Literature Update

April 2024

Adam Thomas CCBC

JAMA®

QUESTION Does nasal iodophor antiseptic work as well as nasal mupirocin antibiotic for preventing *Staphylococcus aureus* clinical cultures in intensive care unit (ICU) patients receiving daily chlorhexidine gluconate (CHG) bathing?

CONCLUSION This clinical trial found that nasal iodophor was inferior to nasal mupirocin in preventing *S aureus* clinical cultures in ICU patients.

POPULATION

430 764 Men
370 587 Women

Adult ICU patients

Mean age: **63.4** years

LOCATIONS

137
Community hospitals in the US

INTERVENTION

137 Hospitals randomized

69

Iodophor-CHG

Mupirocin-CHG then switched to twice-daily intranasal 10% povidone-iodine swabs for 5 days + daily CHG bath

68

Mupirocin-CHG

Twice-daily intranasal 2% mupirocin ointment for 5 days + daily CHG bath

PRIMARY OUTCOME

S aureus clinical cultures attributed to the ICU (occurring from ICU day 3 through 2 days after ICU discharge) from baseline to intervention period

FINDINGS

ICU-attributable days

Iodophor-CHG

Baseline: 4.3/1000
Intervention period: 5.0/1000

Mupirocin-CHG

Baseline: 4.0/1000
Intervention period: 4.1/1000

Clustered HR, iodophor-CHG: 1.17
Clustered HR, mupirocin-CHG: 0.99

HR difference in differences, 18.4%
(95% CI, 10.7% to 26.6%)

Huang SS, Septimus EJ, Kleinman K, et al. Nasal mupirocin vs iodophor in the setting of chlorhexidine bathing to prevent infections in adult ICUs: a randomized clinical trial. *JAMA*. Published October 10, 2023. doi:10.1001/jama.2023.17219

Original Investigation

ONLINE FIRST FREE

April 1, 2024

Reducing Hospitalizations and Multidrug-Resistant Organisms via Regional Decolonization in Hospitals and Nursing Homes

Gabrielle M. Gussin, MS[1]; James A. McKinnell, MD[2]; Raveena D. Singh, MA[1]; et al

» Author Affiliations | Article Information

JAMA. Published online April 1, 2024. doi:10.1001/jama.2024.2759

Editorial Comment

Interviews

Key Points

Question Is implementation of a regional hospital and nursing home decolonization collaborative (coordinated intervention adopted by participating health care facilities) associated with a reduction in multidrug-resistant organisms (MDROs), infection-related hospitalizations, costs, and deaths?

Findings In this quality improvement study of 35 health care facilities in Orange County, California, using quasi-experimental design, chlorhexidine bathing and nasal decolonization were associated with significantly lower MDRO prevalence and incident clinical cultures. Infection-related hospitalizations, associated costs,

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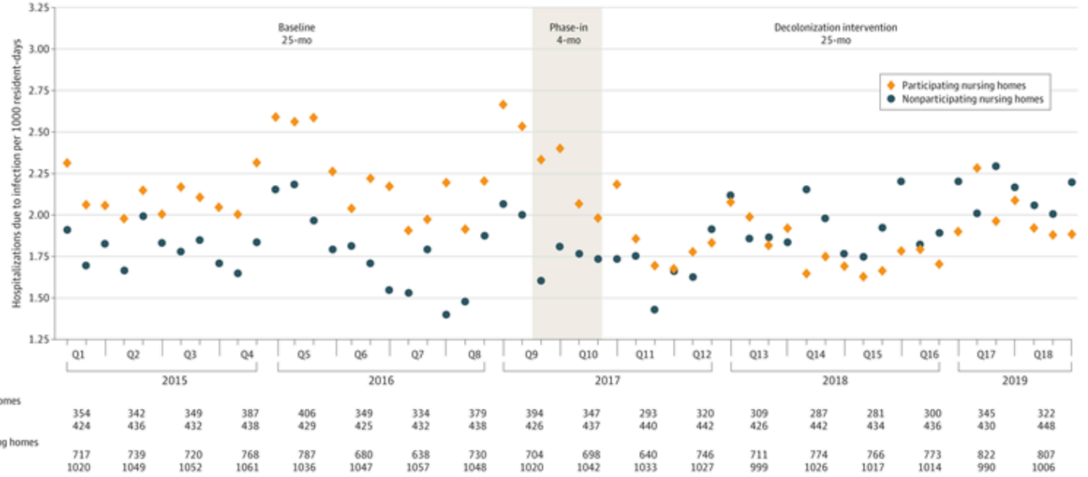
Figure 5. Monthly Infection-Related Hospitalization Rates Among Nursing Homes Residents in Participating (Decolonization) vs Nonparticipating Nursing Homes



