学位論文審査結果の要旨

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（学位論文審査結果の要旨）

Biomechanical profiles of tracheal intubation: a mannequin-based study to make an objective assessment of clinical skills by expert anesthesiologists and novice residents

【主論文審査結果の要旨】

著者らは論文において下記の内容を述べている。

BACKGROUND:

Tracheal intubation (TI) is a key medical skill used by anesthesiologists and critical care physicians in airway management in operating rooms and critical care units. An objective assessment of dexterity in TI procedures would greatly enhance the quality of medical training. This study aims to investigate whether any biomechanical parameters obtained by 3D-motion analysis of body movements during TI procedures can objectively distinguish expert anesthesiologists from novice residents.

METHODS:

Thirteen expert anesthesiologists and thirteen residents attempted TI procedures on an airway mannequin using a Macintosh laryngoscope. Motion capturing technology was utilized to digitally record movements during TI procedures. The skill with which experts and novices measured biomechanical parameters of body motions were comparatively examined.

RESULTS:

The two groups showed similar outcomes (success rates and mean time needed

to complete the TI procedures) as well as similar mean absolute velocity values in all 21 body parts examined. However, the experts exhibited significantly lower mean absolute acceleration values at the head and the left hand than the residents. In addition, the mean-absolute-jerk measurement revealed that the experts commanded potentially smoother motions at the head and the left hand. The Receiver Operating Characteristic (ROC) curves analysis demonstrated that mean-absolute-acceleration and -jerk measurements provide excellent measures for discriminating between experts and novices.

CONCLUSIONS:

Biomechanical parameter measurements could be used as a means to objectively assess dexterity in TI procedures. Compared with novice residents, expert anesthesiologists possess a better ability to control their body movements during TI procedures, displaying smoother motions at the selected body parts.

気管挿管の手技中、熟練者は初学者と比較し、頭部と左手の加速度、躍度が低いことから体の動きがより滑らかであり、体の動きをコントロールする能力が優れていることを客観的、定量的に証明した論文であり、学術上極めて有益であり、学位論文として価値あるものと認めた。

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