Intracerebral Hemorrhage ISC 2024

ICH Background

- 2nd most common type of stroke
- Approx 63,000 annually in the US (10%)
- Most common first point of care is the ED
- 35-60% mortality rate
- Approx 30-40% die within 30 minutes of the initial insult
- ICH increasing with the use of anticoagulants
- Severe neurologic impairment

ICH Background

Common Hemorrhagic Stroke Complications

- Hematoma Expansion
    – Often happens early
    – Increase in poor functional outcomes and mortality
- Seizures
    – Subclinical
- Cerebral Edema
    – Herniation
- Aspiration
    – Higher risk for infection/pneumonia

ACTIVATION OF HEMORRHAGIC STROKE TRANSFERS AND DIDO TIME GOALS

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Disparities in Care

Code ICH: A Call to Action

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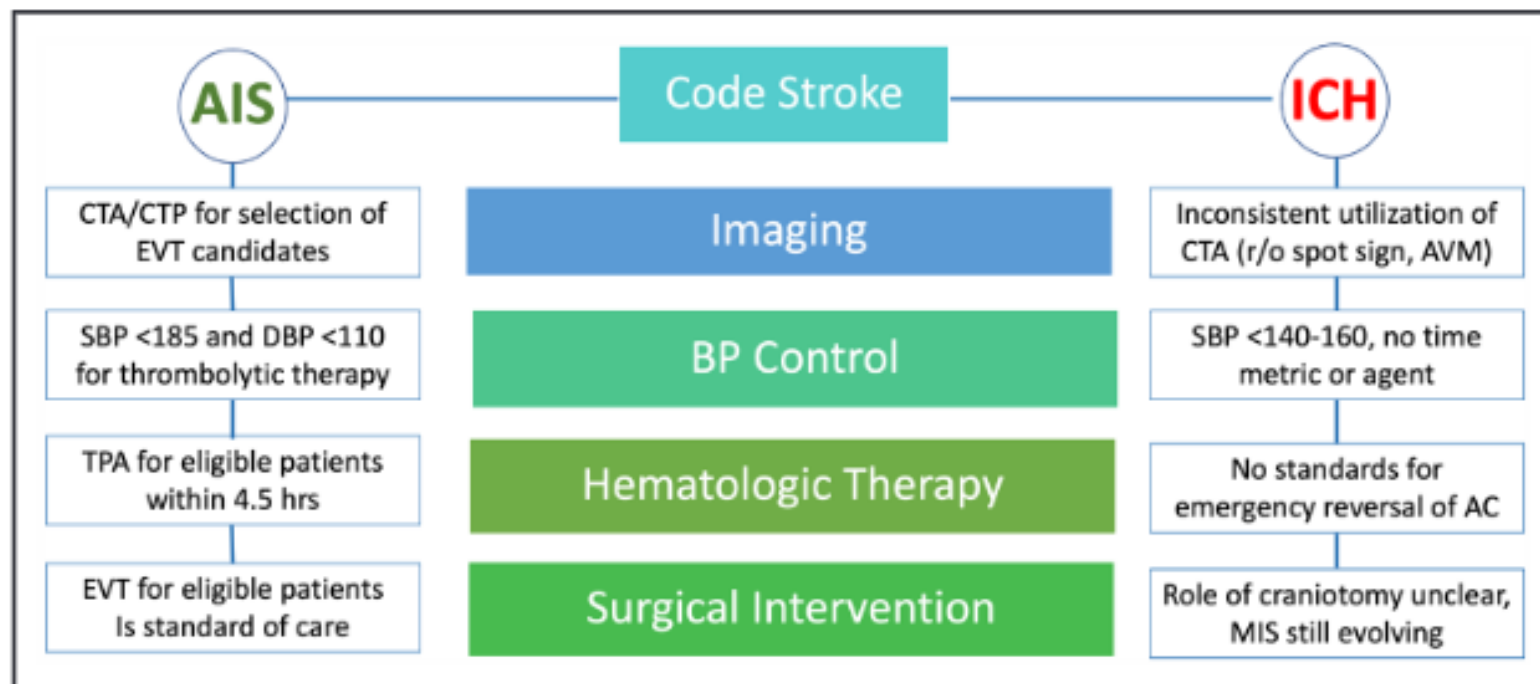
Spot Sign on CTA
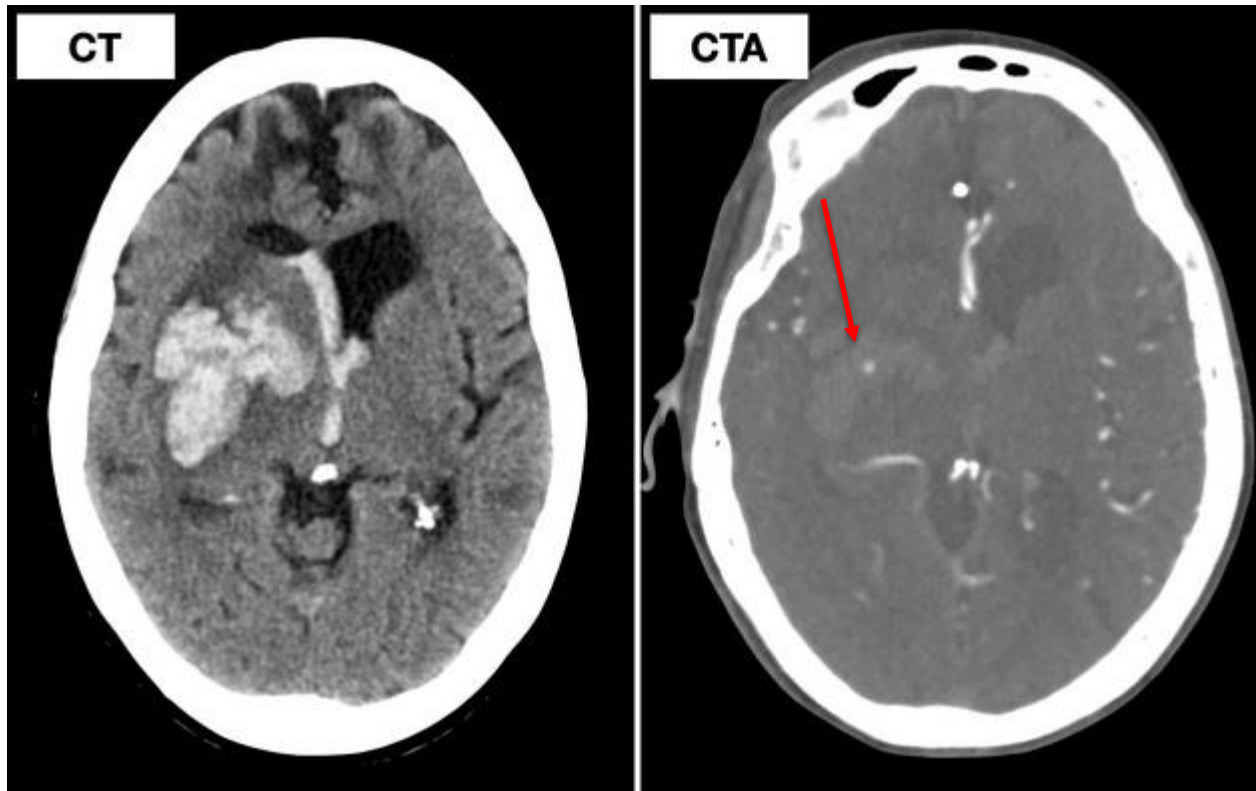
Why would this piece of information be helpful to you as a nurse?