	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18
Participating nursing homes																		
No. events	354	342	349	387	406	349	334	379	394	347	293	320	309	287	281	300	345	322
At-risk person-years	424	436	432	438	429	425	432	438	426	437	440	442	426	442	434	436	430	448
Nonparticipating nursing homes																		
No. events	717	739	720	768	787	680	638	730	704	698	640	746	711	774	766	773	822	807
At-risk person-years	1020	1049	1052	1061	1036	1047	1057	1048	1020	1042	1033	1027	999	1026	1017	1014	990	1006

Q indicates quarter.

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Table. Characteristics of Participating and Nonparticipating Health Care Facilities, SHIELD-OC Regional Decolonization Collaborative 2015-2019[a]

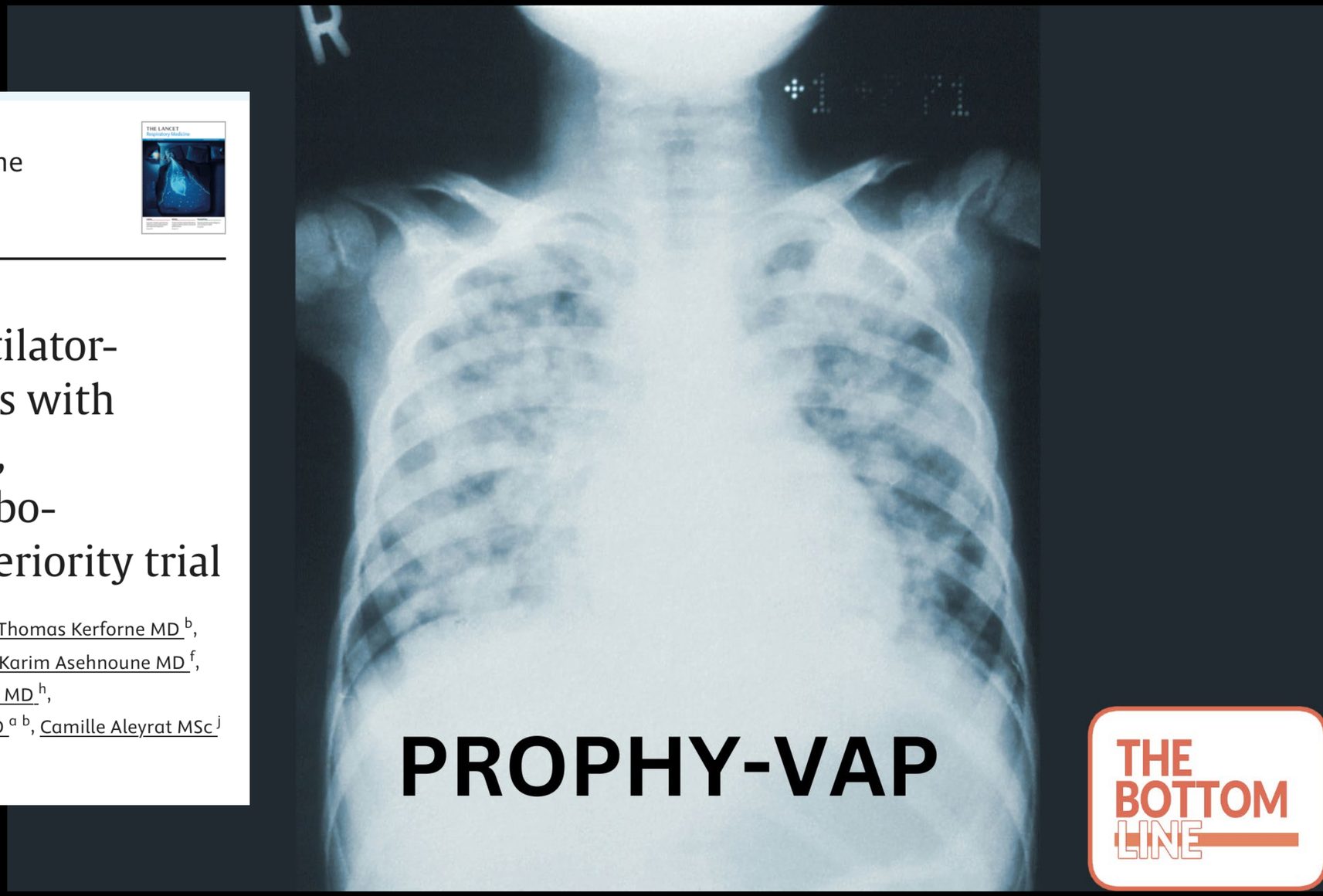
Table. Characteristics of Participating and Nonparticipating Health Care Facilities, SHIELD-OC Regional Decolonization Collaborative 2015-2019[a]

