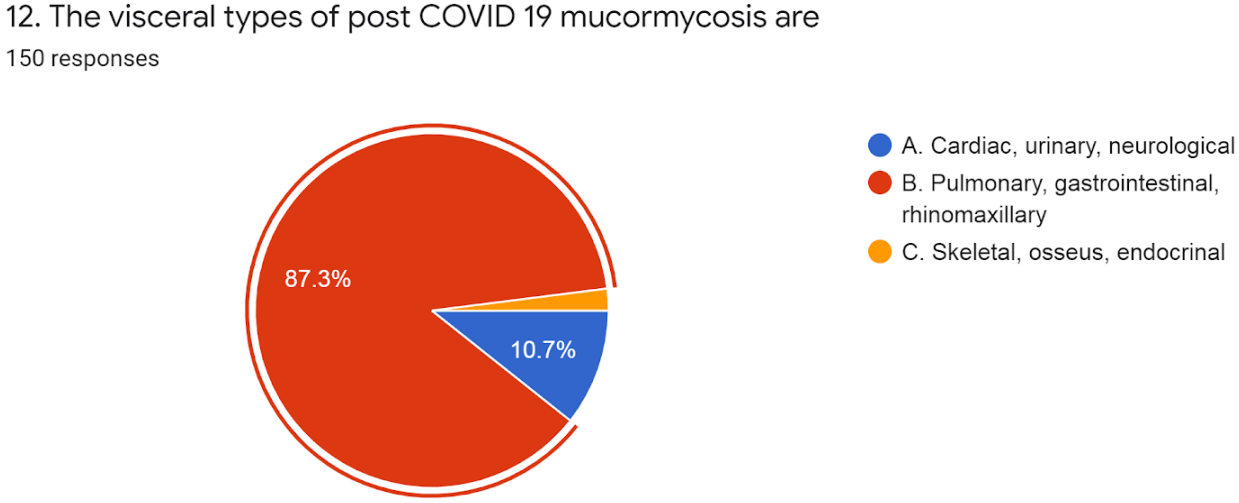

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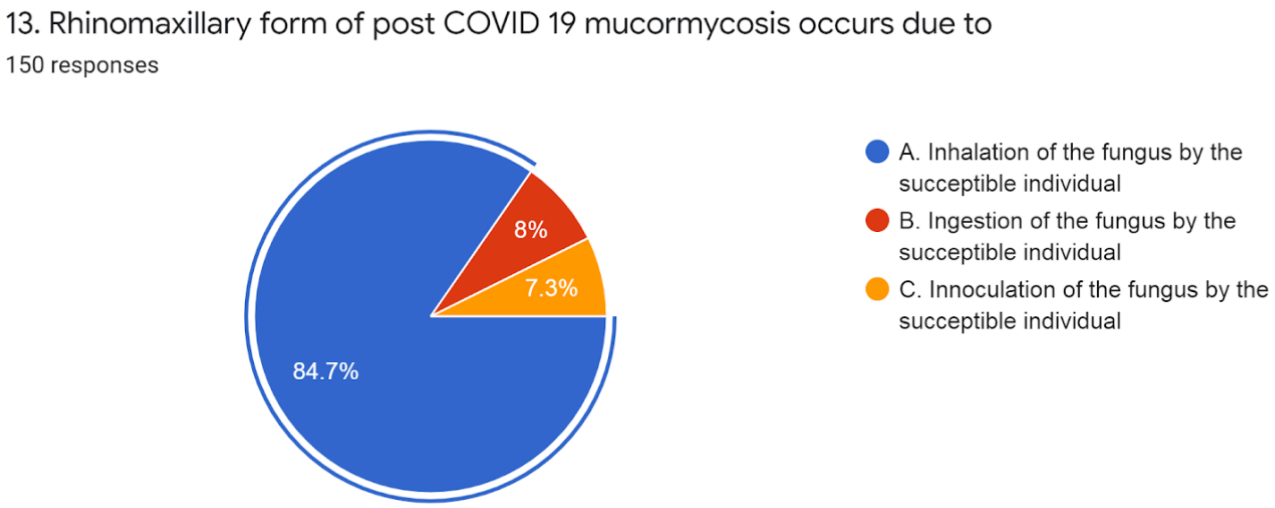