Quality Improvement Interventions

- Develop Protocols for screening, identification, and rapid transfer
- Utilize AI for ICH Detection
- Improve transfer regulations
  - Introduce emergency interfacility transfers
  - Reduce geographic variations in care
- Focus on gender, racial, geographic, and ethnic disparities to improve access to care
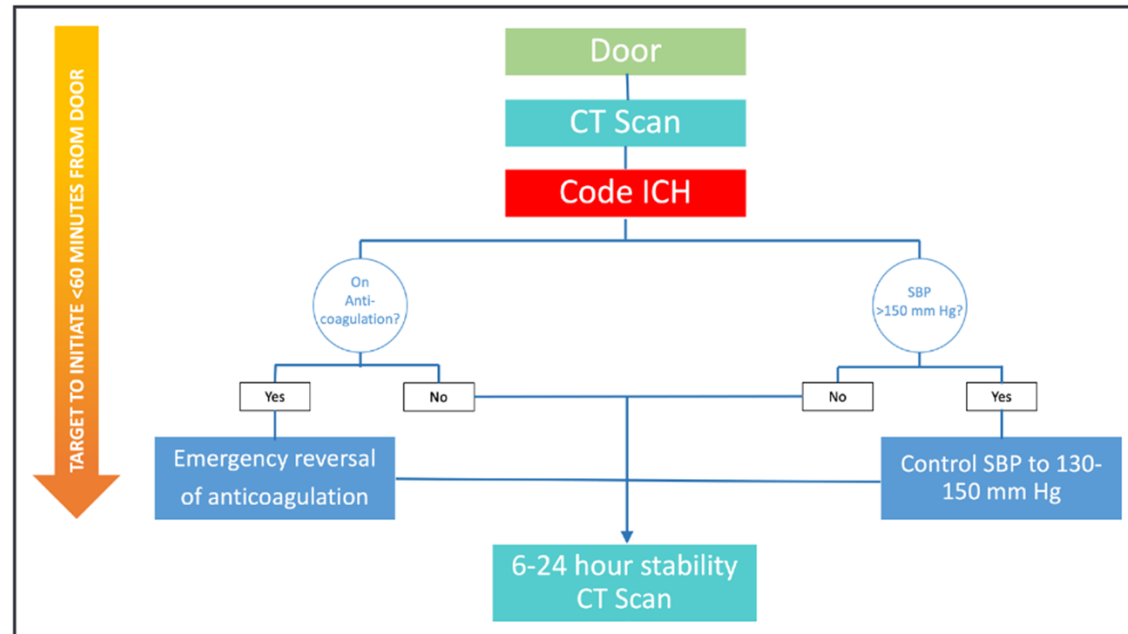
Goals of Care "Oh, We Don't Keep Them"

1. Just because you don't keep them doesn't mean you shouldn't treat them.

- Recognition of Symptoms & Diagnosis
- Blood Pressure Control
  - Associated with HE and poor outcomes
  - Control of BP variability risk of AKI and in hospital mortality
- Antidote specific reversal agents
  - Should be administered ASAP to mitigate HE
- Nursing Interventions
  - Vital sign frequency
  - Neuro check frequency
  - NIHSS
  - Dysphagia Screen
  - HOB
- Surgical Evacuation and Minimally Invasive Surgery (MIS) options
- Transfer to center with resources to treat worsening symptoms or complications

2. Who is making the decisions and driving care – ED, NES, stroke neurology?

Stroke: Vascular and Interventional Neurology

ORIGINAL RESEARCH

Validation of the National Institutes of Health Stroke Scale in Intracerebral Hemorrhage

Wendy Dusenbury, PhD; Georgios Tsivgoulis, MD, PhD; Jason Chang, MD; Nitin Goyal, MD; Victoria Swatzell, DNP; Andrei V. Alexandrov, MD; Patrick Lyden, MD; Anne W. Alexandrov, PhD

Neurologic assessments are essential to understanding stability, improvement, and deterioration in patients with acute stroke,[33] and while both GCS and NIHSS are used in patients with ICH[34,35] consensus on the use of a specific scale for baseline and serial assessment in the patient with ICH has been lacking.[30] However, the admission NIHSS has been found to correlate with functional outcomes after stroke.[24,33,36,37] Decreased LOC on presentation has been thought to diminish the utility of the NIHSS[29]; however, ICH mortality has been found to be predicted better with the NIHSS than GCS.[38]

