AWARENESS OF MANAGEMENT OF ORAL SARCOIDOSIS AMONG DENTAL STUDENTS

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ABSTRACT:

Introduction: Sarcoidosis is a multi-system, chronic granulomatous disorder of unknown etiology that typically affects young adults. Clinically it is found to affect the lungs, and less frequently the skin, eyes, lymph nodes, salivary glands and nervous system. Histopathologically, it is characterised by non-caseating inflammatory granuloma. Drugs of choice for sarcoidosis can be corticosteroids and for those patients who do not respond favourably to corticosteroids, alternative steroid-sparing drugs like immunosuppressants are given. **Materials and Methods:** The study included a sample size of 100 dental students using the non-probability convenient sampling method. Measures were taken to minimize error in the questions and to avoid leading questions. A self-structured questionnaire was prepared including 15 questions and circulated among the study population using an online Google forms link. Data collected from the responses received during February 2021. The received data is inserted into google sheets and exported to statistical software using SPSS version 23.0. **Results:** 55% of the participants were females and the rest 45% are males .50% of them were aware of oral sarcoidosis and the other 50 % were not aware. 58% of them selected buccal mucosa as the common site of oral sarcoidosis, 22% of them selected tongue and palate and the rest 20% of them selected gingiva 66% of the participants are aware of the effect of sarcoidosis on the throat and the other 34% were not aware. 71% of them said that the most prone gender is female and the other 29% say males. 63% were aware that sarcoidosis is an autoimmune disorder and the other 37% were not aware. 77% of them were aware that untreated oral sarcoidosis leads to cancer and the other 23% were not aware. **Conclusion:** From the present study it can be concluded that the majority of the dental students were aware of oral sarcoidosis and its complications. Some of the students had already attended surveys and camps on oral sarcoidosis.

Key words: Awareness, Knowledge, Oral sarcoidosis, Perception, Innovative technology

INTRODUCTION:

Oral sarcoidosis is an uncommon form of sarcoidosis, an inflammatory condition that leads to the formation of granulomas in various tissues. It can cause symptoms such as swelling of the salivary glands, dry mouth, sores or lesions in the mouth, swollen lips, and changes in taste. Diagnosing oral sarcoidosis typically involves a clinical exam, biopsy, imaging studies, and blood tests. Treatment usually includes corticosteroids to manage inflammation, immune-suppressing medications for more severe cases, and remedies for dry mouth, such as saliva substitutes. With timely treatment, the outlook is generally positive, though ongoing monitoring is essential to track progress and avoid complications. Sarcoidosis is a multi system, chronic granulomatous disorder of unknown etiology that typically affects young adults. Clinically it is found to affect the lungs, and less frequently the skin, eyes, lymph nodes , salivary glands and nervous system. Histopathologically , it is characterised by non-caseating inflammatory granuloma. Drugs of choice for sarcoidosis can be corticosteroids and for those patients who do nor respond favourably to corticosteroids, alternative steroid-sparing drugs like immunosuppressants are given. The cause of sarcoidosis is unknown till date , but experts think it results from the body's immune system responding to an unknown substance. Some research suggests that infectious agents, chemicals and dust could be responsible for the formation of granulomas in people who are genetically predisposed. However, sarcoidosis may last for years and may cause organ damage.(1). Most common oral or para-oral symptoms appear as asymptomatic swelling usually of the parotid gland or cervical nodes. There may be often changes in the minor salivary gland under clinically normal appearing mucosa in patients with systemic sarcoidosis (2). Sarcoidosis is more common in women than in men. The diagnosis is established when clinical and radiographics are supported by histologic evidence of noncaseating epithelioid cell granulomas. Oral lesions have typically been described as nontender, well circumscribed, and brownish red in colour. (3). Cutaneous sarcoidosis is one of the most common extrapulmonary manifestations of pulmonary sarcoidosis. Molecular analysis of sarcoidosis granulomas reveals the presence of mycobacterial DNA and proteins that are significantly absent from granulomatous controls. Mycobacterial DNA has been detected in cutaneous sarcoidosis lesions, in addition to systemic immune responses against mycobacterial agents. (4).

