Journal Club Summary

# Background and Overview

Article Title/Citation:

Nita Khandelwal, MD, MS,\* Sarah Khorsand, MD,† Steven H. Mitchell, MD, FACEP,‡ and Aaron M. Joffe, DO\*. Head-Elevated Patient Positioning Decreases Complications of Emergent Tracheal Intubation in the Ward and Intensive Care Unit. Anesth Analg, April 2016 • Volume 122 • Number 4

Objective:

To determine whether HUBE positioning is associated with a decrease in complications related to tracheal intubation in emergency intubations

Purpose:

Studies show this can decrease complications, prolong apnea time, decrease hypoxic events, improve glottis visualization in elective cases but evidence in emergency intubations is lacking

Hypothesis:

HUBE positioning is associated with a decrease in complications related to tracheal intubation in emergency intubations

Brief Background/Why Chosen for Journal Club:

Intubation practices vary widely among individuals, institutions, and practice settings, Patient positioning is paramount to success. Ear to sternal notch positioning has been advocated by airway experts in our field to best align the pharyngeal axes. HUBE positioning has been advocated in the GI bleeders and patients with very poor reserve who cannot tolerate laying flat, but this ahas not been widely adopted for most intubations – yet.

# Methods

Study Design & Methodology:

UW and Harborview, two-center retrospective chart review, all date abstracted from notes from the Dept of Anesthesiology databse

Patient Selection & Enrollment:

(inclusion & exclusion criteria, sample size, etc.)

See chart on page 1104

1665 ETI in the ICU, wards from Nov 2013-Apr 2015

Hilariously 400 of these were excluded from the analysis because they were done by EM docs

Inclusion criteria: all adults >18 y/o intubated in the ICU/wards by anesthesiologists or CRNAs, initial attempt must have been DL, reintubations were not counted twice.

Exclusion criteria: ETI during CPR, incomplete charts, age <18, ED intubations

Interventions:

(if applicable)

None, this was a retrospective chart review.

Outcome Measures/Endpoints:

**Primary outcome:**

Occurrence of any intubation related complication such as difficult intubation, hypoxia, esophageal intubation, pulmonary aspiration. Difficult intubation defined as >3 attempts at intubation, >10 mins airway mgmt., or surgical airway. Hypoxia defined as pulse oc <90 during or within 15 mins of intubation, if it was higher beforehand. Aspiration defined as direct observation of gastric contents going down the trachea.

BUHE was >30 degrees. “Sniffing position” with towels and nonsense without elevation of the back above the horizontal was counted as supine.

**Secondary outcome:**

MACOCHA score was used to assess difficult intubation characteristics (validated tool)

Junior operators were people with <1 year of anesthesia specific training

Senior is everyone else

Statistical Analysis:

Baseline stats and multivariate logistic regression adjusted for BMI and operator skill

Separate regressions for predicting difficult intubation alone and another for complications

# Results

Enrollment & Baseline Characteristics:

Table 1 baseline characteristics discussion –

N=528

Good number, some nonrandomization here revealing some bias in the retrospective study design

Discuss

Summary of Primary & Secondary Outcomes:

(primary versus secondary analyses)

**Figure 2**

Out of 528 only 32 were difficult

One surgical airway

Half used glidescope as rescue, some fiberoptic, rest DL/bougie

No one met criteria for DI based on >10 min airway mgmt.

Cervical spine motion/hypoxia at start time not significantly different

More patients in the BUHE group had GCS<8, 15 vs 30%

22% of patients had a complication in the supine group

9% of patients had a complication in the BUHE group

Review of Figures & Tables:

**Table 2**

OR for complication in BUHE after adjusting for MACOCHA and BMI =0.42 (0.23=0.77)

Even less after adjusting for operator experience

Any adverse event OR BUHE 0.40

OR for difficult intubation NOT SIGNIFICANTLY DIFFERENT

# Author’s Discussion and Conclusions

Brief Summary of Main Discussion Points:

These results come as no surprise to the anesthesia people who have been doing this in the OR, or so it seems only on the west coast. They were surprised that there was no difference in difficult intubation OR but it was probably underpowered for this anyway as there were not many difficult intubations. The risk factors for DI may not be modifiable by position.

Conclusions:

Let’s do BUHE! Why not?

# Your Discussion and Conclusions

Accept/Decline Author’s Conclusions:

Let’s do BUHE.

Study Strengths:

Operator expertise – anesthesia is the gold standard

Study Limits:

(eg bias)

Operator expertise! This may have driven down the difficult intubation rate in both groups. Self reporting bias. Some patients reported as BUHE might have been 10-15 degrees as opposed to 30. Severe crash airways could have affected choice of positioning. They teach all their trainees that tubes should be BUHE unless contraindicated. No EM practitioners – wth?

Generalizability/

Implications:

(healthcare providers and specifically at Vanderbilt)

No ED tubes by ED people

But these are crash airways so the patient population is the same

Q&A/Discussion

1) How do you approach intubation for your uncomplicated airways? Do you use airway adjuncts like OPAs, NPAs every time or just in select cases? Are you using apneic oxygenation? What’s your Plan A, B, C?

2) What’s your approach to intubation for complicated airways – patients with minimal reserve, desatting quickly, or expected difficult intubation (outside the obvious massive neck mass fiberoptic intubation case)?

3) Do these studies motivate you to change your practice? Why or why not?