



A Cross – Sectional Study of Dentin Hypersensitivity in South Kanara Population

KEYWORDS

dentin hypersensitivity; prevalence; jet of air

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ABSTRACT *The aim of present study was to study the prevalence, common causes, aggravating factors and patient's awareness about dentine hypersensitivity of urban and rural patients of south Kanara population. A total of 2000 patients were randomly selected, who reported at the A.B. Shetty dental hospital and rural centers. Dentin hypersensitivity was evaluated by questionnaire, oral and clinical examination. On analysis of data, we found that the prevalence of dentin hypersensitivity was 22.5 %. Cold was the most common (15.9%) aggravating factor and the most common cause was gingival recession (7.4%), followed by non carious lesions (7.3%). Most common age group affected with dentin hypersensitivity was between 21-40. It was also noted that general population has limited awareness about the causes, symptoms and treatment modalities of dentin hypersensitivity in South Kanara population. So, public awareness for dentin hypersensitivity should be undertaken.*

INTRODUCTION

Dentin hypersensitivity is characterized by short, sharp, pain arising from exposed dentin in response to stimuli typically thermal, evaporative, tactile, and osmotic and which cannot be ascribed to any other form of dental defect or pathology. The most common primary clinical cause is exposed dentinal tubules.^{4,11} Among several theories, hydrodynamic theory given by M.Brännström in 1967 is the most accepted theory of dentin hypersensitivity- Rapid Shift of Fluid within Dentinal Tubules, following stimulus application like thermal, tactile, osmotic, chemical or evaporative results in activation of sensory nerve fibers (A-Delta) in the pulp or inner dentin region of the tooth.^{1,11,12,13} Dentin hypersensitivity is a common and frustrating problem that is found usually in the adult population (in age group of 20 to 50) with prevalence more than 40% worldwide, 4 to 74% in India and 26% in southern India.² This wide prevalence may be because of a number of factors, including different diagnostic methods, variation in the consumption of erosive foods and drinks and the type of setting where the study was carried out.

Limited data has been collected from previous studies and moreover many patients with minor tooth sensitivity are not aware about treatment options, making it very difficult to obtain an accurate prevalence of dentinal hypersensitivity, its possible causes, aggravating factors and effect of frequency of soft drink consumption for general population.⁷ The studies conducted before showed prevalence, most common affected teeth, most common cause and age group affected by dentinal hypersensitivity.²

Thus the objective of this present cross-sectional study was to determine the prevalence, common causes, aggravating factors and patient's awareness about treatment of dentin hypersensitivity – DH of urban and rural patients of south Kanara population.

MATERIALS AND METHODS:

The study was conducted for a period of 2 months in outpatient department of AB Shetty Memorial Institute of Dental Sciences, both satellite centers (mundukur, bailoor and nitte) and hospital centers in South Kanara in May and June 2012. Patients consuming analgesic drugs, tranquilizers or mood

altering medications were excluded from the study. A total of 2000 patients, were evaluated for dentin hypersensitivity with questionnaire, oral examination and jet of air after obtaining informed consent as below.

Questionnaire format:

GENERAL INFORMATION

- A. OP No.:** **B. Name of the Patient:**
C. Age Group 1-20; 20-4; 40-60; ≥ 60
D. Gender: Male/Female
E. Location Urban/Rural
F. Dietary Habits: Vegetarian/Non-veg

SPECIFIC INFORMATION

G. hypersensitivity - DH present/absent

H. No. of Quadrant affected: 1 / 2 / 3 / 4

I. Extent of Hypersensitivity – (Pain scores by Ayad et al .1994, Schiff et al. 1998;Schiff s cold air score)

0. Tooth or subject does not respond to air stimulus

1. Tooth or subject responds to stimulus but does not request discontinuation of stimulus
2. Tooth or subject responds to air stimulus and requests discontinuation of stimulus
3. Tooth or subject responds to air stimulus and considers stimulus to be painful and requests discontinuation of stimulus.

J. Aggravating factors Hot / Cold / Sweets

K. Causes: gingival recession / Fractured restoration / caries / Surgically treated / Non carious lesions

L. Frequency of soft drinks and citrus fruit ingestion– Regular / Often / Sometimes / Occasionally / Rarely

M. Actions taken by the participants-

Not done / Warm water and salt / Visit to dentist / Herbal tooth paste / Desensitizing toothpaste / Snuff / Other

Data obtained was filled in M S Excel spreadsheet and Statistical analysis was done using the Statistical Package for the Social Sciences (SPSS). Difference between variables were

analyzed using Chi-square test.