This study aims to assess the level of knowledge and understanding dental students have regarding the diagnosis and treatment of oral sarcoidosis. Given the rarity of the condition, it is crucial for dental professionals to be aware of its symptoms and management strategies, as early recognition can lead to better patient outcomes. The study helps identify gaps in education and awareness, ensuring that dental students are equipped

with the necessary knowledge to recognize signs of oral sarcoidosis and collaborate effectively with other healthcare providers for comprehensive patient care. Furthermore, it highlights the need for including more detailed training on uncommon systemic diseases like sarcoidosis in dental curricula to improve the overall quality of oral healthcare. The objective of the present study is to create awareness on complications and risk factors among dental students of Saveetha Dental College and Hospital. Many of the previous articles and authors have declared that the etiology of oral sarcoidosis is unknown; there are many experiments which showed the effect of oral sarcoidosis on death rate (2,4). Our team has extensive knowledge and research experience that has translate into high quality publications(5–13),(14–19),(20–24)

MATERIALS AND METHODS :

The study setting was done among the dental students of Saveetha dental college . Approval for the study is received from the scientific review board. The study included a sample size of 100 dental students using the non-probability convenient sampling method. Measures were taken to minimize error in the questions and to avoid leading questions. The dental students of all the years were included except the first years. A self-structured questionnaire was prepared including 15 questions and circulated among the study population using an online Google forms link. Data collected from the responses received during February 2021. The received data is inserted into google sheets and exported to statistical software. The method of representation of each output is pie-chart representation. The statistical test used is descriptive statistics using SPSS software, estimating the independent variables like height, weight, risk factors of other diseases and dependent variables like awareness, interaction, knowledge, attitude, and perception.

RESULTS :

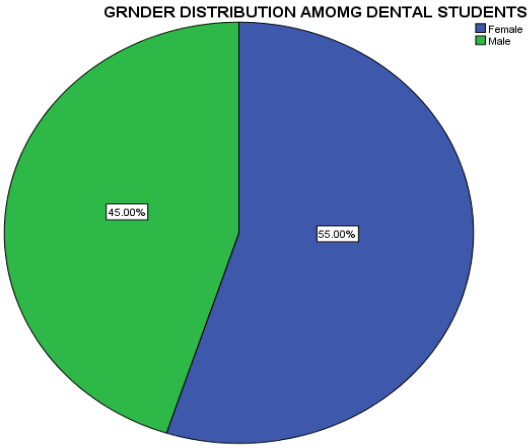

Figure 1 : The pie chart shows the percentage distribution of gender among the participants. 55% of them were females (blue) and the rest 45% were males (green).

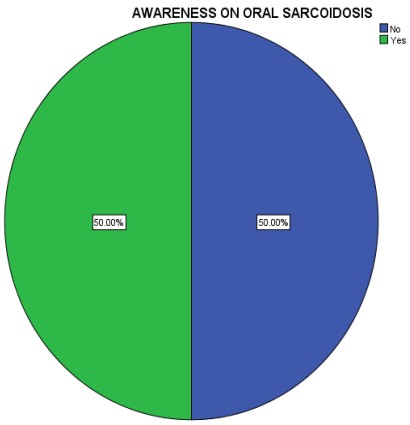

Figure 2 : The pie chart shows the distribution of participants having awareness of oral sarcoidosis. 50% of them were aware (green)and the other 50 % were not aware (blue).

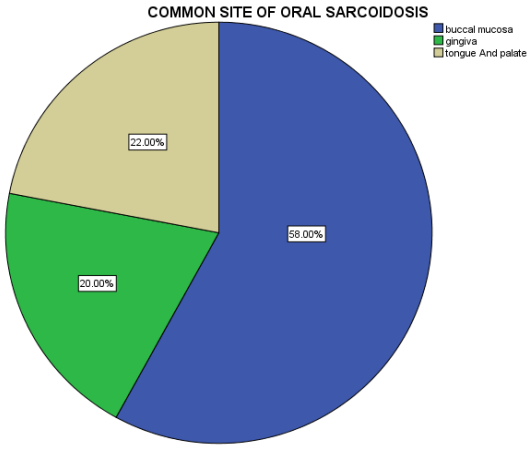

Figure 3 : The pie chart shows the percentage distribution of participants having awareness on a common site of oral sarcoidosis. 58% of them selected buccal mucosa, 22% of them selected tongue and palate and the remaining 20% of them selected gingiva.