SEQIP
STROKE ENCOUNTER QUALITY IMPROVEMENT PROJECT

DIDO ICH

DIDO TIMES FOR ICH

Door-in-Door-out Times for Interhospital Transfer of Patients With Stroke

Brian Stamm, MD; Regina Royan, MD, MPH; Mihai Giurcanu, PhD; Steven R. Messe, MD; Edward C. Jauch, MD, MS; Shyam Prabhakaran, MD, MS

	Hemorrhagic stroke (n = 41 678)		
	Minutes		
	≤120 (n = 10 694)	>120 (n = 30 984)	Absolute SD
Daily census, No.	9785	28 456	
0-99	5670 (57.9)	13 434 (47.2)	
100-199	3136 (32.0)	10 391 (36.5)	24.2
≥200	979 (10.0)	4631 (16.3)	

	Hemorrhagic stroke (n = 41 678)
Demographics	
Age, y	
18-≤59	14 536 (34.9)
60-≤69	9246 (22.2)
70-≤79	9597 (23.0)
80-≤110	8299 (19.9)

- Using GWTG data across US 2019-2022
- 108,913 patients
- 1925 hospitals
- Stroke type
  - 67,235 AIS
  - 41,678 ICH
- Median (IQR) DIDO time
  - 174 (116, 276) minutes overall
  - 132 (97, 189) minutes AIS EVT eligible
  - 178 (119, 275) minutes ICH
  - 201 (129, 319) minutes AIS
- Age > 80 years old
- Black & Hispanic populations
- Females

Greatest Delays

Identifying contributors to DIDO

Transfer times > 120 Minutes

- 27.3% of transfers met a goal of 120 minutes or less

Qualitative Themes

- Internal related (PSC factors)
- Transport related
- External related (CSC factors)

Development of a data collection instrument

Stroke: Vascular and Interventional Neurology

ORIGINAL RESEARCH

Transferring Patients From a Primary Stroke Center to Higher Levels of Care: A Qualitative Study of Stroke Coordinators' Experiences

Jennifer L. Patterson, MSN ⬤; Wendy Dusenbury, PhD; Ansley Stanfill, PhD; Barbara B. Brewer, PhD; Andrei V. Alexandrov, MD; Anne W. Alexandrov, PhD

NURSE LED INTERVENTIONS IMPROVE THE TIMELINESS OF BP REDUCTION IN PATIENTS PRESENTING WITH ACUTE NONTRAUMATIC INTRACEREBRAL HEMORRHAGE

Prashanta Jacobson, BSN
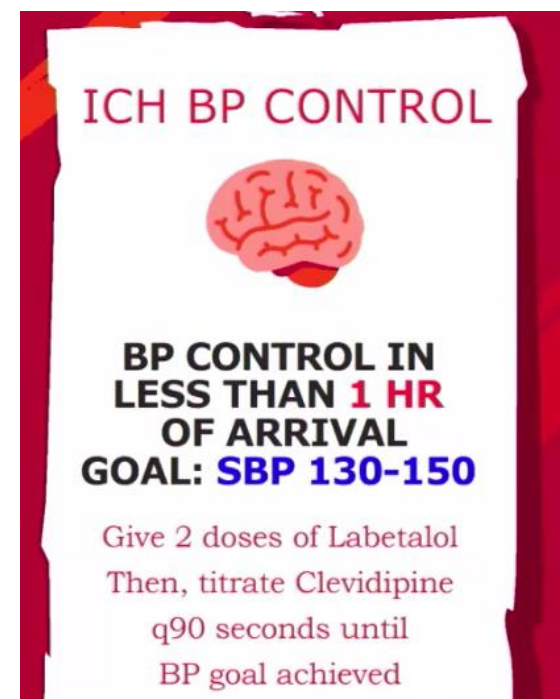Kaiser Permanente Los Angeles Medical Center

2022 ICH Guidelines

1. When implementing acute blood pressure lowering after mild to moderate ICH, treatment regimens that limit blood pressure variability and achieve smooth, sustained blood pressure control appear to reduce hematoma expansion and yield better functional outcome (LOE 2a).

