LIGHTWAND & GLIDESCOPE VS. MACINTOSH FOR POTENTIAL C-SPINE INJURY

*Timothy P. Turkstra, M. Eng. MD, Rosemary A. Craen, MB BS,
David M. Pelz, MD, Adrian W. Gelb, MB ChB*

Depts Anesthesia & Radiology, University of Western Ontario, 339 Windermere Rd, London, N6A 5A5

INTRODUCTION: The optimum technique for intubation of a patient who may have a cervical spine (C-spine) injury remains unresolved (1, 2). Using fluoroscopic video, we compared C-spine motion during intubation with the Macintosh 3 blade, Lightwand®, and GlideScope®.

METHODS: Following IRB approval, 47 healthy patients consented and were randomized to participate in a crossover trial of Macintosh laryngoscopy versus either Lightwand (Intubating Lighted Stylet) or GlideScope use. In-line stabilization was provided. We examined C-spine motion during laryngoscopy at four areas: the Occiput-C1 junction, C1-C2 junction, C2-C5 motion segment, and C5-Thoracic motion segment. Time required to intubate was also measured.

RESULTS: C-spine motion using the Lightwand averaged 57% less than that during Macintosh laryngoscopy at the 4 motion segments studied, $p < 0.03$ at each segment. (Figure) There was no difference in time to intubate between Lightwand (14 ± 9 s) and Macintosh (16 ± 8 s) use.

C-spine motion was reduced by 50% at the C2-C5 motion segment for GlideScope versus Macintosh use, $p < 0.04$. There were no significant differences at the other segments. (Figure) Use of the GlideScope (26 ± 12 s) took 60% longer than Macintosh blade, $p < 0.01$.

DISCUSSION: For patients in whom cervical spine movement is undesirable, use of the Lightwand by an experienced user may be advantageous.

Cervical Spine Motion with Lightwand, Macintosh, and GlideScope
(Mean $\pm$ Standard Deviation)

REFERENCES:

1. Can J Anesth 2002, 49:7, 733-44
2. Advanced Trauma Life Support for Doctors, ATLS Student Course Manual, 7th Ed. Ch 1, 2, 7.
3. Funding acknowledged: 2004 CAS Resident Research Grant, unrestricted.