

Work Musculoskeletal Disorders (WSMDs) on The Dentist

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Abstract :

Occupational Disease is a disease that has a specific cause or is strongly related to the job, there must be a causal link between the disease process and the hazard in the workplace. One of the dangers that can interfere with occupational safety and health of workers in the workplace is occupational disease (OD).

Musculoskeletal disorders that often occur in health practitioners. This happens due to body position when working less ergonomic and occur in a long time and repeatedly. Among health practitioners who are vulnerable in the face of the threat of musculoskeletal disorders are dentists.

Regular exercise and adequate rest will free the dentist from workload risk, in addition to refreshing and strengthening the body, as well as providing mental relaxation from the high psychosocial demands of the job. This contributes to better health status and reduced risk of Musculoskeletal symptoms

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Introduction

Work Musculoskeletal Disorders (WMSDs) are all health disorders and injuries that affect the body movement system including muscles, tendons, tendon membranes, ligaments, skeletal bones, joints, prone rips, spinal discs, blood vessels and nerves. These WMSDs can be acute, intermittent, chronic, mild and cause severe disability. These WMSDs are caused or compounded by various occupational risk factors and / or work environment.¹

Risk factors that cause WMSDs include :²

a. Unnatural posture / awkward position.

The odd posture is an extreme position that lies beyond the range of motion of the normal pasisi. Posture is awkward and remains within 2 to 4 hours at risk of WMSDs incident

b. Repetitive Movement

Repetitive movement is doing the same activity continuously for a long time,

causing certain muscle groups to contract excessively which can cause muscle failure. Activity with similar movements / movements that have a pattern every few seconds in 2 to 4 hours at a time, at risk of WMSDs occurrence.

c. A Muscle work heavy / excessive (force).

Force in question is a mechanical or physical effort to exert energy in the move. Working skeletal muscle muscles will gain weight if the activity is done with a job posture that is awkward/ not neutral. The use of hand power within 2 - 4 hours of work or more, is at risk of WMSDs occurrence.

d. Static work position.

Working statically is a working position where the legs / hands and joints do not move / persist in a fixed position for a long time.

e. Stress contact (mechanical stress).

The stress contact in question is injury by hard or sharp objects, equipment or instruments when grasping and or manipulating..

f. Psychic Stress.

Extrinsic stress, or sometimes called organizational factors, work can be defined as the way in which work is structured, supervised and processed. Extrinsic stress reflects the objective nature of the work process. The variables include job variation, job control, workload, time pressure, and financial problems. Several studies have shown a relationship between extrinsic stress factors and high MSDS events.

g. A Work activity in place / with cold temperatures.

Low temperatures reduce the manual dexterity of the worker and so may lead to symptoms of nerve-end impairment or peripheral nerve disorders.

h. Vibration (vibration).

Vibration is also one of the etiological factors of WMSDs in the work environment.

Dentist in his daily work should use a vibrating device such as dental highspeed, if the number of patients is large then it can cause the vibration exposure of the tool to spread into the hands of the dentist. In dentistry, the equipment used also utilizes a vibration device with a frequency of 20 to 80 hz. Dental handpieces are of highspeed frequency at 5000 to 10,000 hz, but the duration of exposure to vibration strength during dental procedures is relatively short. so exposure to these risk factors in dentistry is relatively small. The use of tools that vibrate for more than 3 to 4 hours in a single shift, is at risk for WMSDs occurrence.

The musculoskeletal problem has become a significant problem for the dental and dental profession. Prevalence of musculoskeletal pain in dentists in Greece (62%), India (81.06%), Saudi Arabia (85%) and China (88%).^{3,4,5,6}

WMSDs disorders that often occur in the dentist is divided into two groups, namely: the back (Back Problems), and hand / wrist (Hand and Wrist conditions).⁷

a. *These back problems include*

1) *Pain in the Lower Back Pain*

2) *Upper Back Pain*

b. *Hand and Wrist Problems, Hand and wrist problem often suffered :*⁸

1) *Tendinitis*

2) *De Quervain's disease*

3) *Trigger Finger*

4) *Carpal Tunnel Syndrom*

5) *Guyon's syndrome*

Discussion

Most musculoskeletal disorders occur because the dentist is unconsciously in an unfavorable posture when caring for the patient. When performing tooth preparation or extracting a tooth for example, sometimes the dentist leans toward the patient, moves unexpectedly, spins from one side to the other. The whole movement is done many times over a long period of time. This is what can cause musculoskeletal syndrome.⁹

Dental risk factors exposed to musculoskeletal disorders is multifactorial. Generally can be categorized into two parts namely biomechanic and psychosocial. The various risk factors include static and rigid posture (especially the neck and shoulders), repetition of movement and hand strength in treatment especially in tooth extraction (this is related to hand and arm conditions), poor lighting (both light intensity and positioning dental light units), improper positioning between patient and dentist, ergonomic instrument condition and design, individual characteristics (physical condition, height, weight, general health, gender, and age), and poor work stress.^{10,12}

Risk factors associated with dental care are most often affected by wrists due to repetitive movements, awkward and static positions, mechanical pressure on the digital nerves such as always holding the handle of the instrument, the use of vibrating instruments and inadequate work breaks. The safest position for the wrist is a straight or neutral position. During treatment should avoid bending the wrist down (flex) or exit.⁸

In a cross-sectional survey of 304 dentists in 53 major hospitals in China, there was a significant association between regular exercise and decreased neck muscle.⁶

Regular exercise habits give the dentist a break from their heavy workload, in addition to refreshing and strengthening the body, also providing mental relaxation from the high psychosocial demands of the job. This contributes to better health status and reduced risk of Musculoskeletal symptoms¹¹

This is consistent with the theory that physical fitness and physical abilities are influenced by exercise habits because exercise trains muscle function. Exercise plays an important role in strengthening the back muscles, increasing aerobic capacity and general physical fitness. In addition, the exercise can also reduce the stress on the back muscles. By increasing the strength and flexibility of the back muscles, the load will be evenly distributed and reduce the burden on the back muscles. In addition to preventive efforts such as by stretching, exercise can also also reduce the symptoms of pain when there is a back pain disorder.

If adjusted to the condition of the dentist, then sports that can be done, among others, stretching on the sidelines of the work such as stretching on the neck, shoulders and arms, torso, legs and wrist.

Conclusion

In order for the dentist to avoid WMDs then it is necessary to have a rest time setting every 2 hours for 10-15 minutes. In addition, dentists and dental nurses should do stretching or stretching for 5 minutes at the time before and after doing work or dental treatment.

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