Community Dentistry Third class

Occupational hazard in dentistry

20th lecture

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Occupational hazards refer to a risk or danger as a consequence of the nature or working conditions of a particular job. Dentist and dental professionals constitute a sizable occupational group at risk to multiple exposures,

Dental practitioner are exposed to a number of work related hazards-

- Working at a high level of concentration for long hours

- Working with anxious patient

Occupational Hazards and diseases are including

1- Postural Hazards.

2- Equipment Hazard.

3- Patient Contact Hazards.

4- Dental Material Hazards.

5- Psychological Hazards.

6- Other Occupational hazards

1-Postural Hazards :

Abnormal posture may cause disturbances in:

1- Vertebral column and the inter vertebral or Para-vertebral muscles

(neck and back strain, shoulder fibrosis and arthritis)

2- Hemorrhoids

3- Varicose veins.

A -Musculoskeletal Disorders

The high frequency of musculoskeletal pain among younger and older dentists was probably related to their heavy work with difficult working position. The dentist is sitting or standing for prolonged periods of time. The dentist is often twisted, causing asymmetrical strain on joints and muscle contraction, as well as added wear and tear on the body.

Female reported more muscle-skeletal pain than males due to that female have additional responsibility should be performed outside dental work such as home care, children

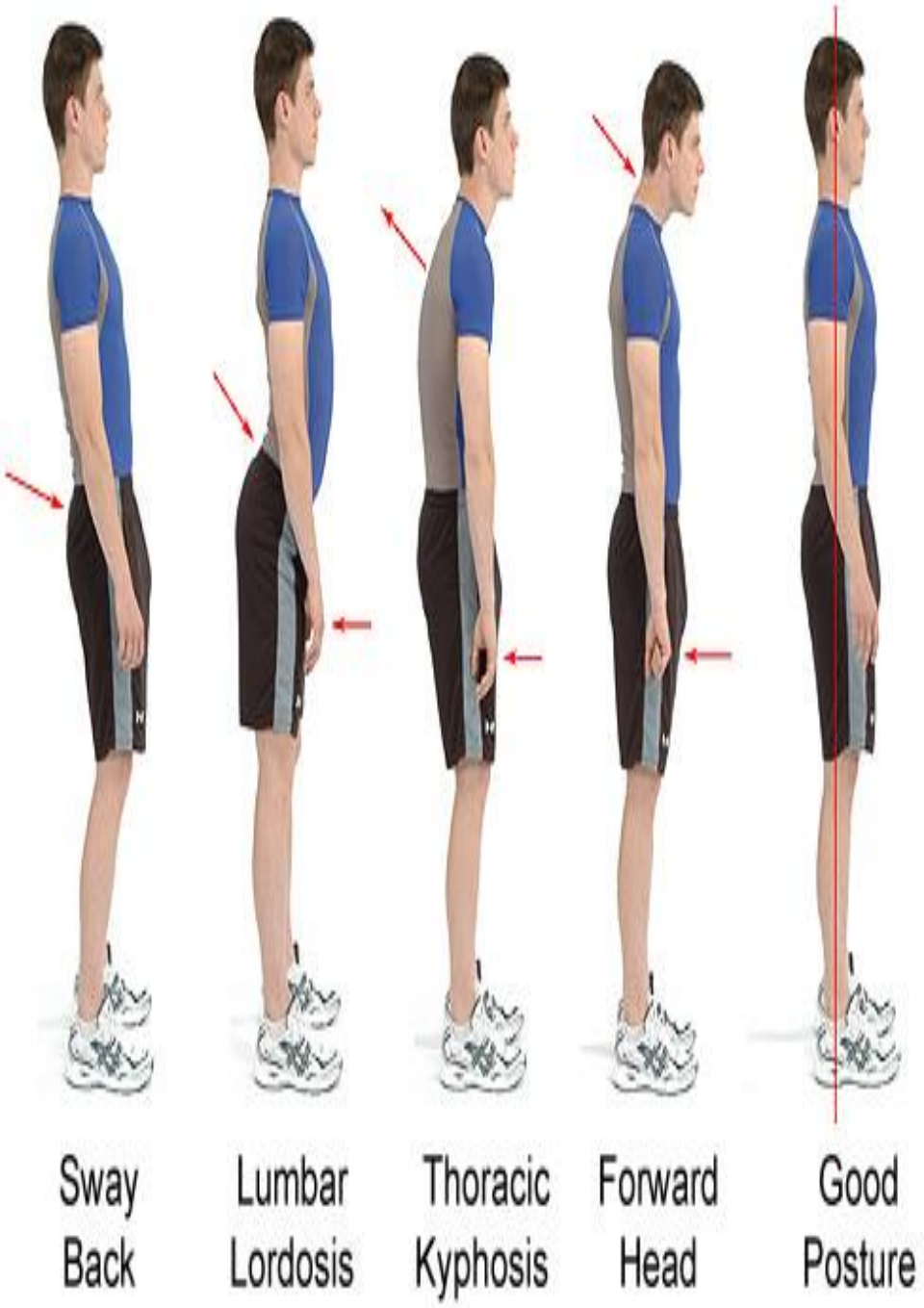
Location of the pain

- ***Cervical region*** (**neck and shoulder**): was probably related to their difficult work position with cervical flexion and rotation , in addition to severe strain on the shoulder girdle through raising the elbows and so raising the shoulders as well .

- ***Low back (lumbo-sacral) region***: pain was increased with age indicating the cumulative hazardous effect of dentistry on the back.

