

Conscious Sedation for Patients Undergoing Acute Stroke Intervention



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Disclosure Statement of Financial Interest

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below.

Affiliation/Financial Relationship

Company

- Toshiba – Honorarium
- Medtronic - Honorarium

Editorial

General Anesthesia versus Conscious Sedation for the Endovascular Treatment of Acute Ischemic Stroke

W. Scott Jellish, MD, PhD, and Steven B. Edelstein, MD

- **“...for every 10 minutes without reperfusion, 2 million nerve cells die”**
 - **Time is crucial**
- **Avoidance of hypotension, BP variations, or BP extremes important to outcomes**

Conscious Sedation Advantages

- **Ability to monitor the patient's neurologic status**
- **Faster**
- **Risks associated with an endotracheal tube are avoided**
- **Better hemodynamics?**
 - **Patient's autoregulation not impaired or effected by induction**

Conscious Sedation versus General Anesthesia during Endovascular Acute Ischemic Stroke Treatment: A Systematic Review and Meta-Analysis

W. Brinjikji, M.H. Murad, A.A. Rabinstein, H.J. Cloft, G. Lanzino, and D.F. Kallmes

AJNR Am J Neuroradiol 36:525–29 Mar 2015

Odds ratio >1.0 implies worse outcome with GA

	No. of Studies	OR GA vs CS	95% CI	P Value	I ²
alCH	2	1.17	0.89–1.54	.27	NA
Death	5	2.22	1.54–3.20	.00	0
mRS ≤ 2	6	0.38	0.25–0.60	.00	56
Other vasc comp	3	1.66	0.56–4.93	.36	37
Recan (TIMI ≥ 2)	4	0.55	0.35–0.87	.01	0
Resp comp	3	2.03	1.12–3.68	.02	0
sICH	5	1.21	0.83–1.75	.32	0

Our meta-analysis demonstrated that patients receiving conscious sedation had higher rates of good functional outcome and recanalization and decreased rates of mortality and respiratory complications compared with those receiving general anesthesia.

Effect of Conscious Sedation vs General Anesthesia on Early Neurological Improvement Among Patients With Ischemic Stroke Undergoing Endovascular Thrombectomy

A Randomized Clinical Trial

JAMA. 2016;316(19):1986-1996. doi:10.1001/jama.2016.16623
 Published online October 26, 2016.

Silvia Schönenberger,
 Jan C. Purrucker, MD;
 Meinhard Kieser, PhD

Conclusions

Among patients with acute ischemic stroke in the anterior circulation undergoing thrombectomy, the use of conscious sedation compared with general anesthesia did not result in greater improvement in neurological status at 24 hours. The study findings do not support an advantage for the use of conscious sedation.

ID:

Characteristic			
Pretreatment imaging			
CT			47 (61.0)
MRI			43 (55.8)
CT and MRI			4 (5.2)
ASPECTS ^a			9 (11.7)
10-8			21 (27.3)
7-6			21 (27.3)
<6			0
Median (IQR)	8 (7-9)	8 (6.25-9)	26 (38.4)
			35 (45.5)