The Lancet Respiratory Medicine
Available online 20 January 2024
In Press, Corrected Proof What's this?

Articles

Ceftriaxone to prevent early ventilator-associated pneumonia in patients with acute brain injury: a multicentre, randomised, double-blind, placebo-controlled, assessor-masked superiority trial

Prof Claire Dahyot-Fizelier MD [a b], Prof Sigismond Lasocki MD [c], Thomas Kerforne MD [b], Prof Pierre-Francois Perrigault MD [d], Prof Thomas Geeraerts MD [e], Prof Karim Asehnoune MD [f], Prof Raphaël Cinotti MD [f], Prof Yoann Launey MD [g], Vincent Cottenceau MD [h], Prof Marc Laffon MD [i], Thomas Gaillard MD [c], Prof Matthieu Boisson MD [a b], Camille Aleyrat MSc [j], Prof Denis Frasca MD [b j], Prof Olivier Mimoz MD [a k]
PROPHY-VAP Study Group and the ATLANREA Study Group†



New Literature

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Beta-Blockers after Myocardial Infarction and Preserved Ejection Fraction

Authors: Troels Yndigegn, M.D., Bertil Lindahl, Ph.D., Katarina Mars, M.D., Joakim Alfredsson, Ph.D., Jocelyne Benatar, Ph.D., Lisa Brandin, Ph.D., David Erlinge, Ph.D., +12, for the REDUCE-AMI Investigators* Author Info & Affiliations

Published April 7, 2024 | N Engl J Med 2024;390:1372-1381 | DOI: 10.1056/NEJMoa2401479 | VOL. 390 NO. 15

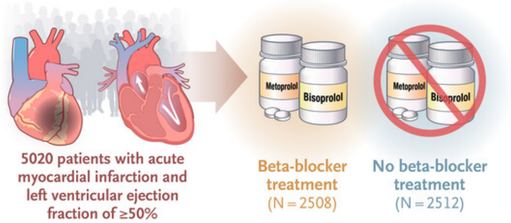
RESEARCH SUMMARY

Beta-Blockers after Myocardial Infarction and Preserved Ejection Fraction

Yndigegn T et al. DOI: 10.1056/NEJMoa2401479

CLINICAL PROBLEM

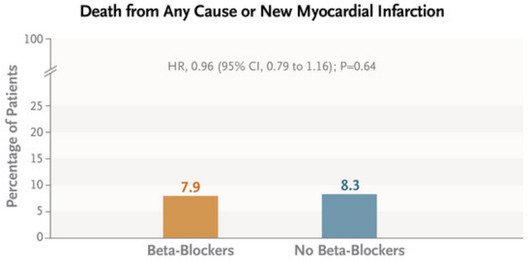
The efficacy of beta-blocker treatment after myocardial infarction is well documented; however, most trials included patients with large myocardial infarctions and predated advancements such as modern biomarker-based diagnosis and treatment with percutaneous coronary intervention, antithrombotic agents, high-intensity statins, and renin–angiotensin–aldosterone system antagonists. Data from contemporary, sufficiently powered, randomized trials examining the effect of long-term beta-blocker therapy in patients with an acute myocardial infarction and preserved ejection fraction are lacking.



CLINICAL TRIAL

Design: A registry-based, prospective, open-label, parallel-group, randomized clinical trial that was performed at 45 centers in Sweden, Estonia, and New Zealand evaluated the efficacy and safety of long-term oral beta-blocker treatment initiated early in patients with an acute myocardial infarction and preserved left ventricular ejection fraction.

