

Knowledge and awareness of neurological disorders among dental students

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ABSTRACT

Introduction: The central nervous system and oral cavity have a close anatomical location. Recognition of the orofacial manifestations of neurological diseases is in direct relation with the responsibilities of a dentist. Behavior management is a major challenge that affects the quality of dental treatment. Seizures, fear, and anxiety are commonly associated chairside difficulties and behavior management difficulties, in achieving a successful dental treatment for patients with neurological disorders. **Materials and Methods:** The study was carried among 100 dental students in Saveetha Dental College. Each student was asked to independently complete a survey comprising 10 questions constructed to assess the students on their knowledge and awareness of neurological disorders. **Results:** The extent of how much dental students and dental practitioners know about neurological disorders and to know how to treat a patient with neurological disorder progressively increases from undergraduates to dental practitioners. This can be attributed to increased awareness, knowledge, and experience into clinical practice and in-depth knowledge of various recent advancements in dealing with a patient with neurological disorders. **Conclusion:** The students did seem to be aware of neurological disorders, its oral manifestations but seem to lack a clinical perspective, and fault to effectively treat a patient with neurological disorder.

KEY WORDS: Awareness, Knowledge, Neurological disorders, Patient, Treatment

INTRODUCTION

The central nervous system (CNS) and oral cavity have a close anatomical location. They have common vascular supply and a related embryological origin.^[1] There must be a sense of personalization of dental care when treating a patient with neurological disorder.

Through the cranial nerves, most of the motor and sensory organs in the orofacial region have a connection with the CNS.^[2,3] The study of CNS and its diseases has been studied under various branches; he is to classify its etiology mainly such as the otology, ophthalmology, neurology, and neurosurgery.^[3] The CNS and its disease/disorder classification are vast and must be studied in detail to analyze the etiology and types and localized management to treat the patient. They can mainly be divided into various groups based on their etiology such as the neoplasia of neural

origin, diseases of cranial nerves, and neurological disorders by its orofacial manifestations.^[3,4]

Cranial nerve V, VII, IX, X, and XII disorders are important for a dentist because all sensory and motor functions in the orofacial region are under the control of these nerves. Bell's palsy, trigeminal neuralgia, vagoglossopharyngeal neuralgia, sphenopalatine neuralgia, post-herpetic neuralgia, atypical facial pain, hypoglossal nerve paralysis, and auriculotemporal syndrome are among common cranial nerve disorders.^[3,5-7]

Parkinson's disease is mainly a long-term degenerative disorder of the CNS that mainly affects the motor system. The symptoms usually come on slowly overtime. This is due to the progressive degeneration of nerve cells in the brain resulting in a decline in the dopamine levels. Dopamine is mainly a chemical that helps in transmitting messages between cells. Most Parkinson's patients are old and are less likely to opt for dental treatments except for emergencies.^[13] Medication used to treat parkinsonism causes xerostomia which leads to increase in the risk

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of caries and fungal infections.^[14]

Epilepsy is a neurological disorder which is mainly seen by the risk of recurrent seizures.^[15] Epileptic seizures may vary from brief and undetectable seizures to long periods of vigorous shaking. In a developed country, around 4–5/1000 persons have epilepsy. The risk of epilepsy increases with increase in age.

The purpose of this study was to mainly investigate the knowledge and awareness of neurological disorders among dental students and practitioners.

MATERIALS AND METHODS

A cross-sectional questionnaire survey was carried out to assess the knowledge and awareness of neurological disorders among the final year, postgraduate dental students and dental practitioners. Convenient sample size of 100 dental students and practitioners was decided and data were collected by questionnaire. From them, about 30 interns and 35 postgraduate dental students and 35 dental practitioners filled the questionnaire. This questionnaire was approved by the scientific research board of Saveetha Dental College. A specially designed survey was designed to assess the knowledge of neurological disorders among the final year and PG dental students and dental practitioners. This questionnaire was distributed to the final year and postgraduate dental students and dental practitioners in Chennai. The name and identity of the students and the practitioner were maintained anonymous. All the students were given a ½ h–1 h time to complete the questionnaire. The completed questionnaires were immediately collected and were analyzed.

RESULT

The extent of how much dental students and dental practitioners know about neurological disorders progressively increases from dental practitioners to postgraduates then when compared to the final years. This can be attributed to increased awareness, knowledge, and experience into clinical practice and in-depth knowledge of various recent advancements in Ron treating a patient with neurological disorder. A proper correlation and comparison can be drawn from the survey as to why there was a difference between students and practitioners this can be attributed to more experience and awareness in treating a patient with neurological disorder [Figures 1-4 and Tables 1-3].

