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ORIGINAL ARTICLE

Prevalence of Cervical Spondylitis in Dentists of Lahore

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ABSTRACT

Aim: To analyze prevalence of cervical spondylitis among dentists practicing in Lahore.
Methods: A cross sectional survey of 6 months was conducted on 110 dentists practicing in dental clinics of Lahore were examined using neck disability index performa. SPSS Version 24 used for entering/analyzing the data.
Results: In 110 individuals, 22% dentists including males (n=19%) and females (n=24.2%) were suffering from cervical spondylitis. According to neck disability index 34.5% had no disability, 47.2% had mild, 10.9% had moderate, 5.4% had severe disability and only 1.9% had complete disability. The major number (30%) was among 41-50years, and also statistically significant difference was observed (p-value = 0.02). Similarly maximum number of cervical spondylitis was found among females, 15(24.2%) but statistically insignificant difference was observed with respect to gender (p-value = 0.493). Longer practicing experience had also significant impact on the occurrence of spondylitis (p-value <0.001).
Conclusion: Dentists are likely to have neck pain prevalent in them and very few had cervical spondylitis (22%) but the damage could be reduced if postural changes and regular exercises could be adapted.
Keywords: Cervical Spondylitis, Neck Disability Index, Postural Changes

INTRODUCTION

The field of dentistry is mentally and physically a challenging profession. Whereas the physical features include hearing, visual quality, good psychomotor skill, manual skill and capability to uphold good posture throughout work for an extended time period. For instance if a dentist be unsuccessful to amend to a specific working environment, the individual can face some serious consequences which can lead to injury or disability. Therefore dentists are prone to the work-related disorders[1,2].

World Health Organization describes work related musculoskeletal diseases (MSDs) being dependent on many factors including but not exclusive to structural, psychosocial and socio-cultural variables. The second most common MSDs in dentistry is neck pain[3]. The symptoms of neck related MSDs are categorized by occurrence of uneasiness, disablement and pain for a prolonged time period in the soft tissue structures.[4] Dentistry demands high accuracy and is frequently performed with the cervical spine being rotated and flexed forward. This produces high static load in the neck region. Extended duration of static load and repetitive movements can result in neck pain, muscle imbalance or cervical instability[4]. As the oral cavity is narrow, dentists have a constrained visual field and restricted movement of neck and back leading to pain in these regions[5].

Cervical spine showed instability due to head and neck forward flexion causing straightened neck curvature. The disc herniation as well as prolapse risk is also high because of lengthening or shortening of specific ligaments, tendon and associated muscles. The inflammation in the neck is caused as a result of unstable posture and overload to the neck[4].

The symptoms of neck pain can be worse in such professions where work demands extended head posture and utilization of muscles with reduced endurance that stabilize the neck[5]. Cervical spondylitis and tension neck syndrome (TNS) terminologies are confused with each other. But for instance the main difference lies in that later (TNS) is mostly associated with muscular spasm or tenderness with usually radiating pain towards arms, skull and also often between should blades. The primary causative factor for TNS is poor posture with forward head position. Whereas, neck pain as a result of cervical spondylitis includes forward head posture or increased working hours[5].

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Risk factors for cervical spondylitis include high demands of job, poor job control, minimum social support and some personal characteristics.[6] Age related changes in vertebral column, its shape, weakness of muscles, poor practice posture / techniques of lifting and mechanical pressure are factors that contribute in neck and back pain.[7] Cervico-genic headache is a pain that refers from cervical spine to the head. Physiology of this pain is conjunction between trigeminal afferents and upper three cervical spinal nerves afferents[8].

The most common symptoms for cervical spondylitis include neck pain. [9] As per global burden of disease, cervical pain being considered 4th cause for reduced efficiency. [10] The symptoms of cervical pain could relapse in a year or so in 60 to 80 percent people[11]. The global proportion showed that in United States (15.1%), Spain (19.5%), Brazil (21 to 24 percent), China (48.7%), Greece (20%) and Sri Lanka (57%) had cervical spondylitis. [12-14] The average dentists affected with this problem was 30 to 50 percent. [12] The incidence among women (27.2%) was high than in men (17.4%), respectively. [13] During their life-span, 67% of the total individuals living across the globe experience neck pain at least once. [14] The important aspect is to periodically monitor risk factors, earlier diagnosis as well as applying preventive measures must be ensured for reducing effects of this disease[14].

