

SCRIPT

SEVERE STROKE IN A 30-YEAR-OLD PATIENT



SCENARIO

#292

NAME

PATRICIA GENTRY

SPECIALTY

Neurology

DIFFICULTY LEVEL

INTERMEDIATE

SIMULATION ENVIRONMENT

INTRA HOSPITAL - EMERGENCY ROOM

BODY INTERACT™
VIRTUAL PATIENTS

This patient is not a real patient, and the clinical scenario, while clinically plausible, is fictional.

Scenario

General description of the scenario info. Corresponds to the initial information presented to the trainee when selecting this scenario.

Title

Severe stroke in a 30-year-old patient

Context

Patricia was having a shower when she suddenly felt a headache on the right side and weakness in the left limbs.

Briefing

Female patient, aged 30 years, is brought to the emergency room due to a left hemiparesis and right-sided headache with acute onset one hour ago.

General learning objective

Management of an acute stroke patient.

Specific learning objectives

Recognize signs of an acute stroke

Decision making regarding reperfusion therapy

Know indications and contra-indications to intravenous thrombolysis and thrombectomy

Pre-simulation notes

-

Environment

Intra Hospital - Emergency Room

Specialty

Neurology

Difficulty Level

Intermediate

Reviewers

Angels Initiative

Patient characteristics

Characterization of the patient's demographic, habits, behavior and specific status effects.

Avatar



Patient Name

Patricia Gentry

Age

30 years

Race/Ethnicity

European/Caucasian

Smoker

Yes

Sedated

No

Agitated

No

Facial palsy

-50

Eyelid closure

0

Gender

Female

Eye color

Blue

Conscious

Yes

Confused

No

Last meal over 2h

No

Speech impairment

No

Renal metabolic compensation

Auto

Patient parameters

These parameter values are used by the simulator to initialize this scenario and correspond to a pre-treatment baseline.

Systolic arterial blood pressure (mmHg)

173

Heart rate (bpm)

75

Respiratory rate (/min)

14

Temperature (°C)

36

Urinary output (mL/kg/h)

0.75

Height (cm)

162

Diastolic arterial blood pressure (mmHg)

105

O2 saturation (%)

96

Blood glucose (mg/dL)

123

Hemoglobin (g/dL)

15

Weight (kg)

74

BMI

28.2

Potassium (mEq/L)

4.1

Sodium (mEq/L)

138

Physical examination

The items below characterize the patient's physical examination and monitoring findings on admission.

Airway

Airway observation

2nd Priority

Clear airway. Normal oropharynx. No readily audible abnormal breath sounds.

Breathing

Chest palpation

Not a priority

Normal: 2L - normal; 2R - normal

Chest percussion

Not a priority

Right: 1R - resonance; 2R - resonance; 3R - resonance; 4R - resonance; 5R - resonance
Left: 1L - resonance; 2L - resonance; 3L - superficial cardiac dullness; 4L - superficial cardiac dullness; 5L - resonance

O2 Sat (%)

1st Priority

96

Pulmonary auscultation

Not a priority

Clear to auscultation, with normal vesicular murmurs in all sites.

Respiratory rate (/min)

2nd Priority

14

Circulation

Blood pressure (mmHg)

1st Priority

173/105

Capillary refill time (s)

Not a priority

1.3

Cardiac auscultation

2nd Priority

Regular rate and rhythm, normal S1 and S2 sounds, no murmurs, gallops or rubs.

Heart rate (bpm)

1st Priority

75

Pulse palpation

Not a priority

Carotid - Amplitude: normal; Rhythmic;
Radial - Amplitude: normal; Rhythmic, both sides equal;
Femoral - Amplitude: normal; Rhythmic, both sides equal;
Dorsalis pedis & Posterior tibial -

Urinary output (mL/kg/h)	Not a priority	Amplitude: normal; Rhythmic, both sides equal; Popliteal - Amplitude: normal; Rhythmic, both sides equal. 0.75
Disability		
Blood glucose (mg/dL)	1st Priority	123
Glasgow Coma Scale	2nd Priority	15 (E-4; V-5; M-6) - Initial state and after thrombectomy 12 (E-3; V-4; M-5) - after stroke aggravation
Pupil light reflex	Not a priority	Right: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm Left: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm
Exposure		
Abdominal auscultation	Not a priority	Normal hydro-aerial sounds without abdominal murmurs.
Abdominal palpation	Not a priority	No visceromegaly.
Abdominal percussion	Not a priority	6R - tympanic; 7R - tympanic; 6L - tympanic; 7L - tympanic
Temperature (°C)	1st Priority	36

Dialogues

This is a complete list of all possible dialogue questions (on the left) and the corresponding responses (on the right).