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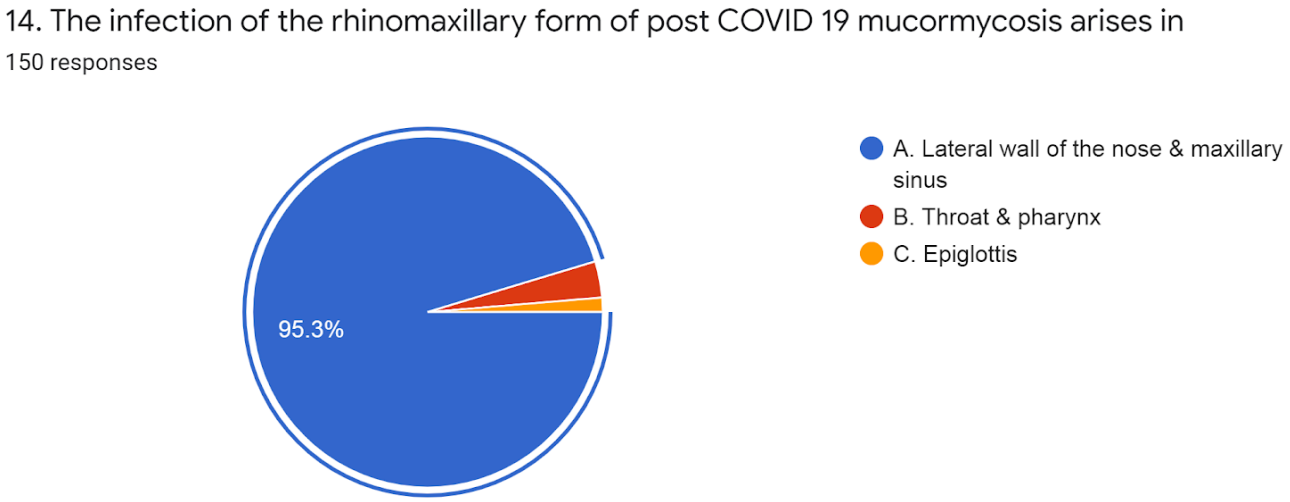


