Health and safety issues in contemporary dental practice

Under current workplace health and safety legislation, the owners and managers of a dental practice have a legal responsibility to provide staff with a safe working environment. In this article, the emphasis will be on four common areas of risk: posture when seated, handling scalpel blades, flooring and lighting.

Posture

The seated posture of dental staff when providing patient care poses a risk of neck and lower back disorders if individuals when seated adopt a posture where their lower back is unsupported, since this causes a greatly increased load on the intervertebral discs of the lumbar spine. It is a common habit for individuals to lean forward to improve their visibility of posterior regions of the mouth. In such a position there is no lumbar support (Figures 1-3), illumination from the operating light is impaired (Figure 2), and the hunched over position places the operator at greater risk of puncture injuries from burs and ultrasonic scalers sitting within their cradles (Figures 4 and 5). Wearing loupes or using an operating microscope can help re-train an operator to adopt a better posture. These also reduce optical strain and provide better visibility of the working field.

If magnification is not used, eyestrain can develop during intense near visual work, since the ciliary muscle of the eye (responsible for the focusing action of the lens) and the extra-ocular muscles which converge the visual axis of each eye on to the target area, become fatigued.

As most dental clinical staff spend large periods of each day in a seated position, awareness of correct posture is important for long term health. The cumulative effect of poor habits of sitting on intervertebral discs can be substantial. Damage to the fibrous outer layer of these discs (the annulus) from the daily stresses of sitting (especially when combined with twisting while seated) can lead to displacement or rupture of the disc.

When seated, right-handed operators tend to rotate their head to the right while simultaneously twisting their torso to the left. As this action is repeated many times, the muscles responsible become stronger and shorter, while the opposing muscles which act as stabilizers become weaker and elongated. Long term, such muscle imbalances can lead to distortions of posture such as “rounded shoulders”.

Advice of a preventive nature for this includes avoiding actions such as: bending at the neck, arching the spine, remaining in the one position for an extended period of time, leaning forward or to the side, twisting at the torso, and leaning laterally.
Scalpels

Placing and removing scalpel blades poses a substantial risk of sharps injury. Using fully disposable scalpels (which are disposed of “in toto”) is one approach for eliminating this risk. Where scalpel handles are to be reprocessed, it is unacceptable to attempt to remove the blade by hand (Figure 6). A variety of devices are available for safely removing blades; it is the author’s preference to use devices which have one-handed operation. The Qlicksmart device (invented by an Australian surgeon) is wall mounted and will remove and capture 100 blades (Figure 7). It can then be disposed of in the same way as a sharps container.

Flooring

Current recommendations are that the flooring in treatment areas, sterilizing and laboratory areas is non-slip and made of a smooth, impermeable seamless material, such as welded vinyl. Materials such as carpet and cork tiles are not impervious, and readily absorb spilt materials (Figure 9). Areas which may become wet with splashes of water or body fluids pose a slip hazard to staff and patients, while uneven floors and unsecured cables pose a trip hazard.

Lighting

Great attention is often paid to natural and artificial lighting in the treatment rooms and reception areas, however it is commonplace to find inadequate lighting in the sterilizing area. Under national occupational health and safety standards, for extra-fine work (defined as that involving tolerances below 25 microns), the minimum light level should be 1600 lux. For computer work, the minimum level is 600 lux, while for routine work, the minimum level is 400 lux. This issue is particularly relevant for the sterilizing area, where staff are required to inspect instruments for visible bioburden and debris, and for the integrity of cutting edges.

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