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Phacoemulsification vibrations causes Sunalp vibration syndrome in ophthalmic surgeons

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Introduction: Occupational Safety and Health Administration (OSHA) has cited both repetitive tasks and vibration as risk factors for cumulative trauma disorders. The National Institute for Occupational Safety and Health (NIOSH) has also found correlation between CTS and repetitive task being performed at specific wrist angles. The average cataract ophthalmic surgeon performs 500 surgeries per year, each taking 15-30 minutes. While the specific phaco-time may only be 2 minutes per surgery, over the lifetime of surgeon more than 500 hours (30 Year×500 cases×2 minutes) can create cumulative vibration trauma to the hand of the surgeon resulting in Sunalp vibration syndrome. Sunalp vibration syndrome is a new syndrome that specifically affects high volume cataract ophthalmic surgeons. The industry should not only warn surgeons of the risk but should provide them with vibration-dampening gloves or hand-pieces to ensure the safety of physicians. Measurements of phacoemulsification hand piece vibrations are taken to demonstrate potential for damage in ophthalmic surgeon's hands resulting in Carpal Tunnel Syndrome (CTS) and Sunalp Vibration Syndrome (SVS).

Purpose: To prove that phacoemulsification hand piece vibrations at 50 khz can cause CTS and SVS in ophthalmic surgeons and is demonstrated to be dexterity specific.

Methods: 50 ophthalmic phacoemulsification cases were recorded with a vibration recording probe in contact with the surgeons thumb and fore-finger holding the phaco hand piece. 63 year old surgeon, Alcon Centurion and Abbot Whitestar phacoemulsification units with corresponding hand pieces, SmartSensor vibration sensor and Dana Sunalp vibration technician. Measurements were taken under sterile conditions during actual surgery. Dr. Sunalp, due to his experience tends to have less Phaco-time per case, but has experienced more than 750 hours due to the volume of cases performed.

Results: The vibration meter at lower frequencies demonstrates that there is vibration directly.

Conclusion: Phacoemulsification over the lifetime of the ophthalmic surgeon produces sufficient vibration to result in CTS and Sunalp Vibration Syndrome.

Biography

Murad A Sunalp has graduated from Oxford University Medical School at St. John's College and continued his Post-graduate medical education in Ophthalmology at Stanford and the University of Southern California. His most recent educational accomplishment has been an MBA at the University of Tennessee. Throughout his career he has remained up to date on medical advancements by both participating and teaching continuing medical education courses. He has provided state of the art ophthalmologic services in the San Joaquin valley for the last 30 years. He has developed innovative techniques to treat common eye diseases in a safe and effective manner.

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