Figure 14

15. The infection of the rhinomaxillary form of post COVID 19 mucormycosis spreads by

150 responses

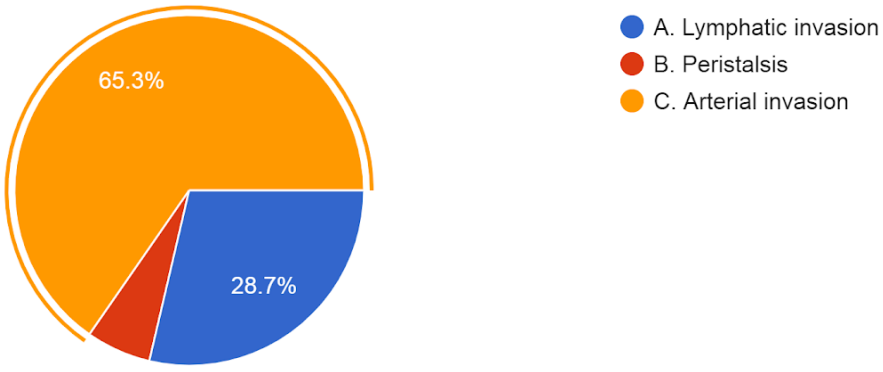


Figure 15

16. The infection of the rhinomaxillary form of post COVID 19 mucormycosis causes the following arterial changes

150 responses

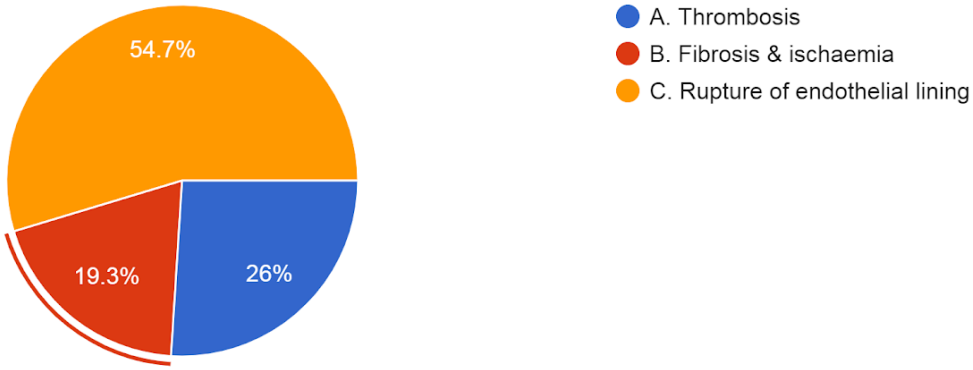


Figure 16

17. The reddish black nasal discharge seen in rhinomaxillary form of post COVID 19 mucormycosis is due to

150 responses

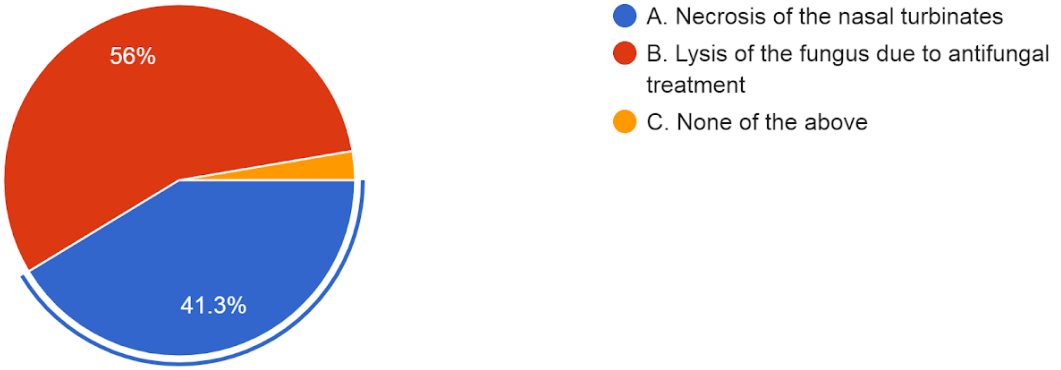


Figure 17