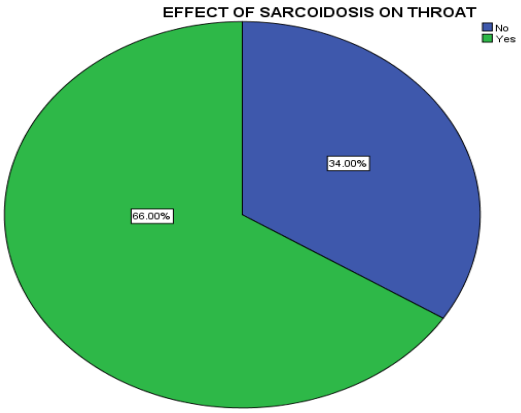

Figure 4 : The pie chart shows the percentage distribution of participants having awareness of the effect of sarcoidosis on the throat. 66% of the participants were aware (green)and the other 34% were not aware (blue).

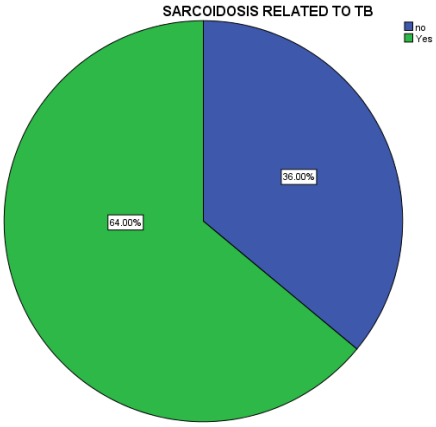

Figure 5 : The pie chart shows the percentage distribution of participants having awareness of the relation between sarcoidosis and tuberculosis. 64% are aware (green) and the other 36% are not aware (blue).

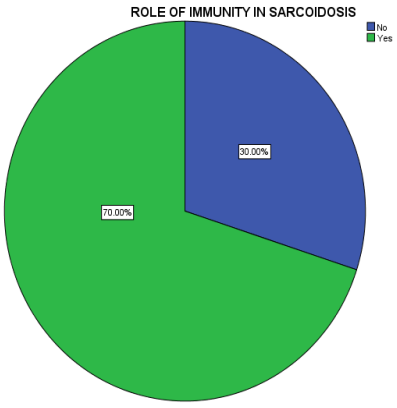

Figure 6 : The pie chart shows the percentage distribution of participants having awareness on the role of immunity in sarcoidosis. 70% of them were aware (green)and the other 30% were not aware (blue).

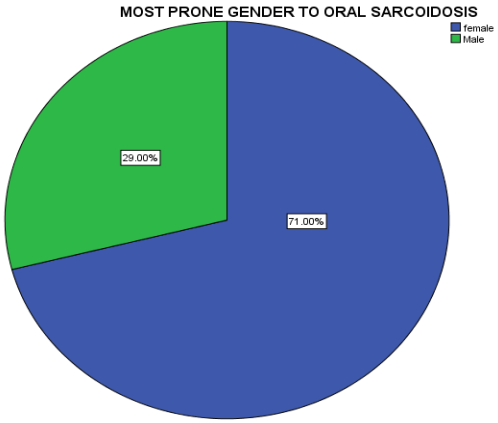

Figure 7 : The pie chart shows the percentage distribution of participants having awareness on the most prone gender to oral sarcoidosis. 71% of them say that the most prone gender is female (blue), and the remaining 29% say males (green).

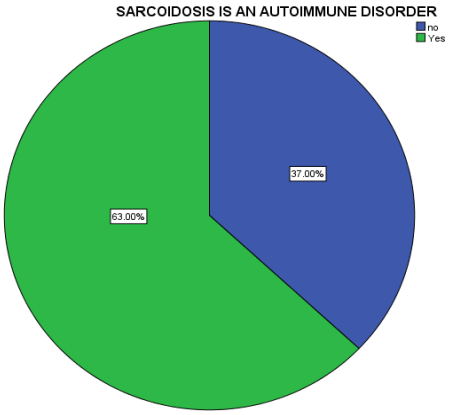

Figure 8 : The pie chart shows the percentage distribution of participants having awareness of sarbeing an autoimmune disorder. 63% are aware that sarcoidosis is an autoimmune disorder (green) and the other 37% are not aware (blue).