Cervical spondylosis, also known Cervical Spondylitis, is a common degenerative disease that affects the bones in the neck (vertebral bodies) and the intervertebral discs in advancing age or undue mechanical stresses. In those who are symptomatic for cervical spondylosis, pain and stiffness of the neck are common. Other symptoms include such as headache, muscle spasm, creaking when turning the neck, loss of balance, the weakness of the upper and lower limbs, numbness of arms, hands, or fingers. [15] In severe cases where the spinal cord is compressed, bladder and bowel function are impaired and also pain radiates to other areas of the body such as arms, shoulders, and head[15]. This disease is usually diagnosed on clinical grounds only[16].

Magnetic Resonance Imaging (MRI) having higher and better ability among imaging modalities for assessment of spinal soft tissues such as ligaments, bone marrow, disc elements, as well as the spinal cord. So, neck pain etiology assessment is better understood by the MRI of suspects for cervical spondylitis[17].

After establishment of work related predisposition of the dental fraternity, aim of the present study was to determine the prevalence of cervical spondylitis among the dentist professionals

of Lahore, for highlighting the important dilemma faced by the majority.

MATERIAL AND METHODS

This cross sectional survey was carried out among 110 dental health professionals from Lahore after approval of institutional Ethical Review Board, selected randomly during specified time period from November 2020 till April 2021. The sample size was calculated using WHO sample size calculator 2.0 taking 44.7% mild disability among dentists[1]. The dentists having at least five years of experience were included in the study. They were assessed for presence of cervical spondylitis using neck disability index[18]. MRI was not performed due lack of funds because it is an expensive modality in our setup, in addition to it dentists were not ready for radiation exposure irrespective of the severity of the disease they were suffering. The data was reviewed and entered in SPSS Version 24.0. Scoring for neck disability index was done on the basis of the criteria given[19] (Table 1). Frequency along with percentages was calculated for categorical variables and Mean±SD was calculated for quantitative variables. Chi square test was used for association between socio-demographic and practice duration. Statistically significance was set as p-value ≤ 0.05.

RESULTS

Among all health professionals, 110 dentists were selected randomly and enrolled for this study. Among these 48(43.6%) were males and remaining 62(56.4%) were females, age ranged from 30- 50 years. The mean age of the dentists was 37.8±5.7 years. In 110 dentists, neck disability index showed that 34.5% had no disability, 5.4% had severe disability and only 2% had complete disability (Table 2).

Table I: Scoring Criteria of Neck Disability Index[19]

0-4 Points (0-8%)	No disability
5-14 Points (10-28%)	Mild disability
15-24 Points (30-48%)	Moderate disability
25-34 Points (50-64%)	Severe disability
35-50 Points (70-100%)	Complete disability

Table 2: Frequency distribution of gender, age (Years), neck disability index findings among dentists

Variables		Frequency	%age
Neck Disability Index	No Disability (0-4)	38	34.5
	Mild Disability (5-14)	52	47.2
	Moderate Disability (15-24)	12	10.9
	Severe Disability (25-34)	06	5.4
	Complete Disability (35-50)	02	1.9
Gender	Males	48	43.6
	Females	62	56.4
Age (Years) 37.8 ± 5.7*	30-40	50	45.4
	41-50	60	54.6
Total		**110**	**100**

*Mean±SD

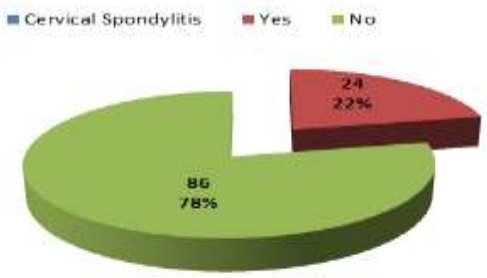
Table 3: Association of Age, Gender, Practice Duration, Pain Location with Cervical Spondylitis