18. The palatal ulcers seen in rhinomaxillary form of post COVID 19 mucormycosis are

150 responses

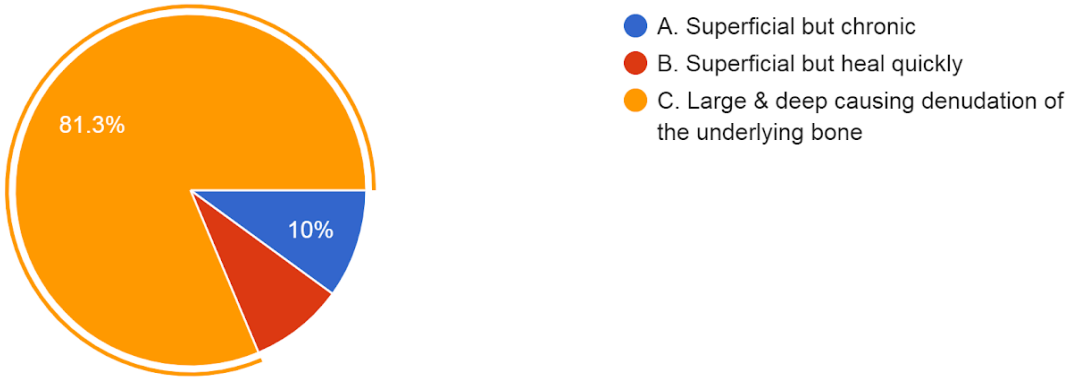


Figure 18

19. Radiographs of involved paranasal sinuses in a patient of rhinomaxillary form of post COVID 19 mucormycosis show

150 responses

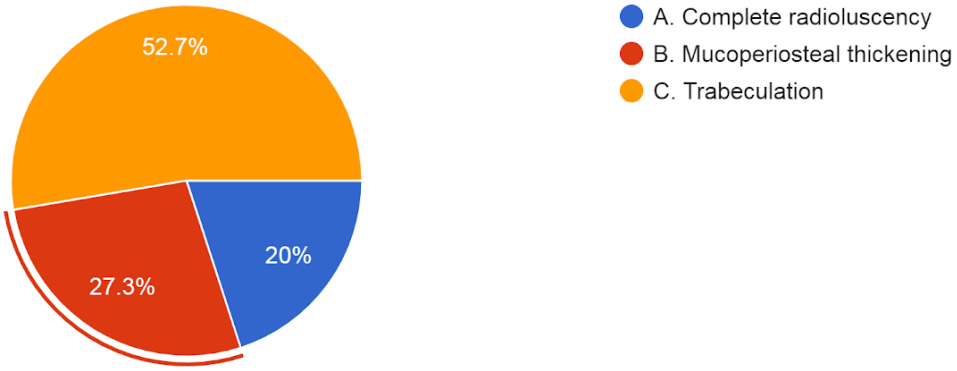
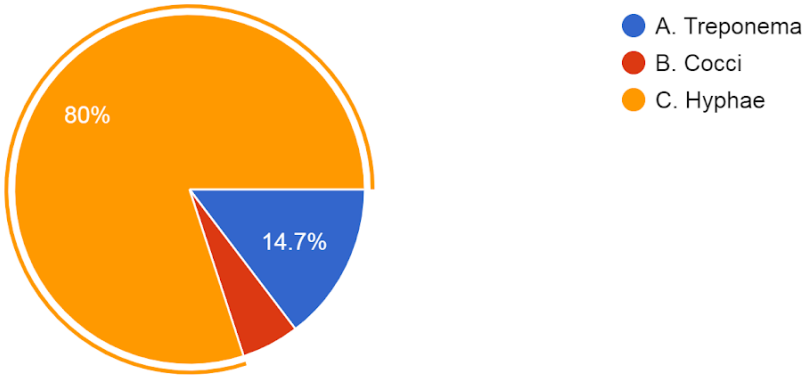


Figure 19

20. The histopathological finding of a specimen of rhinomaxillary form of post COVID 19 mucormycosis shows

150 responses



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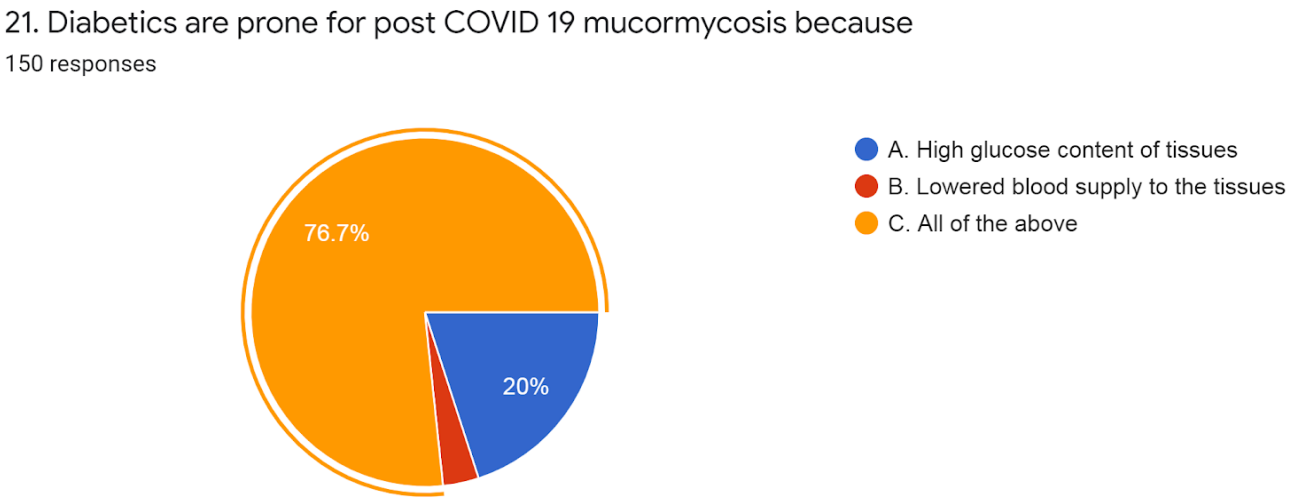