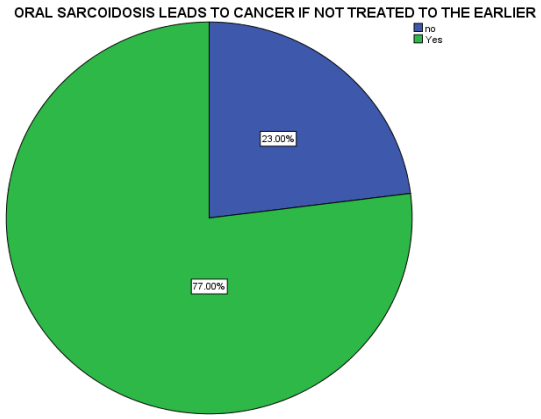

Figure 9 : The pie chart shows the percentage distribution of participants having awareness of oral sarcoidosis leading to cancer. 77% of them were aware that untreated oral sarcoidosis leads to cancer (green) and the remaining 23% were aware (blue).

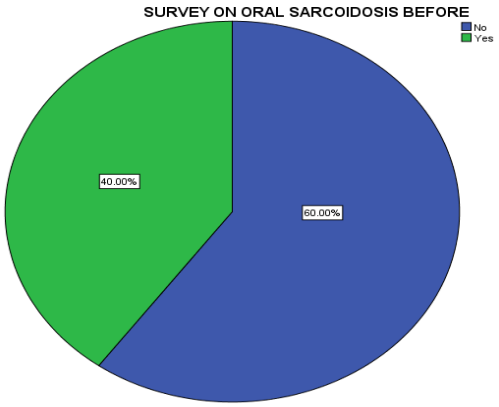

Figure 10 : The pie chart shows the percentage distribution of participants attending a survey on oral sarcoidosis before. 60% of the participants had already taken a survey on oral sarcoidosis (green)and 40% of them did not (green).

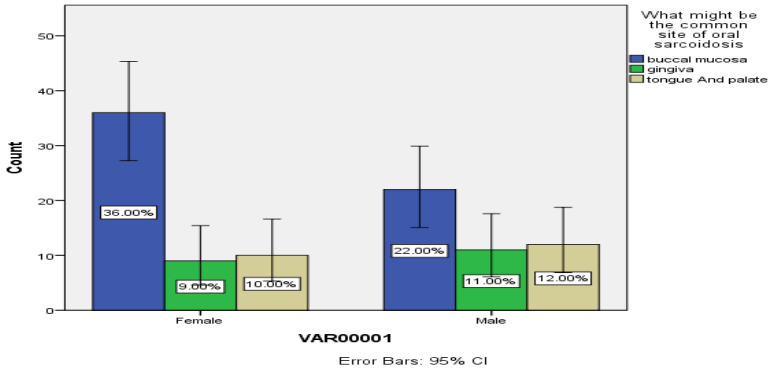

Figure 11 : The bar chart shows the correlation of gender with having awareness of the common site of oral sarcoidosis. 36% of females and 22% of males had given that buccal

mucosa can be the most common site for oral sarcoidosis. Majority of the participants among both male and females said that buccal mucosa is the most common site tongue and palate and least common site as gingiva. Pearson chi square test showed that p value was 0.225 (>0.05) which was statistically not significant.

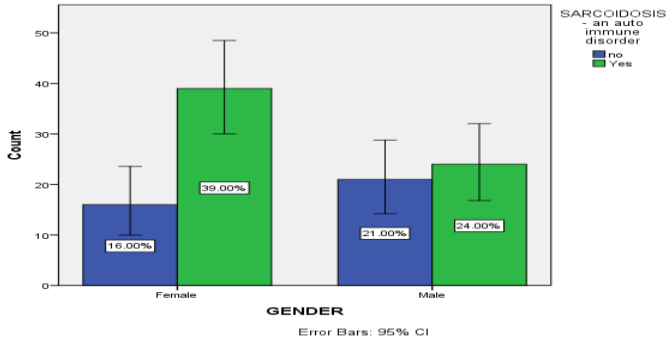

Figure 12 : The bar chart shows the correlation of gender to having awareness of sarcoidosis being an autoimmune disorder. 39% of females and 24% of male are aware and the others are not aware. Pearson chi square test showed that the p value was 0.275 (>0.05) which was statistically not significant

DISCUSSION :