Variable		Cervical Spondylitis		P-Value
		Yes (%)	No (%)	
Age (Years)	30-40	06 (12)	44 (88)	0.02*
	41-50	18 (30)	42 (70)	
Gender	Males	09 (19)	39 (81)	0.493
	Females	15 (24.2)	47 (75.8)	
Practice Duration (Years)	5-10	02 (6.7)	28 (93.3)	0.018*
	> 10	22 (27.5)	58 (72.5)	
Pain Location	Upper Cervical	05 (7.5)	62 (92.5)	<0.001*
	Lower Cervical	19 (44.2)	24 (55.8	
Total		**24 (22%)**	**86 (78%)**	**110 (100)**

*(p<0.05)

There were 12% dentists with cervical spondylitis having age 30-40 years and 30% were having age 41 to 50 years (p-value = 0.02). Regarding gender, there were 19% male patients with cervical spondylitis as compared to 24.2% female dentists suffering from the disease (p-value = 0.493). Regarding practice duration, 6.7% suffering from cervical spondylitis had been practicing for 5 to 10 years and 27.5% had practiced more than ten years also suffering from cervical spondylitis (p-value = 0.018) and upper cervical pain was seen among 7.5% of the cervical spondylitis and 44.2% of the lower cervical pain dentists suffered cervical spondylitis (p-value = <0.001) as shown in table no: 3.

Figure I: Presence of Cervical Spondylitis among Dentists



The above figure showed that 22% dentists were suffering from cervical spondylitis.

DISCUSSION

The loss in efficiency as per literature due to neck pain was noticed among 5 to 10 percent out of 30 percent of the total adults affected; our finding (22%) was consistent with the affected numbers. [12] During the dentist career, pain is experienced during later experience years that is more the practice duration more the chances of developing cervical spondylitis. [12] As per another study done by Gupta, 70% dentistry students experience disorders including neck ailments. [20] These ailments mostly includes 74.3% cervical region and 62% had lumbar region problems. [21] The main causes noticed were repeated movements, prolonged static positioning, bad lightening provoking bad postures and lastly genetic features. There are at least 50% of entire body muscles contracted during static postures, increased time for immobility process and also performing activities against the gravity force. [21] As a result of such activities, pain and other structural disorders are seen and hence dentists retire from their careers earlier in their lives[20].

As per results from Nalliah et al, dentists (79%) as well as dental hygienists (65%) adopted sitting positions for reducing postural changes[22]. So, the postural changes adapted could serve the purpose of reducing ailments. In our study, more than 50% of their working hours they maintained at least 30º trunk bending posture. During operative procedures, 60º bending was seen at cervical spine region for the 50% of the total time as well as arm stayed at 30º for said period. There is dominating feature of static body positions thus resulting in cervical as well as shoulder spine[22]. Maintaining such positions resulting in neck, shoulder girdle or lumbar area muscles pain. The long term static

positioning reduction must be emphasized as human body fails to adapt for such positions and muscle tissues usually need regeneration[23].

The increasing age as well as longer practicing years have shown significant role in developing CS in this study. The study done by Nalliah and Yui showed similar results of more practice duration and increased age of the dentists. They also reported that there are psychosocial risk factors as well playing their role like a demanding job or minimum technical support. [22, 23] Oral cavities is narrow and the dentists have a constrained visual field that entails restricted movement of neck and back, leading to pain in these regions. [22] There can be personal traits like height, inappropriate time period for rest etc. and these can increase the risk of neck pain. [24] Work related risk factors include repeated movements, bad posture, vibrations, high temperatures, chemical or noxious factors and radiations[24].

Another study was conducted to evaluate the intensity and location of musculoskeletal disorders among the dentists and orthodontists in Australia which again proved that the neck region was the most affected (58% of all participants) location in the body. Females and younger dentists from Australian study showed higher frequency of neck pain as evident in our study that females were mostly affected while contrary to the above finding that our participants with higher age had suffered neck pain[25].

CONCLUSION

The conclusion drawn from the study showed that percentage of dentists suffering from cervical spondylitis was low (22%). The neck disability index scoring showed severe disability in 6% of the dentists. The statistical significance was seen among the dentists having higher age (41-50 years) and more practicing duration (>10 years). The damage related to cervical spondylitis could be reduced by adapting postural changes and regular exercises as well as breaks during the procedures.

Conflict of interest: Nil

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