DISCUSSION

Orofacial manifestations of neurological disorders are of utmost importance to the dentists, though it may seem vague to correlate disorders of two different

1. How often do you encounter a patient with neurological disorder in your clinic ?
2. Do you think there must be a treatment modification for patients with neurological disorders ?
3. Do you think there is a close association between neurological disorder and dentistry ?
4. How important do you think the patient past medical history and medications are in relation to neurological disorders?
5. What are the most contradictions during treatment that may occur due to medication taken by a patient with neurological disorder ?
6. What are the most common problems that occur in the dental chair during the treatment of patient with neurological disorder?
7. Most common oral manifestation of Parkinson's disease ?
8. Most common oral mansidestion of multiple sclerosis ?
9. Most common oral manifestation of neurological disorder?
10. Most common oral manifestation of seizure ?

Figure 1: Questionnaire used for the assessment

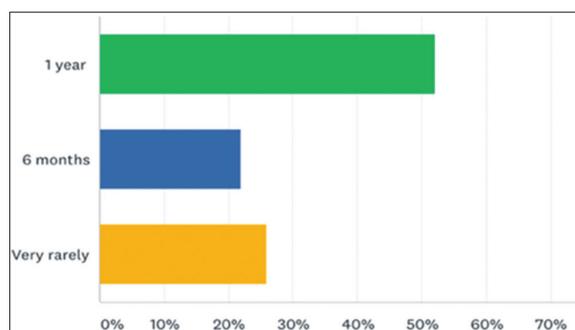


Figure 2: Graphical representation of data based on how often the dental students or practitioners encounter a patient with neurological disorder

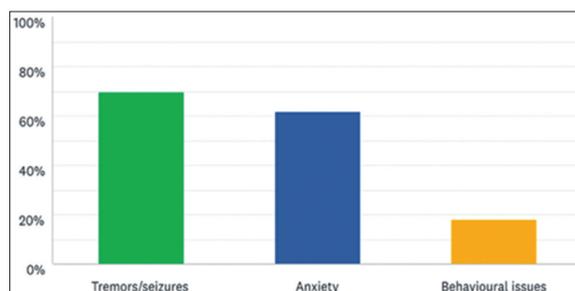


Figure 3: Graphical representation of data based on the most common chairside symptoms noticed when treating a patient with neurological disorder

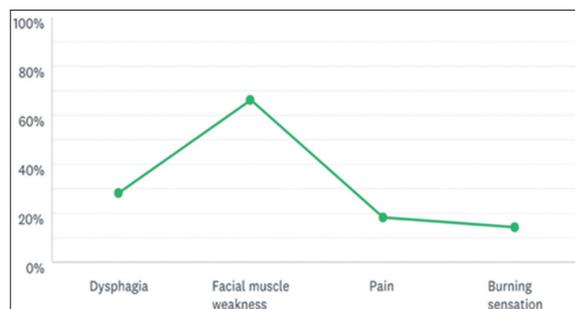


Figure 4: Graphical representation of data based on the most common oral manifestation of patient with neurological disorders

origins, the CNS has a very close relation to the oral cavity and is very important for the dentists to know

Table 1: Tabulation of the data based on the most common oral manifestation of Parkinson's disease

| Answer choices | Responses (%) |
|----------------|---------------|
| Xerostomia | 48 |
| Gingivitis | 28 |
| Dyskinesia | 20 |
| Candidiasis | 4 |

Table 2: Tabulation of the data based on the most common oral manifestation of multiple sclerosis

| Answer choices | Responses (%) |
|----------------------|---------------|
| TMD | 58 |
| Trigeminal neuralgia | 40 |
| Facial palsy | 2 |

TMD: Temporomandibular disorders

Table 3: Tabulation of the data based on the most common oral manifestation of seizure

| Answer choices | Responses (%) |
|--------------------|---------------|
| Periodontitis | 26 |
| Teeth trauma | 48 |
| Xerostomia | 14 |
| Bleeding disorders | 2 |

about and be familiarized with these neurological diseases and conditions. Although in everyday basis, it may not seem important or it may not overlap but recognizing them and being able to treat patient are very important and failing to do so may cause trouble.^[8,9]