In the present study, 55% of the participants are females and the rest 44% are males (figure 1). 50% of them are aware of oral sarcoidosis and the other 50 % are not aware (figure 2). 58% of them selected buccal mucosa as the common site of oral sarcoidosis, 22% of them selected tongue and palate and the rest 20% of them selected gingiva (figure3). 66% of the participants are aware of the effect of sarcoidosi on the throat and the other 34% are not aware (figure 4).64% are aware of the relation between sore throat and sarcoidosis and the other 36% are not aware (figure 5). 70% participants are aware of the role of immunity in sarcoidosis the other 30% are not aware (figure 6). 71% of them say that the most prone gender is female and the other 29% say males (figure 7). 63% are aware that sarcoidosis is an autoimmune disorder and the other 37% are not aware (figure 8). 77% of them are aware that untreated oral sarcoidosis leads to cancer and the other 23% are not aware (figure 9). 60% of the participants had already taken a survey on oral sarcoidosis and the 40% of them did not (figure 10). 36% of females and 22% of males had given that buccal mucosa can be the most common site for oral sarcoidosis. Majority of the participants among both male and females said that buccal mucosa is the most common site tongue and palate and least common site as gingiva (figure 11). 39% of females and 24% of male are aware that sarcoidosis is an autoimmune disorder and the others are not aware (figure 12).

Oral sarcoidosis has significant relevance to dental care, as dentists are often among the first to notice its symptoms through routine oral examinations. Symptoms such as enlarged salivary glands, oral lesions, and dry mouth can easily be confused with other more common conditions, so it's essential for dental professionals to recognize the signs of sarcoidosis. Early identification by dentists can prompt timely referrals to other medical specialists for a more comprehensive diagnosis and treatment. Additionally, managing oral health in sarcoidosis patients includes addressing dry mouth with appropriate substitutes, ensuring good oral hygiene to prevent further complications, and being mindful of treatments that may suppress the immune system, especially those involving corticosteroids. A cooperative approach between dental and medical professionals is vital for providing the best care and improving the outcomes for patients with oral sarcoidosis.
Sarcoidosis has been known for more than 120 years but remains a challenging diagnosis. The absence of reliable markers, multiple organ involvement, and various clinical and radiological findings make the diagnosis a challenging issue. About 30%–50% of the patients present with extrapulmonary manifestations of the disease (2), (3)If typical pulmonary lesions are absent, the diagnosis is based on histological verification and exclusion of other disorders. Modern imaging techniques, such as positron emission tomography/computed tomography and novel biomarkers, such as neopterin, interleukin-2 receptor, and serum angiotensin converting enzyme, may help in the diagnostics. The skin manifestations of sarcoidosis are common (about 15%) and may have various clinical appearances. (25),(25,26)Subcutaneous lesions, maculopapular rash, erythema nodosum, keloids, and changes in pigmentation can all be seen in skin sarcoidosis. The head-and-neck region can be affected in up to 15% of the cases. Salivary gland involvement resulting in xerostomia is the most frequent. The minor salivary glands can be affected as well; the nose and larynx can be also affected (in around 0.5%–6%). The manifestation of sarcoidosis in the oral cavity is much less common and may be very rarely the first presentation of the disease.(27,28)

LIMITATIONS : Included only dental students of Saveetha Dental College.

FUTURE SCOPE : Many articles and studies yet to come explaining complications and the other information on oral sarcoidosis. The future scope of the study on "Awareness of Management of Oral Sarcoidosis Among Dental Students" could involve several promising avenues. One direction could be assessing the effectiveness of targeted educational programs or adjustments to dental curricula aimed at increasing knowledge about rare systemic conditions like sarcoidosis. Long-term studies could also track how dental students' awareness evolves as they move from classroom learning to clinical practice. The

study could be broadened to include practicing dental professionals to measure their level of awareness and identify areas for ongoing professional development. Additionally, research could examine how improved awareness among dental practitioners influences early diagnosis, patient outcomes, and collaboration with other healthcare providers. Finally, the study could contribute to the creation of standardized management guidelines for addressing oral manifestations of systemic diseases like sarcoidosis in dental settings.

CONCLUSION :

From the present study it can be concluded that the majority of the dental students are aware of oral sarcoidosis and its complications. Some of the students had already attended a few online surveys and camps on oral sarcoidosis. On the other side it underscores the need to enhance dental students' knowledge of rare conditions such as oral sarcoidosis. Since early identification by dental professionals can significantly improve patient outcomes, it is vital to integrate more in-depth education about systemic diseases with oral manifestations into dental training programs. The study stresses that increasing awareness among dental students will better equip them to recognize symptoms, make appropriate referrals, and collaborate with healthcare providers. Future research and targeted educational initiatives can help address knowledge gaps and improve the standard of care for patients dealing with oral sarcoidosis.

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CONFLICT OF INTEREST : Nil

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