

Knowledge, attitude and practice among dental professionals on oral manifestations and treatment complications of dengue patients.

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Abstract

Introduction

Dengue fever (DF) is a severe flu-like illness transmitted among humans by the mosquito *Aedes aegypti* and is seen mostly in the rainy season affecting all the age groups. Dengue fever has complications with dental treatment like post extraction bleeding. Oral mucosa is affected in approximately 30% of patients with dengue viral infections and more often in patients with DHF than with DF. The oral manifestations prominent in dengue viral infections are erythema and crusting of lips, tongue and small vesicles on soft palate.

Materials and methods

This study was conducted among dental professionals in Saveetha Dental college. A questionnaire consisting of 12 questions were prepared regarding their knowledge, attitude and practice and scoring was made to assess their knowledge on awareness in dengue fever complications and its management .

Results

Only 4% of dental professionals aware on all(fever, retro orbital pain, muscle pain/orbital pain, rash) dengue symptoms. Only 36% of dental professionals aware that all (haemorrhage, small vesicles on soft plate, xerostomia) as the oral manifestation of dengue. 56% of dental

professionals aware that bleeding time, clotting time, proper history will avoid complications in dental chair

Conclusion

7% of dental professionals have inadequate knowledge, 53% of dental professionals have only moderate knowledge, 40% of dental professionals have only adequate knowledge.

Key words

dengue fever, complications, management, bleeding, platelets

Introduction

Dengue virus infection is increasingly recognized as one of the world's emerging infectious diseases[1]. Dengue is regarded as one of the major mosquito borne viral diseases, endangering an estimated 2.5 billion people across the world. Approximately 50–100 million cases of dengue are reported annually[2]. Dengue viruses are single-stranded RNA viruses of the family Flaviviridae (togaviridae) are the most common cause of arboviral disease in the world has the ability to infect humans and cause disease, imparted generally by bites of Culicine mosquitoes of genus Aedes, principally Aedes aegypti (in urban areas) and Aedes albopictus (In rural area)[3]. Dengue fever presents as a common fever with dangerous complications. Infection with dengue virus (DENV) provides lifelong immunity to the serotype affected providing partial and transient protection against reinfection with the other three serotypes. Studies have documented that sequential infection with different DENV serotypes increases the risk of dengue haemorrhagic fever. The clinical presentations in dengue fever are similar to viral infections. The common clinical presentations are High grade fever, myalgia, headache, and vomiting, retro bulbar pain. But these manifestations are variable from adults and children. Children in addition to normal signs and symptoms present with epistaxis, melena and Hepatomegaly. More cases of dengue haemorrhagic fever are reported from children than adults. Dengue remains as puzzling disease in many aspects such as virus - host relationship and clinical expression variability[4]. Oral findings are secondary to the general manifestations. Limited literature exists which presents the oral manifestation of dengue fever[5]. Gingival bleeding is the most common oral manifestation of dengue infection. Oral lesions are rare to occur in dengue infection and if present, are often mistaken for bleeding disorders. Hence, oral manifestations in dengue infection are given significant importance in making an early and accurate diagnosis[6]. Dental professionals are usually aware of the impact of bleeding disorders on the management of their patients. Proper dental and medical evaluation of patients is therefore necessary before treatment, especially when an

invasive dental procedure is planned. Patient evaluation and history should begin with standard medical questionnaires but the regular update of the questionnaire is usually lagging[7]. A comprehensive history will also help us to detect other systemic disease for prolonged haemorrhage[8]. As dental professionals, it is essential to identify the oral presentations of dengue since the oral cavity is a common site of haemorrhage and may be the only early manifestation of the disease[7]. The aim of this study is to evaluate knowledge, attitude and practice among dental professionals on oral manifestations and treatment complications of dengue patients.

Materials and methods

This study was conducted among 100 dental professionals in Saveetha Dental college. A questionnaire consisting of 12 questions were prepared regarding the mode of transmission of Dengue, symptoms of dengue fever, platelet levels, oral manifestation of dengue fever patients, dental procedures and drugs avoided in dengue fever patients, precautions taken to avoid dengue fever complications, platelet levels and reason for avoiding antiplatelet drugs. Scoring was done based on each correct answer. The score between 1-4 was considered as the inadequate knowledge, the score between 5-8 was considered as the moderate knowledge and the score between 9-12 was considered as the adequate knowledge.