2. Initiating Rx within 2 hours of ICH onset and reaching target within 1 hour can reduce the risk of HE (LOE 2b).

3. In ICH of mild to moderate severity presenting with SBP 150-220 mmHg, lowering of SBP to a target of 140 mm Hg with the goal of maintaining a range of 130-150 mmHg is safe (LOE 2a).

4. If large or severe ICH or requiring surgical decompression –safety and efficacy of intensive BP lowering are not well established (LOE 2b)

ER Stroke Champions

- Act as clinical resource
- Peer to Peer Feedback – Peer to Peer nursing education
  - Patient ratios
  - Nursing knowledge deficit current BP guidelines
  - Medication accessibility
- Perform Live audits
- Participate in CQI projects

ICH BP CONTROL

BP CONTROL IN LESS THAN 1 HR OF ARRIVAL
GOAL: SBP 130-150

Give 2 doses of Labetalol
Then, titrate Clevidipine
q90 seconds until
BP goal achieved

ED Code Stroke Patients – Time Based Goals

Pre/Post Intervention (June 2022-December 2022 compared January 2023-June 2023)

5 Metrics to Improve:

- Door to Medication Ordered
- Door to BP Medication Given
- First BP Medication Order to Medication given
- First BP Medication Order to Systolic BP in range
- Door to Goal Systolic BP of 130-150 mmHg

Additional Solutions

- BP medications accessible in CT scanner pyxis
- Nursing competency in Clevidipine
- 1:1 ratio for ICH patients until BP in range

Table 1. Demographics and Characteristics of ICH patients.

	Pre-Intervention (N=12)	Post-Intervention (N=22)	P-Value
Age, Mean (SD)	60.83 (10.96)	65.91 (15.05)	0.3
Female, N (%)	2(6%)	10(29%)	0.09
Hispanic, N (%)	6(18%)	10(29%)	0.9
Race, N (%)			0.6
White	7 (21%)	10(29%)	
Asian	1(3%)	3(9%)	
Black	1(3%)	5(15%)	
Pacific Islander	1(3%)	0	
Unknown	2(6%)	4(12%)	
Arrival NIHSS			0.2
Mean (SD)	22.83(10.45)	18.64 (9.75)	
Median (IQR)	21.50 (17-33)	20 (11.5-17.5)	
ICH score			0.9
Mean (SD)	1.83(1.7)	1.68(1.29)	
Median (IQR)	1.5 (0.75-2.5)	2 (1-2.75)	
LKW to arrival hours			0.7
Mean(SD)	1.92 (2.09)	1.91 (1.91)	
Median (IQR)	0.9 (0.53-2.83)	1.22 (0.67-2.36)	

Table 2. Changes in the blood pressure control after nursing led interventions.

	Pre-Intervention (N=12)	Post-Intervention (N=22)	P-value
Door to BP medication ordered, Median (IQR)	17.5 (9.3-23)	11 (8-22.3)	0.5
Door to BP medication given, Median (IQR)	29 (14.3-38.3)	21.5 (14.3-31.5)	0.5
First BP medication order to medication given, Median (IQR)	8 (5-12.25)	6.5 (4-17.8)	0.6
First BP medication order to Systolic BP in range 130-150, Median (IQR)	62 (46.7-80)	43 (33-52.3)	0.02*
Door to Goal Systolic BP 130-150, Median (IQR)	81 (68.5-91.3)	56 (37.38-73.5)	0.02*

*Significant

Coming Quality Metrics

2024 AHA/ASA Performance and Quality Measures for Spontaneous Intracerebral Hemorrhage: A Report From the American Heart Association/American Stroke Association

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ABSTRACT: The American Heart Association/American Stroke Association released a revised spontaneous intracerebral hemorrhage guideline in 2022. A working group of stroke experts reviewed this guideline and identified a subset of recommendations that were deemed suitable for creating performance measures. These 15 performance measures encompass a wide spectrum of intracerebral hemorrhage patient care, from prehospital to posthospital settings, highlighting the importance of timely interventions. The measures also include 5 quality measures and address potential challenges in data collection, with the aim of future improvements.