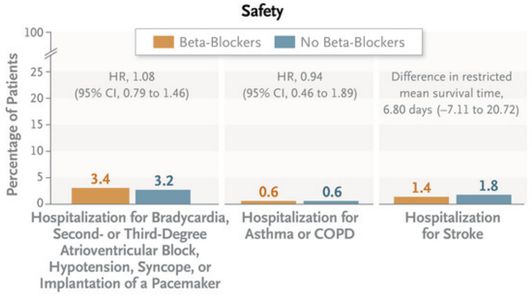
Intervention: 5020 patients (95% of whom were from Sweden) with an acute myocardial infarction who had undergone coronary angiography and had a left ventricular ejection fraction of ≥50% were assigned to beta-blocker treatment (metoprolol or bisoprolol) or no beta-blocker treatment. The primary end point was a composite of death from any cause or new myocardial infarction.



RESULTS

Efficacy: At a median follow-up of 3.5 years, the groups did not differ significantly with regard to the composite end point of death or myocardial infarction.

Safety: Safety end-point events occurred in similar percentages of patients in the two groups.



LIMITATIONS AND REMAINING QUESTIONS

- The trial was open-label, because blinding was not judged to be feasible.
- Only safety end points that were associated with hospitalization were assessed.
- Despite strategies to mitigate crossovers, 14% of the patients who had been assigned to the no–beta-blocker group were taking beta-blockers after 1 year of follow-up.

CONCLUSIONS

Among patients with an acute myocardial infarction and preserved ejection fraction, long-term treatment with beta-blockers did not lead to a lower risk of death or myocardial infarction than no beta-blocker treatment.

Links: Full Article | NEJM Quick Take | Editorial

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Microaxial Flow Pump or Standard Care in Infarct-Related Cardiogenic Shock

Authors: Jacob E. Møller, D.M.Sc., Thomas Engstrøm, D.M.Sc., Lisette O. Jensen, D.M.Sc., Hans Eiskjær, D.M.Sc, Norman Mangner, M.D., Amin Polzin, M.D., P. Christian Schulze, M.D., +29, for the DanGer Shock Investigators* Author Info & Affiliations

Published April 7, 2024 | N Engl J Med 2024;390:1382-1393 | DOI: 10.1056/NEJMoa2312572 | VOL. 390 NO. 15

CLINICAL PROBLEM

Cardiogenic shock occurs in approximately 8 to 10% of patients with ST-segment elevation myocardial infarction (STEMI) and is associated with mortality of 40 to 50%. Active mechanical circulatory support with a percutaneous microaxial flow pump, which drains blood from the left ventricle through a catheter and expels it into the ascending aorta, unloads the left ventricle, and may improve systemic blood flow and organ perfusion. The effects of its routine use in STEMI-associated cardiogenic shock are uncertain.

CLINICAL TRIAL

Design: An international, open-label, randomized trial examined whether routine use of a microaxial flow pump in addition to guideline-directed therapies (standard care) in patients with STEMI-associated cardiogenic shock would result in lower mortality than standard care alone.

Intervention: 360 patients were randomly assigned to receive a microaxial flow pump (to be run at the highest possible performance level for ≥48 hours) plus standard care or standard care alone. The primary end point was death from any cause at 180 days.

RESULTS

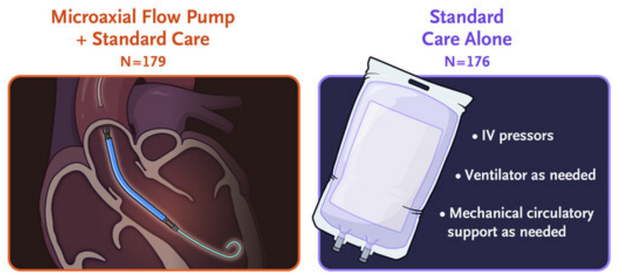
Efficacy: Among the patients who could be evaluated, death at 180 days occurred less often with the microaxial flow pump than with standard care alone.