History Taking

Chief Complaint

01. How are you feeling?	2nd Priority	I am not feeling well. I have difficulty moving my left arm and leg. I also have a strong headache on the right.
02. What happened to you?	1st Priority	I was taking a shower and suddenly I couldn't stand anymore because I had difficulty moving my left limbs.

History of Present Illness

03. Are you in pain at all?

Yes, I have a strong headache on the right.

2nd Priority

04. When did your symptoms start?

One hour ago.

1st Priority

05. When was the last time you had something to eat?

Two hours ago.

Not a priority

Past Medical/Surgical History

06. Do you have high blood pressure?

No.

Not a priority

07. Do you have high cholesterol?

No.

Not a priority

08. Do you have any other health problems?

I have frequent headaches, almost every day, and I take common painkillers.

2nd Priority

09. Have you had any severe illnesses or injuries before?

No.

2nd Priority

10. Have you ever been hospitalized?

No.

2nd Priority

Medications and Allergies

11. What medication have you been taking?

I take the pill.

1st Priority

Social History

12. Can you please tell me what you usually eat?

Relatively normal.

Not a priority

13. Do you exercise?

No, not really.

Not a priority

14. How many meals do you have a day?

Five.

Not a priority

15. Have you felt any changes to your appetite?

No.

Not a priority

16. Have you been under any stress lately?

Nothing out of the ordinary.

Not a priority

17. How often do you consume alcohol?

No, nothing.

Not a priority

18. Do you smoke?

Yes, since I was 18. I smoke approximately 15 cigarettes per day.

Not a priority

19. Any recent weight changes?

No.

Not a priority

Medical Tests

The items below describe the possible test results in this scenario, including rules that may affect those results.

Decision aids

Stroke scale (NIHSS)

1st Priority

14 (Initial - Short-term right ischemic embolic stroke)
22 (Short-term severe right ischemic embolic stroke)
8 (after thrombectomy)

Electrophysiology

12-Lead ECG

Not a priority

Normal sinus rhythm

Imaging

Cerebral CT angiography

1st Priority

Occlusion of right Internal Carotid Artery, in the supraclinoid portion, with extension to the ipsilateral A1 and M1 segments, representing a 'carotid T' occlusion. The remaining extra- and intra-cranial arteries are normal.

Cerebral perfusion CT

Not a priority

Large area of cerebral blood flow impairment and increase in mean transit time in the whole territory of the right middle cerebral artery.

Chest CT

Not a priority

Absence of significant changes of pulmonary parenchyma density and pleural effusion.

Chest X-Ray

Not a priority

No visible alterations.

Head CT

1st Priority

No acute lesions are visible in the cerebral parenchyma. The right M1 segment of the Middle Cerebral Artery is hyperdense, suggesting the presence of an acute thrombus.

ASPECTS:10

Neck Doppler ultrasound

Not a priority

Normal carotid artery flow.

Transcranial Doppler

Not a priority

Occlusion of the distal intracranial segment of the right Internal Carotid Artery.

Transesophageal echocardiogram

Not a priority

No alterations.

Transthoracic echocardiogram

Not a priority

No alterations found to cardiac morphology. Normal left ventricular systolic function.

Lab tests

Arterial blood gas

Not a priority

Blood pH - 7.39
PaCO₂ (mmHg) - 42
HCO₃⁻ (mEq/L) - 24.6
BE (mEq/L) - 0.02
Cl⁻ (mEq/L) - 102
Lactate (mg/dL) - 9.0
Due to simulation of test imprecision, there may be slight differences in the actual results.

Biochemistry

Not a priority

BUN (mg/dL) - 19
Na⁺ (mEq/L) - 139
K⁺ (mEq/L) - 4.1
AST (IU/L) - 21
ALT (IU/L) - 32
AP (IU/L) - 78
CK (IU/L) - 113
CRP (mg/L) - 2.3
Due to simulation of test imprecision, there may be slight differences in the actual results.

