



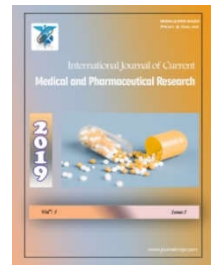
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Review Article

ORTHOSTATIC HYPOTENSION IN DENTISTRY- GOOD OR BAD- A REVIEW

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ABSTRACT

The prevalence of orthostatic hypotension/ orthostatic dysregulation or postural hypotension is increasing worldwide day by day. Postural hypotension is not a specific disorder or a complaint from an individual; it is manifestation of abnormal blood pressure regulation due to various other conditions. In this review we are going to discuss about postural hypotension and how it is bad for a dentist or doctor and good for the patient or an individual.

Key words:

Orthostatic Hypotension, dentist, Emergencies

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INTRODUCTION

Life threatening emergencies can and do occur in the practice of dentistry. These conditions can affect anyone a patient, a doctor, member of dental staff or a person accompanying a patient. Postural hypotension is one of those life threatening emergency. Orthostatic hypotension (OH) is characterized by a sustained decrease in blood pressure (BP) on standing. This drop in BP must be more than 20 mmHg for systolic pressure or more than 10 mmHg for diastolic pressure three minutes after standing upright or during a head-up tilt at 60degrees¹. In a survey of 2,704 dentists throughout North America, a total of 13,836 medical emergencies occurred in 2704 dental offices within a 10-year period. Of these, 2,475 (17.9%) were diagnosed as postural hypotension. Based on these data, the incidence of OH is 0.02 cases per dental office per year^{2,3}.

DISCUSSION

Postural hypotension occurs more frequently in dental offices. It is may be due to increase in the number of old persons seeking dental treatment, growing trend toward longer dental appointments and increasing the use and administration of drugs in dentistry⁴. It is estimated that during or after administration of local anesthesia more than 54% of the emergencies occurred in dental clinics. It is found that patient use to be very anxious during tooth extraction and pulp extirpation. So, these two procedures in dentistry associate with maximum number of emergencies^{2,3}. Moreover nowadays the use of suction pump during dental treatment is very common due to this patient mobility during dental treatment is decreased considerably which may be the reason of increasing

in the number of cases with orthostatic hypotension in dental offices.

It is mainly classified into two type's neurogenic and non neurogenic forms. Neurogenic forms are caused by a primitive damage to autonomic nervous system, while non neurogenic form is mainly caused by drugs and involve organs or systems regulating metabolic homeostasis and hemodynamics of the organism⁶. Clinical manifestations includes dizziness, headache, vertigo, nausea, weakness, angina, syncope, stoke, slurred speech, visual disturbances, fall. Symptoms affects the quality of life and increase the risk of myocardial infarction (MI) and death. Symptoms develop when individual stands suddenly. Standing pulse increases at least 30 beats per minutes. Standing systolic blood pressure decreases at least 25mmhg, standing disstolic blood pressure decreases at least 10 mmhg^{6,7,8}.

Pathophysiology

When individual stand up from sitting or lying down, due to gravity on average 800ml blood temporarily pools in the blood vessels of the legs. Sensors called baroreceptors located in the three major arteries- the aorta and the two carotid arteries detect this drop in blood pressure. In healthy individuals the cardiovascular and autonomic nervous system quickly respond by increasing heart rate and directing blood vessels in the legs and abdomen to constrict. These measures maintain the adequate blood pressure to the brain⁹.

This compensatory mechanism to increase blood pressure does not occur, or may be delayed, in a person with orthostatic hypotension. The blood pressure remains low, which triggers

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symptoms⁹. Predisposing factors includes fever, prolonged period of recumbence or convalescence, excessive amount of alcohol, administration and ingestion of drugs, dehydration due to vomiting, diarrhea, cardiac problems, addison's disease, pregnancy, certain conditions such as anemia, diabetes, varicose veins, nervous disorders such as parkinson's disease, neuropathy, Shy Drager syndrome, significant blood loss^{2,3}.

Diagnosis

- Dentist should take detailed history of illness, medical history which includes any medical condition and drug taken on a regular basis.
- Physical examination should be done which includes
 - The inspection of skin and mucosa for the sign of dehydration, pallor and for pigmentation.
 - Signs of peripheral neuropathy.
 - Blood pressure and heart rate should be measured after 5 minutes supine and at 1-3 minutes after standing.
- ECG, serum electrolytes, creatinine, thyroid stimulating hormone (TSH), and glucose are the routinely checked tests.
- Tilt table test gives more consistent results as compared to blood pressure assessment.
- Heart rate variability analysis when monitored intraoperatively is very useful to assess autonomic activity

How it is Bad for Dentist

Any dental professional can encounter an emergency during the course of their treatment. Early especially prompt recognition is very important to prevent the late complications. Dental practitioners and their supporting staff needs to have appropriate skills, training and equipment available to deal with potentially life threatening conditions. The ultimate goal is to preserve the life. If any emergency occurs in dental office during treatment dentist should be able to handle the problem calmly and should not panic. This will happen with thorough knowledge and vast experience in this field. One bad day can finish the career of the dentist. So, these emergencies are bad for dentist.

How it is good for Patient

During dental treatment when individual suffer from postural hypotension, it is the indication for the individual that something is wrong within the body. It may be the early sign or indication for other potentially life threatening conditions like myocardial infarction, atherosclerosis, Parkinson's disease, type of dementia, diabetes and others which may be present in individual unknowingly. So, individual can take necessary steps to find out the underlying cause of postural hypotension. By finding out the underlying disease individual can prevent the affect of disease on the quality of life.

Management

Position the unresponsive patient in supine position with feet elevated. This position helps the perfusion of the brain, which helps to recover the patient. Maintain airway, head tilt-chin lift procedure is usually very helpful to maintain the airway. Carotid pulse should be palpated to ensure circulation. If the patient is unconscious then oxygen should be delivered by full face mask. Monitor vital sign, especially heart rate and blood pressure repeatedly to determine the degree of recovery. Changes from supine to upright position must occur slowly. Patient should be repositioned with approximately 22.5

degrees with sufficient time for accommodation. When patient feels good at 22.5 degree then elevate to 45 degree so on up to 90 degree^{6,9,10,11}.

Prevention

Identify at-risk patient by evaluating the predisposing factors. Schedule the dental appointments 40 to 60 minutes after the ingestion of meals and medication. Make appointment short, number of appointment can be increased instead the duration of the appointment.

CONCLUSION

As healthcare in the world is improving day by day with this average lifespan of human being is increasing day by day. Even the standard protocol for the management of orthostatic hypotension is widely available, and then also dentist feels difficulty and anxiety to manage orthostatic hypotension. To prevent this more in-depth knowledge and exposure of the dentist particularly towards these emergencies is necessary to improve the quality of life of the patient's.

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