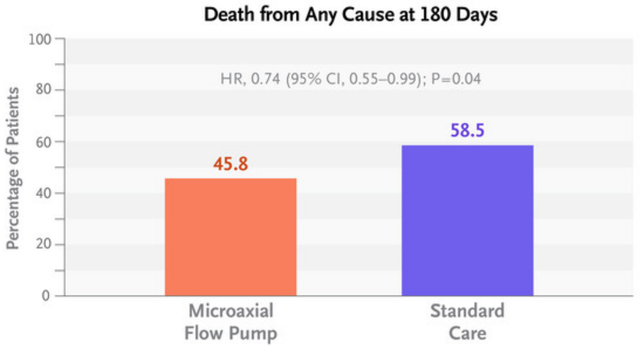
Safety: A composite safety end-point event (severe bleeding, limb ischemia, hemolysis, device failure, or worsening of aortic regurgitation) occurred more often in the microaxial-flow-pump group than in the standard-care group. Renal-replacement therapy was administered almost twice as often with the flow pump as with standard care alone.

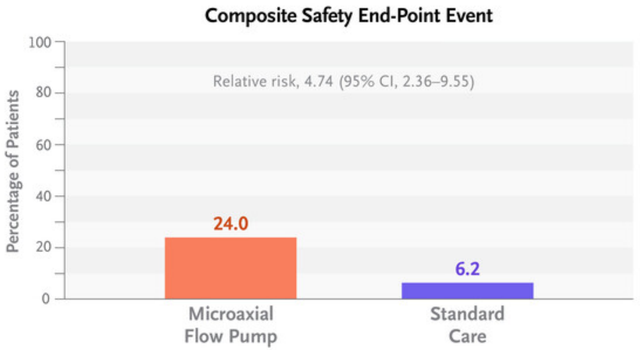
LIMITATIONS AND REMAINING QUESTIONS

- The findings cannot be extrapolated to patients with cardiogenic shock who remain comatose after cardiac arrest and those with non–STEMI-associated cardiogenic shock.
- The trial was conducted at 15 centers in Denmark, Germany, and the United Kingdom; results may differ in other health care systems.
- Data on race and ethnic group were not collected.

Links: Full Article | NEJM Quick Take | Editorial







CONCLUSIONS

Among patients with STEMI-associated cardiogenic shock, mortality was lower with the use of a microaxial flow pump in addition to standard care than with standard care alone.

This Issue Views 21,137 | Citations 0 | Altmetric 149

Original Investigation | Caring for the Critically Ill Patient

March 19, 2024

Lower vs Higher Oxygenation Target and Days Alive Without Life Support in COVID-19

The HOT-COVID Randomized Clinical Trial

Frederik M. Nielsen, MD[1,2]; Thomas L. Klitgaard, MD, PhD[1]; Martin Siegem

» Author Affiliations

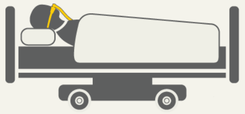
JAMA. 2024;331(14):1185-1194. doi:10.1001/jama.2024.2934

JAMA®

QUESTION Does targeting a Pao_2 of 60 mm Hg vs 90 mm Hg affect the number of days alive without life support in patients in the intensive care unit (ICU) with COVID-19 and severe hypoxemia?

CONCLUSION A Pao_2 target of 60 mm Hg vs 90 mm Hg resulted in more days alive without life support in ICU patients with COVID-19 and severe hypoxemia.

POPULATION



495 Men **231** Women

Adults in the ICU with COVID-19, receiving at least 10 L/min of oxygen or mechanical ventilation

Median age: **66** years

LOCATIONS

11 ICUs in Europe

INTERVENTION

726 Patients randomized
697 Patients analyzed

351

Lower oxygenation target
Supplemental oxygen targeting a Pao_2 of 60 mm Hg

346

Higher oxygenation target
Supplemental oxygen targeting a Pao_2 of 90 mm Hg

PRIMARY OUTCOME

Number of days alive without life support (mechanical ventilation, circulatory support, or kidney replacement therapy) at 90 days

FINDINGS

Median days alive without life support

Lower oxygenation target
80 (IQR, 9-89)

Higher oxygenation target
72 (IQR, 2-88)

The findings were statistically significant:

Between-group difference,
***P* = .009** by van Elteren test

Supplemental bootstrapped adjusted mean difference,
5.8 days (95% CI, 0.2 to 11.5)

Nielsen FM, Klitgaard TL, Siegemund M, et al; HOT-COVID Trial Group. Lower vs higher oxygenation target and days alive without life support in COVID-19: the HOT-COVID randomized clinical trial. *JAMA*. Published online March 19, 2024. doi:10.1001/jama.2024.2934