RESULTS:

Out of 2000 patients 449 patients showed a positive response to dentin hypersensitivity (22.4% prevalence). The prevalence of DH was more in 20-40 age group ($p=0.000$, very highly significant). Males were affected more than females ($p=0.001$, very highly significant). There was no statistical difference among the urban and rural patients ($p=0.442$). Non-vegetarians were affected more than vegetarians ($p=0.020$, highly significant). Out of 22.4% cases of DH, 12.5% of cases had mainly affected one quadrant followed by 5.2% cases had two quadrant affected, followed by all the four quadrant in 3% of cases and three quadrant affected in 1.6% of cases. Out of 22.4% cases of DH, 9.9% cases showed a score value of 1, followed by 8.5% cases that showed a score value of 2. Whereas 2.4% cases showed a score value of 0 and 1.7% cases showed a score value of 3. Most common aggravating factors for DH is cold (15.8%) followed by hot (2.6%), sweet (2.2%) and both cold and sweet (1.2%). Most common cause found was gingival recession (7.4%), followed by non-carious lesions (7.2%), surgically treated teeth (3.4%) and fractured restorations (3.0%). 8% of cases rarely consumed soft drinks and citrus fruit, followed by Sometimes (4.8%), Occasionally (4.1%), Often (3%), Regular (2.5%). 2% of patients were unaware of DH treatment plans. 5.2% visited the dentist and 5.1% used desensitizing tooth paste.

DISCUSSION: According to the results of the questionnaire and clinical examination the present study showed that the prevalence of dentin hypersensitivity - DH was overall 22.5%, which is similar to the previous study done by Hegde et al., 26%; Hsin-Cheng Liu – 32%. This may be because of the all these studies were conducted on hospital bases. While survey done by Chabanski M B⁵ in a population attending a specialist periodontal clinic was very high (84%). This could be due to factors such as recession due to periodontal disease or to periodontal treatment such as root planning or over vigorous tooth brushing. Also U.S. Rees⁶ showed high prevalence rate – 67.7% in Hong Kong. While studies done in Greece by N.A. Chrysanthakopoulos⁷ showed low prevalence – 18.2% and Rees JS Addy M.³ showed only 4.1%. This may be because of higher social classes and evaluation of dentin hypersensitivity was done by means of intraoral tests. In the present study dentin hypersensitivity – DH is more prevalent in males than females, which is in accordance to studies done by Chabanski M B⁵, while the studies done by Rees JS Addy M.³, Hsin-Cheng Liu⁴ and N.A. Chrysanthakopoulos⁷ found more prevalent in females, which may reflect their overall healthcare and better oral hygiene awareness.

In the present study dentin hypersensitivity – DH is more prevalent in age group of 20-40yrs, with slightly less in 40-

60yrs age group, with the more frequency at the age of 42yrs. This particular age distribution may be because reparative capacity of dental tissues is less at this age.

This present study suggests that cold is the most common aggravating factor (15.8%) for dentin hypersensitivity. This is in accordance to various studies done by Chabanski M B⁵, Rees JS³, U.S. Rees⁶. They also found cold drink is the most common aggravating factor. This may be due to higher consumption of carbonated soft drinks and supports hydrodynamic theory.

In the present study most common cause of dentin hypersensitivity is due to gingival recession. This is in agreement with some studies done by Rees J S, Mithra N. Hegde, Neha Bhalla². While this is not in agreement to other studies done by Hsin – Cheng Liu⁴, who reported that toothbrushing was the cause of their hypersensitivity (62%). This variation was because of questionnaire form that was filled by patients.

The present study shows that 7.2% of patients had not done anything for dentin hypersensitivity, followed by 5.2% of patients visited dentist and 5.1% of cases used desensitizing tooth paste. This results are due to lack of patient awareness to dental treatment. Hsin-Cheng Liu⁴ also found that only few patients who claimed to have dentin hypersensitivity had tried treatment with desensitizing tooth paste (11%) or sought professional help (5%).

According to studies done by S. Wongkhantee⁸, M.E. Barbour⁹ and Vanuspong W¹⁰ acidic beverages and cola drinks depending on PH, Temperature and frequency of exposure are responsible for softening of dental hard tissues and restorative materials that are exposed. But present study shows that maximum (8%) of cases of DH rarely have soft drinks and citrus fruit ingestion. This reflects there is very less relation between occurrence of DH in south Kanara population with ingestion of acidic beverages.

CONCLUSIONS

The prevalence of dentin hypersensitivity in south Kanara population is 22.5%. Males are affected more than females, most common age group affected is 20-40 years, cold is the most common aggravating factor, most common cause is aging and non carious lesions. All these results are somewhat similar to the studies done previously at various places and some results does not match also. The awareness among patients for the treatment of the same is limited. So correct protective measures should be publicized for dentin hypersensitivity.

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