- ***Upper and lower limb***: upper limb pain may be due to dentists through clinical work abducted their arms for prolong period of time and repetitive precision demanding hand grasp, while the lower limb pain as a result of standing for a long time.

A continuous sitting posture that is abnormal can lead to the same spinal problem experienced by the standing dentists (Kyphosis ,Scoliosis and Lordosis).


Sway Back
Lumbar Lordosis
Thoracic Kyphosis
Forward Head
Good Posture

The neutral seated position has the following characteristics:

- The forearms should be parallel.
- The head is tilted no more than 30° to the vertical plane when operating.
- The weight should be evenly balanced.
- The thighs should be parallel to the floor and splayed no more than 30° to prevent muscular tension.
- The hip angle (the angle between the lower body and the thighs) should be 90°.
- The seat height should be positioned low enough so that it is possible to rest the heels on the floor comfortably.

Varicose

They develop predominantly in the lower extremities .They consist of abnormally dilated elongated and tortuous alterations in saphenous veins and their tributaries .Periods of high venous standing

2- Equipment hazards

A- Traumatic injuries

Medical professionals are at a frequent risk of injuries due to handling of surgical sharp instrument and needle pricks scratches and puncture wounds from contact with burs and instruments are possibly the most common of dental injuries .There is extra risk of acquiring various infections from patients through such trauma.

C--Radiation hazard

1-Ionizing Radiation (Dental X – ray) :

Excessive exposure to ionizing radiation from the primary beams has produced changes in cell structure, chemical changes in the cells, mutations, somatic and genetic effects and malignant transformation of cells .The most sensitive cells in the body to ionizing radiation are genetic and blood producing cells. The actual hazard from dental radiography; although probably quit low, has as its greatest risk of lethality the induction of leukemia.