Results:

100 (67% of interns,33% interns) dental professionals participated in this study. 83% of dental professionals aware that dengue is a lifethreatening disease.73% of students aware that vector is the mode of transmission of dengue. 83% of students have the knowledge on platelet levels in dengue fever. 56% of dental professionals aware that fever as the symptoms of dengue. 23% of dental professionals aware that retro orbital pain as the symptom of dengue. 30% of dental professionals aware on muscle pain/orbital pain symptom. 20% of dental professionals aware on rash as the symptom of dengue. Only 4% of dental professionals aware on all(fever, retro orbital pain, muscle pain/orbital pain, rash) dengue symptoms[Chart 1].70% of students aware that dengue patients present oral manifestations. 60% of students felt the dental professionals play a vital role in identifying dengue. 56% of dental professionals aware that only aspirin should be avoided in dengue patients.3% of dental professionals aware that only ibuprofen should be avoided. 40% of dental professionals aware that both aspirin and ibuprofen should be avoided [Chart 2]. 3% of dental professionals felt that only extraction should be avoided in dengue patients. 7% of students felt that only scaling should be avoided in dengue patients. 7% of students felt that only

periodontal surgery should be avoided. 83% of dental professionals have the knowledge that all procedures (extraction, scaling, periodontal surgery) should be avoided [Chart 3]. 85% of dental professionals know the reason of avoiding antiplatelet drugs. 20% of dental professionals felt that only haemorrhage as the oral manifestation of dengue. 33% of dental professionals felt that only small vesicles on the soft palate as the oral manifestation of dengue. 10% of dental professionals felt that only xerostomia as the oral manifestation of dengue. Only 36% of dental professionals aware that all (haemorrhage, small vesicles on soft palate, xerostomia) as the oral manifestation of dengue. 13% of dental professionals felt that only clotting time is the precaution to avoid complications in dengue chair. 27% of dental professionals felt only proper history will avoid complications in dental chair. 56% of dental professionals aware that bleeding time, clotting time, proper history will avoid complications in dental chair [Chart 4]. 33% of dental professionals were able to diagnose dengue fever with a complaint of acute gingival bleeding with a history of fever for 3-4 days. 7% of dental professionals have inadequate knowledge, 53% of dental professionals have only moderate knowledge, 40% of dental professionals have only adequate knowledge [Chart 5].

Discussion

70% of students aware that dengue patients present oral manifestations. 20% of dental professionals felt that only haemorrhage as the oral manifestation of dengue. 33% of dental professionals felt that only small vesicles on the soft palate as the oral manifestation of dengue. 10% of dental professionals felt that only xerostomia as the oral manifestation of dengue. Only 36% of dental professionals aware that all (haemorrhage, small vesicles on soft palate, xerostomia) as the oral manifestation of dengue.

Mithra et al in her case report on Intraoral examination revealed the presence of raised hemorrhagic plaques both on the right and left buccal mucosa as well as on the dorsum of the tongue near the tip. The hemorrhagic plaques were found to be surrounded by the greenish blue mucosa and the surface of the hemorrhagic plaques was irregular. At the junction of the hard and soft palate, a diffuse area of erosion of 3 × 4 cm was present. The tonsils on the both right and left sides was enlarged and inflamed. Patient had xerostomia and the tongue appeared to be coated[9]. Haemorrhagic manifestations were seen in most of the patients as petechiae and purpura. The oral manifestations include that of gum bleed and petechiae in the soft palate[10]. Mithra et al presentation was typical showing severe hemorrhagic bulla extending in the right and left buccal mucosa and also involving the junction of hard and soft

palate. Saif khan reported acute Gingival bleeding as a complication of dengue hemorrhagic fever[11].

3% of dental professionals felt that only extraction should be avoided in dengue patients. 7% of students felt that only scaling should be avoided in dengue patients. 7% of students felt that only periodontal surgery should be avoided. 83% of dental professionals have the knowledge that all procedures (extraction, scaling, periodontal surgery) should be avoided. Prajesh et al reported post extraction bleeding caused by dengue hemorrhagic fever[8].

56% of dental professionals aware that only aspirin should be avoided in dengue patients. 3% of dental professionals aware that only ibuprofen should be avoided. 40% of dental professionals aware that both aspirin and ibuprofen should be avoided. 85% of dental professionals know the reason of avoiding antiplatelet drugs. Acetaminophen may be used to treat patients with symptomatic fever. Aspirin, ibuprofen nonsteroidal anti-inflammatory drugs (NSAIDs), antibiotics and corticosteroids should be avoided as these do not help but cause gastritis and/or bleeding[12,13,14].