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Trial of Early Minimally Invasive Removal of Intracerebral Hemorrhage

Authors: Gustavo Pradilla, M.D., Jonathan J. Ratcliff, M.D., M.P.H., Alex J. Hall, D.H.Sc., Benjamin R. Saville, Ph.D., Jason W. Allen, M.D., Ph.D., Giorgio Paulon, Ph.D., Anna McGlothlin, Ph.D., +20, for the ENRICH trial investigators* Author Info & Affiliations

Published April 10, 2024 | N Engl J Med 2024;390:1277-1289 | DOI: 10.1056/NEJMoa2308440 | VOL. 390 NO. 14

CLINICAL PROBLEM

Current treatment guidelines for a spontaneous intracerebral hemorrhage (ICH) support surgical evacuation of the hematoma by means of conventional craniotomy only as lifesaving treatment, because randomized trials have not shown improvement in functional outcomes except in selected subgroups. Whether early minimally invasive surgical removal of the hematoma might improve functional outcomes is unknown.

CLINICAL TRIAL

Design: A prospective, multicenter, open-label, adaptive, randomized trial assessed early (within 24 hours) minimally invasive surgical removal of the hematoma as compared with guideline-based medical management in patients with an acute supratentorial ICH.

Intervention: 300 adults presenting within 24 hours after a lobar or anterior basal ganglia ICH with a hematoma volume of 30 to 80 ml were randomly assigned to minimally invasive trans-sulcal parafascicular surgery plus medical management or medical management alone. The primary efficacy end point was the mean score for disability on the utility-weighted modified Rankin scale (UW-mRS) at 180 days (range, 0 to 1, with higher scores indicating better outcomes).

RESULTS

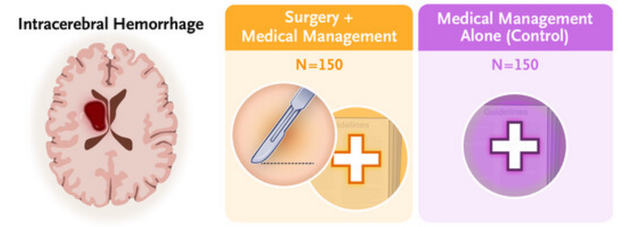
Efficacy: Among evaluable patients, the mean UW-mRS score was better with surgery than with medical management alone. The benefit of surgery appeared to be attributable to intervention for lobar hemorrhages and not for anterior basal ganglia hemorrhages.

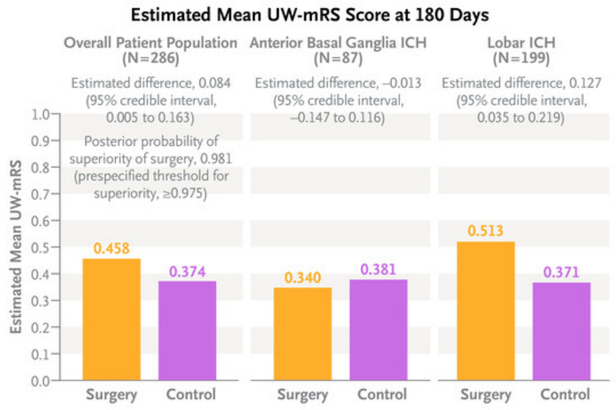
Safety: The percentage of patients who died within 30 days was lower in the surgical group.

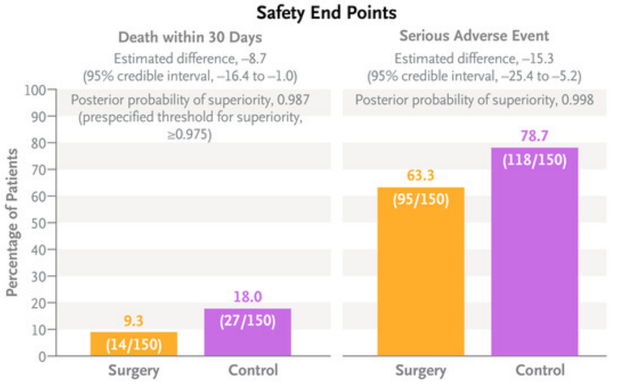
LIMITATIONS AND REMAINING QUESTIONS

- The trial excluded patients with hematoma volumes of <30 or >80 ml and those with substantial thalamic or intraventricular extension.
- Recruitment of patients with anterior basal ganglia hemorrhages was halted for futility after relatively few patients had been enrolled, so inferences of potential benefit in these patients are limited.

