Complete Summary

GUIDELINE TITLE

Practice management guidelines for the timing of tracheostomy.

BIBLIOGRAPHIC SOURCE(S)

Holevar M, Dunham JC, Clancy TV, Como JJ, Ebert JB, Griffen MM, Hoff WS, Kurek SJ Jr, Talbert SM, Tisherman SA. Practice management guideline for the timing of tracheostomy. Charleston (SC): Eastern Association for the Surgery of Trauma (EAST); 2006. 8 p. [27 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Trauma requiring tracheostomy, including patients:

- With severe head injury
- Without head injury
- With pneumonia

GUIDELINE CATEGORY

Management
Treatment

CLINICAL SPECIALTY

Critical Care
Emergency Medicine

INTENDED USERS

Advanced Practice Nurses
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To provide recommendations for the timing of tracheostomy in trauma patients
- To address the following questions utilizing an evidence-based approach for outcome evaluation:
    1. Does performance of an "early" tracheostomy provide a survival benefit for the recipients?
    2. What patient populations benefit from an "early" tracheostomy?
    3. Does "early" tracheostomy reduce the number of days on mechanical ventilation and intensive care unit length of stay?
    4. Does "early" tracheostomy influence the rate of ventilator-associated pneumonia?

TARGET POPULATION

Trauma patients requiring tracheostomy

INTERVENTIONS AND PRACTICES CONSIDERED

Management/Treatment

1. Early tracheostomy (3 to 7 days)
2. Late tracheostomy or extended endotracheal intubation

MAJOR OUTCOMES CONSIDERED

- Mortality difference between patients receiving early tracheostomy (3 to 7 days) and late tracheostomy or extended endotracheal intubation
- Impact of early tracheostomy on the total days of mechanical ventilation and intensive care unit (ICU) length of stay
- Impact of early tracheostomy on rate of pneumonia

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

A computerized search was undertaken using Medline with citations published between the years of 1966 and 2004. Using the search words "tracheostomy" and "timing", and by limiting the search to citations dealing with human subjects and published in the English language, the guideline developers identified 87 articles. From this initial search, case reports, review articles, editorials, letters to the editor, and pediatric series were excluded prior to formal review. Additional references, selected by the individual subcommittee members, were then included to compile the master reference list of 24 citations.

NUMBER OF SOURCE DOCUMENTS

24 references are contained in the evidentiary table

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Class I

Prospective randomized controlled trials

Class II

Clinical studies in which the data was collected prospectively, and retrospective analyses which were based on clearly reliable data. Types of studies so classified include: observational studies, cohort studies, prevalence studies, and case control studies.

Class III

Studies based on retrospectively collected data. Evidence used in this class includes clinical series and database or registry review.

METHODS USED TO ANALYZE THE EVIDENCE

Meta-Analysis of Randomized Controlled Trials
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Articles were distributed among the subcommittee members for formal review. A data sheet was completed for each article reviewed which summarized the purpose of the study, hypothesis, methods, main results, and conclusions. The reviewers classified each reference by the methodology established by the Agency

for Health Care Policy and Research (AHCPR) of the United States Department of Health and Human Services.

An evidentiary table was constructed using the remaining 24 references. Additionally, guideline developers performed a meta-analysis including the seven Class I articles.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Level 1

The recommendation is convincingly justifiable based on the available scientific information alone. This recommendation is usually based on Class I data, however, strong Class II evidence may form the basis for a Level I recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, low quality or contradictory Class I data may not be able to support a Level I recommendation.

Level 2

The recommendation is reasonably justifiable by available scientific evidence and strongly supported by expert opinion. This recommendation is usually supported by Class II data or a preponderance of Class III evidence.

Level 3

The recommendation is supported by available data but adequate scientific evidence is lacking. This recommendation is generally supported by Class III data. This type of recommendation is useful for educational purposes and in guiding future clinical research.

COST ANALYSIS

In one retrospective cohort study of 90 medical intensive care unit (MICU) patients who underwent either early (< 10 days, mean 5.9 days) or late (> 10 days, mean 16.7 days) tracheostomy. Both duration of mechanical ventilation (28.3 vs. 34.4 days, $p = 0.005$) and ICU LOS (15.6 vs. 29.3 days, $p < 0.001$) were reduced, which was reflected in a lower cost of hospitalization ($86,189 vs. $124,649, $p = 0.001$) for the patients who received tracheostomy within 10 days.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The draft document is submitted to all members of the panel for review and modification. Subsequent to this the guidelines are forwarded to the chairman of the Eastern Association for the Surgery of Trauma (EAST) ad hoc committee for guideline development. Final modifications are made and the document forwarded back to the individual panel chairpersons.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of recommendation (1-3) and classes of evidence (I-III) are defined at the end of the "Major Recommendations" field.

Level 1

There is no mortality difference between patients receiving early tracheostomy (3 to 7 days) and late tracheostomy or extended endotracheal intubation.

Level 2

Early tracheostomy decreases the total days of mechanical ventilation and intensive care unit length of stay (ICU LOS) in patients with head injuries. Therefore, it is recommended that patients with a severe head injury receive an early tracheostomy.

Level 3

Early tracheostomy may decrease the total days of mechanical ventilation and ICU LOS in trauma patients without head injuries. Early tracheostomy may decrease the rate of pneumonia in trauma patients. Therefore, it is recommended that early tracheostomy be considered in all trauma patients anticipated to require mechanical ventilation for > 7 days.

Definitions:

Rating Scheme for Strength of Recommendations

Level 1

The recommendation is convincingly justifiable based on the available scientific information alone. This recommendation is usually based on Class I data, however, strong Class II evidence may form the basis for a Level I recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, low quality or contradictory Class I data may not be able to support a Level I recommendation.

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Rating Scheme for Strength of Evidence

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CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate timeliness of tracheostomy in traumatic injury patients

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006

GUIDELINE DEVELOPER(S)

Eastern Association for the Surgery of Trauma - Professional Association

SOURCE(S) OF FUNDING

Eastern Association for the Surgery of Trauma (EAST)

GUIDELINE COMMITTEE

EAST Practice Management Guidelines Work Group

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Workgroup Members: Michele Holevar, MD (*Chair*) Chicago Medical School; J. C. Michael Dunham, MD (*Vice-Chair*) St. Elizabeth Health Center; Thomas V. Clancy, MD, New Hanover Regional Medical Center; John J. Como, MD, MetroHealth Medical Center; James B. Ebert, MD, Elmhurst Memorial Hospital; Margaret M. Griffen, MD, University of Florida-Jacksonville; William S. Hoff, MD, St. Luke's Hospital; Stanley J. Kurek, Jr., DO, Medical University of South Carolina; Susan M. Talbert, MD, St. Luke's Roosevelt Hospital; Samuel A. Tisherman, MD, University of Pittsburgh

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site.

Print copies: Available from the Michele Holevar, MD, Chicago Medical School, Mount Sinai Hospital, 1500 South California Avenue F938, Chicago, IL 60612; Phone: (773) 257-6484

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on January 9, 2007. The information was verified by the guideline developer on February 26, 2007.

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