56% of dental professionals aware that fever as the symptoms of dengue. 23% of dental professionals aware that retro orbital pain as the symptom of dengue. 30% of dental professionals aware on muscle pain/orbital pain symptom. 20% of dental professionals aware on rash as the symptom of dengue. Only 4% of dental professionals were aware on all the dengue symptoms.

Onset of symptoms is characterized by a biphasic, high-grade fever lasting for 3 days to 1 week. Severe headache (mainly retro bulbar), lassitude, myalgia and painful joint, metallic taste, appetite loss, diarrhoea, vomiting, and stomach ache are the other reported manifestations. Dengue is also known as break bone fever because of the associated myalgia and pain in joints. Of patients with DF, 50–82% report with a peculiar cutaneous rash[15,16,17,18]. The initial rash is the result of capillary dilatation, and presents as a transient facial flushing erythema, typically occurring before or during the first 1–2 days of fever. The second rash is seen at 3 days to 1 week following the fever, and presents as a asymptomatic maculopapular or morbilliform eruption[19].

73% of students aware that vector is the mode of transmission of dengue. The primary vector of DENV is *Aedes aegypti*, an endophilic mosquito, preferring to live in and around homes in tropical and subtropical regions. This mosquito feeds preferentially on human blood under field conditions, and inhabits tropical and subtropical climates, with the geographic range spanning all continents except Antarctica. A secondary dengue vector, *Aedes albopictus*, is more exophilic under natural field conditions, commonly living outdoors, but still feeds almost exclusively on humans in Thailand and preferentially on humans in the Indian Ocean. The strong preferences exhibited by these mosquitoes for human blood exhibited by increase the potential for disease transmission among human[20]. If the foraging mosquito is infectious, DENV will also be deposited in the dermis during probing and be subjected to this altered immune state, potentially encouraging the infection to establish in cells and tissues other than would be encountered during intradermal (in the absence of mosquito salivary proteins), subcutaneous, or intravenous needle-delivered challenges[21].

83% of students have the knowledge on platelet levels in dengue fever. In majority of patients thrombocytopenia is transient and asymptomatic but in significant number of cases there is bleeding manifestations. Spontaneous bleeding is noted in platelet count of <20,000 in majority of patients. Petichae/purpura is seen in platelet count in the range of 20,000-40,000. This signifies the need to evaluate platelet count and the prevalence of Dengue Fever with thrombocytopenia and the follow up after platelet transfusion[22].

13% of dental professionals felt that only clotting time is the precaution to avoid complications in dengue chair. 27% of dental professionals felt only proper history will avoid complications in dental chair. 56% of dental professionals aware that bleeding time, clotting time, proper history will avoid complications in dental chair. platelet count, [24] prothrombin time (PT) and partial thromboplastin time (PTT) as predictors of bleeding and outcome in patient with Dengue hemorrhagic fever. Partial thromboplastin time can be an index in predicting bleeding in dengue hemorrhagic fever. The tendency to bleed is greater with prolongation of > 30 seconds; platelet count can be a predictor of mortality, [25] with death six times greater among those platelet count < 50,000/microliters than those whose platelet count was > 50,000/microliters. Prothrombin time (PT) can also predict bleeding in patients with dengue hemorrhagic fever[23].

Conclusion

This study clearly shows that most of the dental professionals have only moderate knowledge on oral manifestations and treatment complications of dengue patients. Hence education should be given to create awareness on the oral manifestations and treatment complications to diagnose the dengue fever at the early stage along with the general symptoms and to avoid dental procedures that can cause complications in dengue patients.

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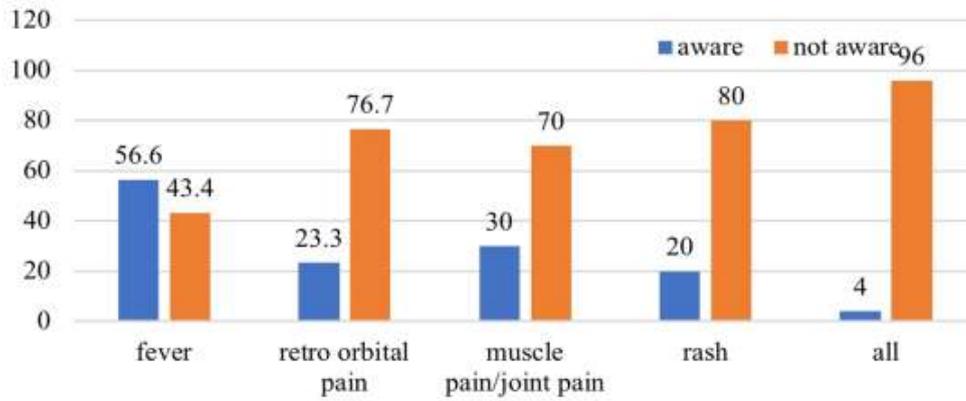