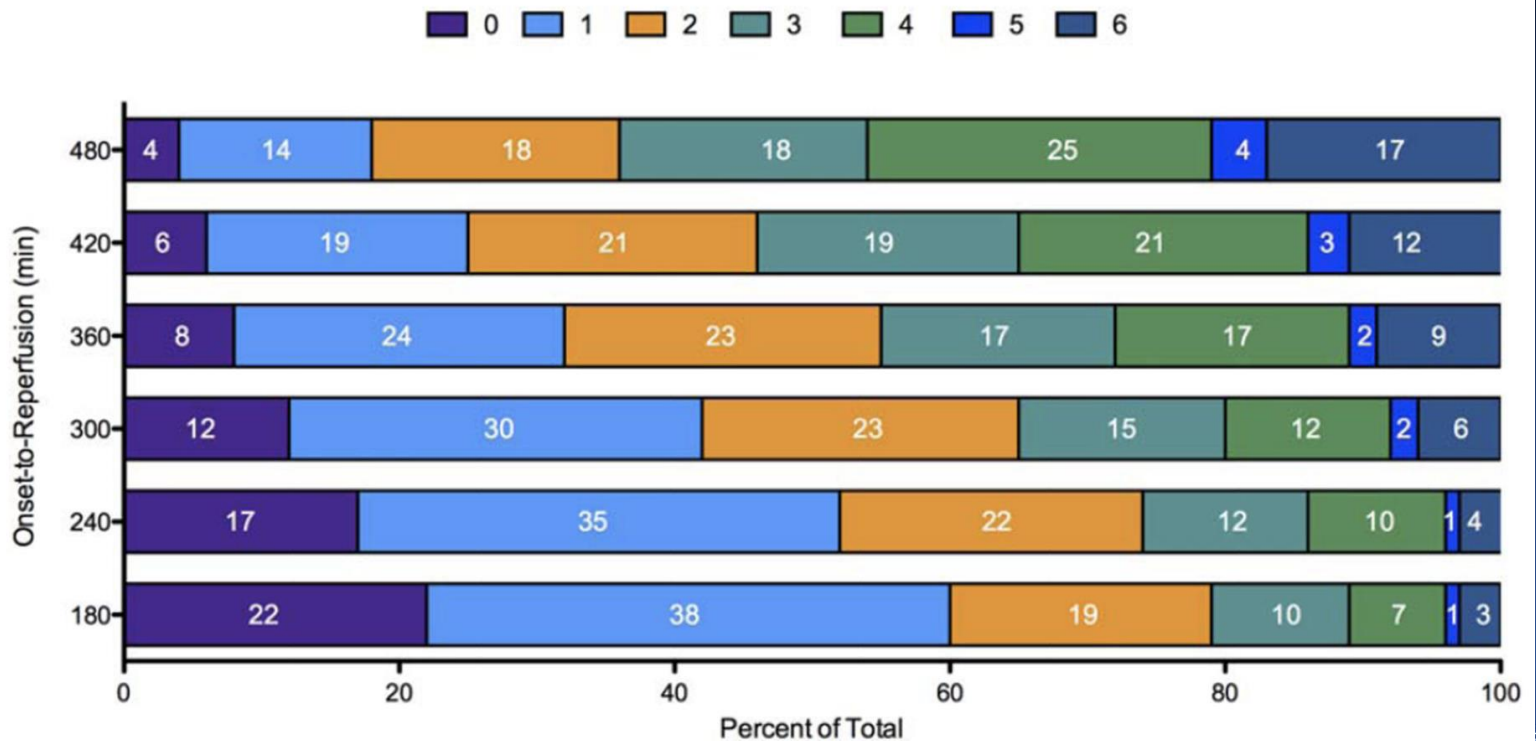
Premorbid modified Rankin Scale ^b		
0	40 (54.8)	39 (50.6)
1	14 (19.2)	19 (24.7)
2	10 (13.7)	13 (16.9)
>2	9 (12.3)	6 (7.8)
NIHSS ^c		
Mean (SD)	16.8 (3.9)	17.2 (3.7)
Median (IQR)	17 (13-20)	17 (14-20)
Glasgow Coma Scale ^d		
12	6 (8.2)	3 (3.9)
13	38 (52.1)	41 (53.2)
14-15	29 (39.8)	33 (42.9)

Reperfusion treatments		
Intravenous thrombolysis and endovascular stroke treatment	46 (63.0)	50 (64.9)
Endovascular stroke treatment alone	26 (35.6)	27 (35.1)
No intervention	1 (1.4)	0
Types of endovascular stroke treatment		
Stent retriever	60 (82.2)	66 (85.7)
Direct aspiration	6 (8.2)	4 (5.2)
Cervical stent/angioplasty ^e	16 (21.9)	12 (15.6)
Onset-to-door time, mean (SD), min	145.0 (83.8)	118.1 (61.5)

But The Data Still Says Time is Brain!

Time to Endovascular Reperfusion and Degree of Disability in Acute Stroke

Sunil A. Sheth, MD¹, Reza Jahan, MD¹, Jan Gralla, MD², Vitor M. Pereira, MD³, Raul G. Nogueira, MD⁴, Elad I. Levy, MD, MBA⁵, Osama O. Zaidat, MD⁶, Jeffrey L. Saver, MD⁷, and for the SWIFT-STAR Trialists



The Debate Continues

General Anesthesia Versus Conscious Sedation for Endovascular Treatment of Acute Ischemic Stroke

The AnStroke Trial (Anesthesia During Stroke)

Pia Löwhagen Hendén, MD*; Alexandros Rentzos, MD*; Jan-Erik Karlsson, MD, PhD;
Lars Rosengren, MD, PhD; Birgitta Leiram, MD; Henrik Sundeman, MD, PhD;
Dennis Dunker, MD; Kunigunde Schnabel, MD†; Gunnar Wikholm, MD, PhD;
Mikael Hellström, MD, PhD; Sven-Erik Ricksten, MD, PhD

Stroke June 2017

Discussion

This randomized study on GA versus CS for EVT in AIS showed no difference in neurological outcome (mRS score) at 3 months. Furthermore, we found no difference between

Anesthesia-Related Outcomes for Endovascular Stroke Revascularization

A Systematic Review and Meta-Analysis

Waleed Brinjikji, MD; Jeffrey Pasternak, MD; Mohammad H. Murad, MD;
Harry J. Cloft, MD, PhD; Tasha L. Welch, MD; David F. Kallmes, MD; Alejandro A. Rabinstein, MD

Stroke October 2017

Discussion

Our meta-analysis shows that patients who received GA had lower rates of good functional outcome and higher rates of mortality and respiratory complications when compared with non-GA patients. In contrast, no difference in recanalization

Bottom Line

- **Time is brain; therefore faster is better**
- **Some patients will tolerate mechanical thrombectomy, and some patients will be obstructive to their care**
 - **There is a subpopulation of acute stroke patients who may benefit from GA**
- **Our practice: Conscious sedation as a rule; GA for the exception of severe aphasia or combativeness**

Basilar Occlusion with

Thank you!
Questions?