Links: Full Article | NEJM Quick Take | Editorial







CONCLUSIONS

In patients presenting within 24 hours after an acute supratentorial lobar ICH of 30 to 80 ml, minimally invasive surgical evacuation of the hematoma plus guideline-based medical management improved functional outcomes as compared with medical management alone.

HEPATOLOGY

ORIGINAL ARTICLE

Tranexamic acid in upper gastrointestinal bleed in patients with cirrhosis: A randomized controlled trial

Kumar, Manoj[1]; Venishetty, Shantan[1]; Jindal, Ankur[1]; Bihari, Chhagan[2]; M
Muralikrishna, Shasthry[1]; Arora, Vinod[1]; Kumar, Guresh[3]; Sarin, Shiv K.[1]

Author Information

Hepatology ():10.1097/HEP.0000000000000817, March 5, 2024. | *DOI:* 10.1

Tranexamic acid in Upper Gastrointestinal Bleed in Patients with Cirrhosis - A Randomized Controlled Trial

Advanced Liver Cirrhosis (CTP class B or C) presenting with Upper Gastrointestinal Bleed (N=600)

RANDOMIZATION

Placebo infusion (N=300) | **Tranexamic acid infusion (N=300)**

40(13.3%)	Failure to control bleeding by day 5, p=0.006	19(6.3%)
64 (21.3%)	Failure to prevent rebleeding after day 5 till 6 weeks, p= 0.001	36 (12%)
17 (5.7%)	6 weeks bleed related mortality, p=0.575	13 (4.3%)

Kumar, et al. *Hepatology.*

HEPATOLOGY

This Issue Views 16,744 | Citations 0 | Altmetric 331

Original Investigation

March 18, 2024

Video Laryngoscopy vs Direct Laryngoscopy for Endotracheal Intubation in the Operating Room

A Cluster Randomized Clinical Trial

Kurt Ruetzler, MD[1,2]; Sergio Bustamante, MD[3]; Marc T. Schmidt[1]; et al

» Author Affiliations

JAMA. 2024;331(15):1279-1286. doi:10.1001/jama.2024.0762

Table 2. Treatment Effect on the Primary and Secondary Outcomes

Outcome	Video laryngoscopy (n = 4413)	Direct laryngoscopy (n = 4016)	Treatment effect estimate (95% CI)[a]	*P* value[b]
Primary outcome				
Intubation attempts per patient, No. (%)				
1	4336 (98.3)	3710 (92.4)	0.20 (0.14-0.28)[c]	<.001
2	70 (1.6)	277 (6.9)		
3	3 (0.07)	27 (0.67)		
>3	4 (0.09)	2 (0.05)		
Sensitivity analysis				
Negative binomial regression	NA	NA	0.94 (0.92-0.95)[d]	<.001
Wilcoxon-Mann-Whitney, median (IQR)	1 (1-1)	1 (1-1)	0 (0-0)[e]	<.001
Including all exclusions due to COVID-19, staff preferences, educational purposes[f]	NA	NA	0.26 (0.19-0.36)[c]	<.001
Secondary outcome, No. (%)				
Intubation failure	12 (0.27)	161 (4.0)	0.06 (0.03-0.14)[g]	<.001
Composite injury	41 (0.93)	42 (1.1)	0.87 (0.48-1.58)[g]	.53
Airway injury[h]	40 (0.9)	40 (1.0)	0.89 (0.46-1.72)[g]	.61
Dental injury[h]	1 (0.02)	2 (0.05)	0.49 (0.08-3.00)[g]	.25

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ARTICLES | ONLINE FIRST

Ticagrelor alone versus ticagrelor plus aspirin from month 1 to month 12 after percutaneous coronary intervention in patients with acute coronary syndromes (ULTIMATE-DAPT): a randomised, placebo-controlled, double-blind clinical trial

Zhen Ge, MD * • Jing Kan, MD * • Xiaofei Gao, MD * • Afsar Raza, MD • Jun-Jie Zhang, MD • Bilal S Mohydin, MD • et al. Show all authors • Show footnotes

Published: April 07, 2024 • DOI: https://doi.org/10.1016/S0140-6736(24)00473-2 • Check for updates