Figure 21

Discussion

Our study shows that, 87.3% of the trainee dentists that responded believed that post COVID 19 mucormycosis is transmitted through contaminated oxygen supply lines. 96% rightly suspected post COVID 19 mucormycosis in a patient with palatal ulcer, who had taken treatment for the former. 84% replied that mobile teeth are present in periodontitis & post COVID 19 mucormycosis. 79.3% were correct about necrotizing sialometaplasia being one of the differential diagnosis of post COVID 19 mucormycosis. 67.3% were aware that post COVID 19 mucormycosis occurs in 60+ age group. 82% of the respondents replied that periorbital edema & erythema are present in both post COVID 19 mucormycosis & blowout fracture of the orbit. When questioned about the color of nasal discharge in post COVID 19 mucormycosis, 90.7% responded correctly as being black & purulent. 96% were right to choose that Amphotericin B was the drug of choice in treating post COVID 19 mucormycosis. 95.3% correctly chose that the lowered immunity caused by antiviral drugs & corticosteroids during treatment of COVID 19 made a patient prone to post COVID 19 mucormycosis. 94% felt that immunocompromised individuals were the most vulnerable group to be affected by post COVID 19 mucormycosis. Organ transplant patients are on immunosuppressant medications which makes them vulnerable to post COVID 19 mucormycosis was indicated by 94.7% respondents. 87.3% correctly responded that visceral forms of post COVID 19 mucormycosis were pulmonary, gastrointestinal & rhinomaxillary. Inhalation of the fungus caused rhinomaxillary form of post COVID 19 mucormycosis was confirmed by 84.7% respondents. 95.3% responded that infection of rhinomaxillary form of post COVID 19 mucormycosis arises in lateral wall of the nose & maxillary sinus. 65.3% respondents were correct that the rhinomaxillary form of post COVID 19 mucormycosis spreads by arterial invasion. Only 19.3% respondents could reply correctly that rhinomaxillary form of post COVID 19 mucormycosis causes arterial changes of fibrosis & ischemia. The right option that necrosis of nasal turbinates causes reddish black nasal discharge in rhinomaxillary form of post COVID 19 mucormycosis was chosen only by 41.3% of the respondents. 81.3% replied that palatal ulcers in rhinomaxillary form of post COVID 19 mucormycosis are large & deep causing

denudation of the underlying bone. 27.3% respondents answered that the involved paranasal sinuses show mucoperiosteal thickening rhinomaxillary form of post COVID 19 mucormycosis. Hyphae are seen in histopathological specimens of rhinomaxillary form of post COVID 19 mucormycosis, was replied by 80% of respondents correctly. 76.7% of the respondents replied correctly that diabetics are prone to post COVID 19 mucormycosis due to high glucose content & lowered blood supply to the tissues.

Conclusion

The trainee dentists are fairly knowledgeable about the source, pathophysiology, clinical features, duration, treatment protocols & outcome of post COVID 19 mucormycosis as is evident by the above discussion. However, a state wide study, covering many dental colleges would shed more light on knowledge of trainee dentists on the above topic.

References

1. 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/
2. Jones et al. Mucormycosis of the oral cavity. Oral Surg Oral Med Oral Pathol. 1993;75:455-60
3. Sharma S, Grover M, Bhargava S, Samdani S, Kataria T. Post coronavirus disease mucormycosis: a deadly addition to the pandemic spectrum. J Laryngol Otol 2021;1–6. https://doi.org/10.1017/S0022215121000992