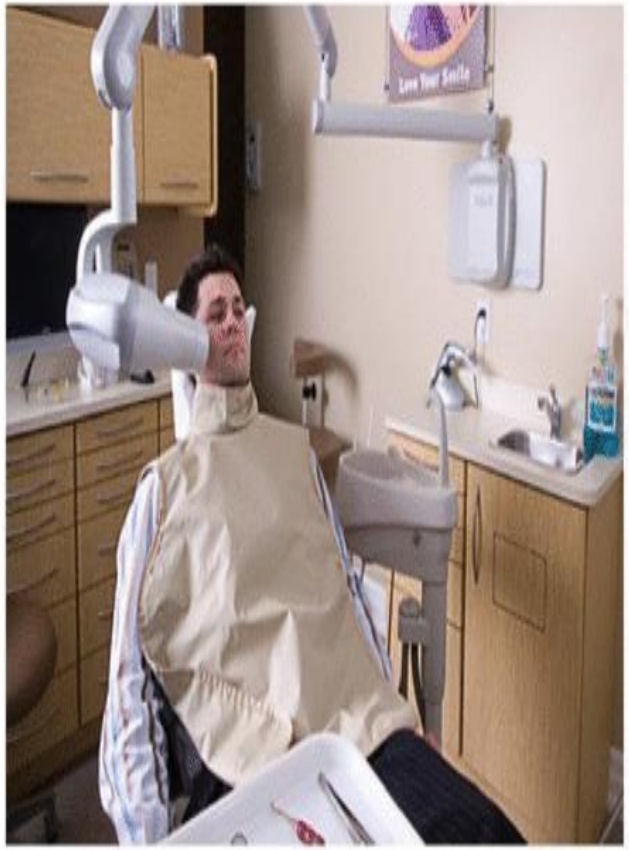
Intra-oral and panoramic radiography widely used in dentistry is relatively safe, while cephalometry is more hazardous as the radiation level is higher. Exposure to ionizing radiation can be minimized if radiation protection recommendations outlined below are:-

1- Ensure the safety of the X-ray unit by regular professional maintenance.
2- Use accurate timers and sound professional adjustments to limit the exposure.
3- Wearing a radiation-monitoring device. 4-Use lead aprons for all patients

2-Ultra-violet-radiation

Dental personnel may be exposed to ultra-violet radiation from curing restorative resins units and not be aware of this hazard ,but can potentially be a serious of eye damage .The potential hazards to the cornea and lens, but this radiation was sufficiently below the occupational exposure limits to cause no harmful effects under normal operation condition, only under excessively heavy use could be of possible concern.

Do not hold the cone by youeself



3- Patient contact hazard

Infectious diseases

The dental profession cannot ignore the potential health hazards associated with transmission of infectious organisms because of their frequent and intimates contact with a large number of patients .Hand and finger infections, eye infections and mouth infectious diseases have been presented in dental practitioners. The most hazardous mediums of contamination are high speed rotary instruments and the triple syringe. The interest in dentist's occupational hazard of contracting virus infections in the dental office has increased considerably since the HBV, AIDS, TB, Common cold and herpes

4- Dental material hazard

Contact allergy

Occupationally related hand dermatitis has been attributed to frequent hand-washing, exposure to possible sensitizers including precious metal, eugenol, aromatic oils, phenol, creosote, (iodine containing preparations, methyl acrylate monomers, alginate and investment materials) and to latex gloves use.

B-Mercury-Hazards

Occupational exposure to mercury is known to have toxic effects on a wide variety of systems; particularly CNS, kidney and the skin. Dental personnel are exposed to mercury toxicity through two sources:

--Contact-or-handling-of-mercury.

--Inhalation-of-mercury-vapor.

Symptoms characteristic of acute high-dose exposure.

Gastroenteritis (stomach-upset) mouth pain, abdominal pain, vomiting, excessive salivation, anuria, uremia anorexia, nephritis & ataxia.

Symptoms characteristic of chronic low-dose exposure.

(nervousness, irritability, mood instability, blushing). Tremor, paranesthesia, impaired hearing, visual disturbance, renal damage, pneumonitis, hypersensitivity reactions, destruction of stomach, immune system damage & CVS damage and disease.

To reduce the risk to health, there must be good general ventilation. Amalgamators should be placed on a shallow tray lined with aluminum foil. Using pre-dispensed amalgam capsules.

the amalgamator should be periodically checked for capsule leakage.

Thank you