Chart 1: Dental professionals knowledge on symptoms of dengue

Chart 2: Dental professionals awareness on drugs avoided in dengue patients

Chart 3: Dental professionals awareness on procedures avoided in dengue patients

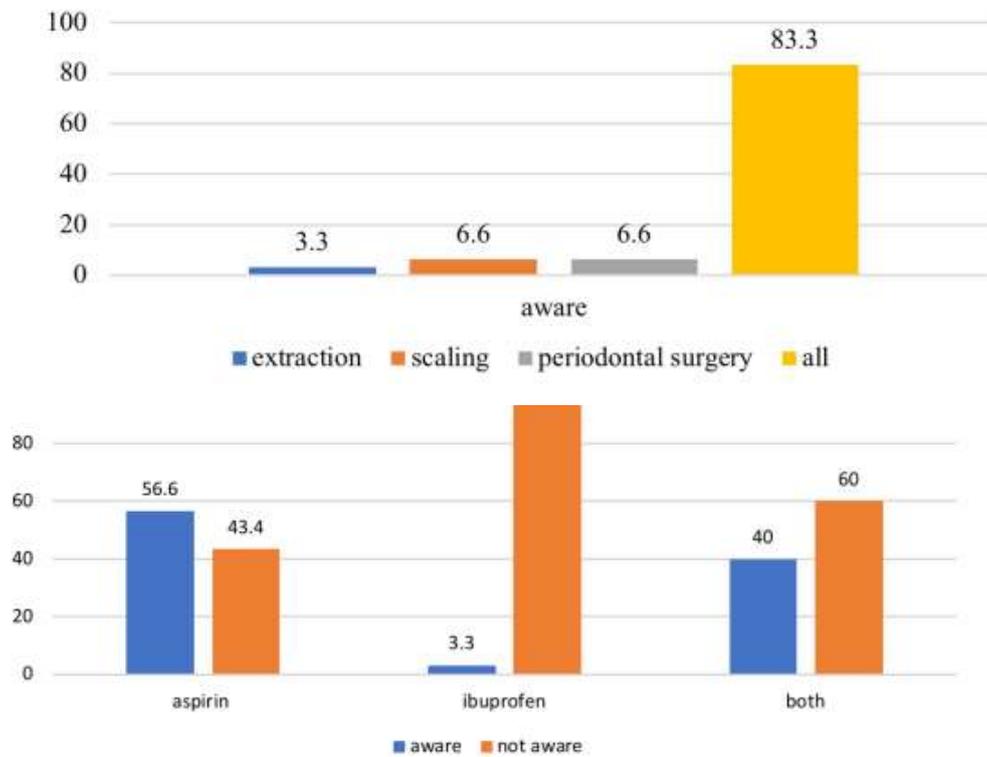


Chart 4: Dental professionals knowledge on precautions to avoid complications in dental chair

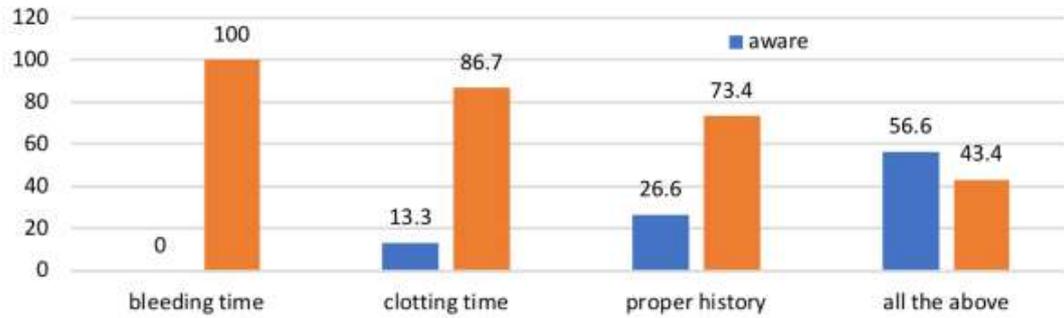


Chart 5: Percentage of Dental professionals in each category