From the survey conducted, we were able to conclude that the knowledge and awareness of treating a patient with neurological disorders progressively increases as the clinical expertise increases. On questioning a student and practitioners onto how often they encountered a patient with neurological disorder almost 52% answered that they encounter at least 1–2 patients every year. Almost all the students and practitioners felt that there must be a treatment modification when treating a patient with neurological disorder. About 94% answered that neurological disorder had a close association with dentistry. About 95% answered that thorough clinical case history taking is of utmost importance when treating a patient with neurological disorder. When asked about the most common oral manifestation of neurological disorders, they saw clinically about 42% answered that dyskinesia was common. About 80% answered that the most common chairside difficulty they felt while treating a patient with neurological disorder was dealing with the patients anxious state and behavioral issues were the most common ones. Moving onto see the knowledge of the student sand practitioners on neurological disorders about 48% answered that xerostomia was the most common oral manifestation of Parkinson's disease. About 58% answered that

temporomandibular disorders were the most common oral manifestation of multiple sclerosis and 58% answered that teeth trauma was the most common oral manifestation of seizures.

Neurological disorders affect the orofacial, orodental tissues in various ways. As moving onto the most important and common disorders that were faced in the clinic and were seen most often were Parkinson's disease, multiple sclerosis, seizures, myasthenia gravis, and Guillain–Barré syndrome.

Parkinson's disease is frequently associated with a variety of challenges and problems in a dental perspective and managing them in a dental approach. Parkinson's disease is a disease which affects all ages, but the severity is seemed to affect more with those of older age. Due to this dilemma, this may cause further challenges at home and at the dental office to maintain a particularly good oral hygiene and to periodic visits for intraoral examinations. Some of the major components of household dental care program establish digital dexterity, cheek lip coordination, and muscle hand coordination. Moreover, the presence of tremor alleviates against effective oral hygiene and plaque control measures. Individuals suffering from Parkinson's disease may also have dry mouth or xerostomia, along with dyskinesia which can be correlated to taking prescriptions like levodopa for several years. These conditions may be the prime cause of the worsening of already existing masticatory difficulties or denture anxiety. Usually, normal salivary flow helps to maintain the integrity of the oral mucosa, reduction of the salivary flow severely compromises the remineralization process of oral hard tissues which may be the leading cause of dental caries possibly progressing to root surface caries.^[10,11]

Patients with multiple sclerosis may present a very significant challenge to the clinician. The dentist must be completely aware of the clinical course of the treatment and must also perform a risk assessment before continuing with the course of the treatment or at the time of consultation. Before beginning with any procedure, the patients perceptual ability in the facial region must be tested. On research and review form the various research articles and clinical research, it has been seen that bilateral trigeminal neuralgia is most common in patients with multiple sclerosis. Patients having multiple sclerosis may also have chances of presenting with severe side effects of acute corticosteroids dosing and risk for adrenal suppression should be noted.^[13]

Seizure is a result of a spontaneous, uncontrollable excessive discharge of cerebral neurons that depolarize in a synchronized fashion and may result in abrupt suspension of motor, sensory, behavioral, or body function. The term epilepsys is used to describe multiple

seizures. On the treatment of a patient with seizure, it is necessary for the dentist to evaluate the epilogue, frequency, and type of the seizure. The dentist must also be aware of the known triggers for the episode. While the treatment of the patient, one just eliminates all the relative factors and triggers for the disease and must emergency precautions if in case a seizure occurs must be kept ready. Anti-seizure medications can significantly impact the oral tissues and in cases where the patient is under phenytoin medications, they may exhibit some degree of gingival hypersensitivity and xerostomia is one of the other common features of epilepsy which may a leading cause for candidiasis, dental caries.^[14,15]

Most of the above-mentioned disorders and diseases are of extreme importance and their oral manifestations play an important role in treating them.

CONCLUSION

The present study concludes that though most were aware of neurological disorders and were knowledgeable about the same they all lacked the same clinical exposure of a patient with neurological disorder and treating them for the same clinically and being able to understand the patient. This study provides a very good insight into the knowledge and awareness among dental students on treating a patient with neurological disorder. It is an important aspect for diagnosis and treating people with neurological disorders in a clinical practice and based on the present survey, we were able to conclude that students did have enough knowledge theoretically yet did face difficulty on practically treating a patient. Hence, it must be made essentially to include this as a part of their curriculum to effectively treat patients in a better manner.

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