Cardiac biomarkers

Not a priority

CK-MB Mass (ng/mL) - 2
Troponin I (ng/mL) - 0.01
Myoglobin (ng/mL) - 17

Coagulation tests

2nd Priority

aPTT (s) - 36
Prothrombin time (s) - 12.0
INR - 1.0
D-Dimer (ug/mL) - 0.058

Complete blood count

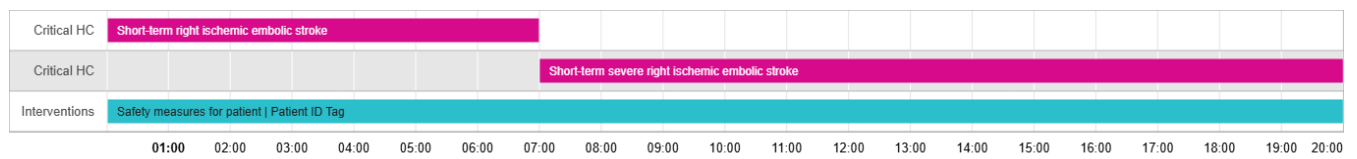
2nd Priority

Leukocytes (/uL) - 8500
Neutrophils (/uL) - 4500 (53%)
Lymphocytes (/uL) - 3200 (38%)
Monocytes (/uL) - 410 (5%)
Eosinophils (/uL) - 280 (3%)
Basophils (/uL) - 110 (1%)
Immature granulocytes (/uL) - 0 (0%)
Erythrocytes (×10⁶/μL) - 4.8
Hemoglobin (g/dL) - 14.9
Hematocrit (%) - 44
MCV (μm³) - 92
MCH (pg/cell) - 30
MCHC (g/dL) - 35

		RDW (%) - 12.0 Platelets (x10 ³ /μL) - 222
Lipid profile	Not a priority	Total cholesterol (mg/dL) - 171 Triglycerides (mg/dL) - 145 HDL cholesterol (mg/dL) - 69 LDL cholesterol (mg/dL) - 73 Cholesterol ratio (Tchol/HDL-C) - 2.5
Urinalysis	Not a priority	Specific Gravity - 1.024 pH - 6.0 Urine color - Yellow Appearance - Clear WBC Esterase - Negative Protein - Negative Albumin - Negative Glucose - Negative Ketones - Negative Erythrocytes - Negative Bilirubin - Negative Urobilinogen, Semi-Qn - 0.0 Nitrite, Urine - Negative Intoxicants - Negative

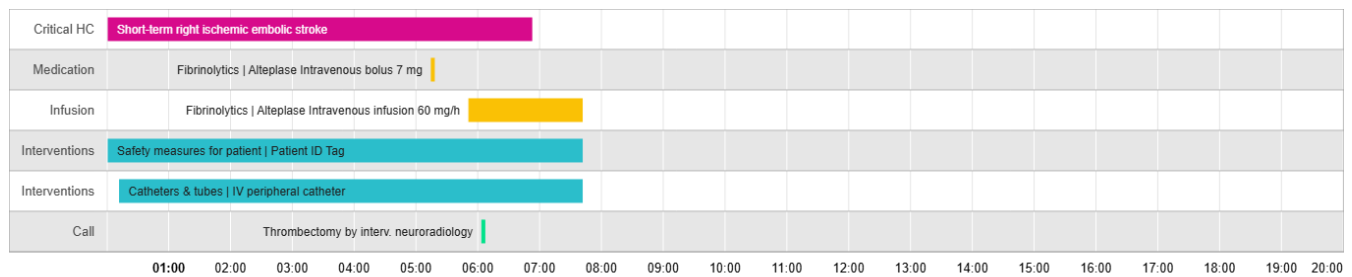
Baseline

This section is automatically generated and predicts scenario behavior assuming no actions by the trainee, which usually represents the worst-case scenario.



Optimal clinical approach - International

This section previews how the optimal approach resolves the scenario successfully. Comparison with Baseline may be useful to understand the scenario behavior.



Management

The items below represent management actions relevant to solving this clinical scenario. Notes: 1st Priority – Mandatory items required for a successful outcome. 2nd Priority – Optional items considered adequate but not essential. Not a Priority – Unnecessary items that are inadequate or a waste of time.

i.1 - Administer a fibrinolytic

1st Priority

Medications | Fibrinolytics |
Alteplase

Medications | Fibrinolytics |
Tenecteplase

i.2 - Request a thrombectomy by interv. neuroradiology

1st Priority

Call | Thrombectomy by interv.
neuroradiology

Question(s) during the simulation

Questions presented to the trainee in order to have a more detailed evaluation of the use of the clinical scenario.

Cerebral CT angiography question:

Question

Which vascular lesion is visible?

Correct answer

Occlusion of the right internal
carotid artery

2 Incorrect answer(s)

No occlusion is visible

Occlusion of the right posterior
cerebral artery

Cerebral CT angiography question:

Question

What is the extent of the
established ischemic infarct in
the CT scan?

Correct answer

No changes. ASPECTS: 10

2 Incorrect answer(s)

Moderate lesion. ASPECTS: 7

Large infarct. ASPECTS: 4

**Cerebral CT angiography
question:**

Question

Does this patient have an indication for thrombectomy?

Correct answer

Yes

1 Incorrect answer(s)

No

Head CT question:

Question

Based on the patient's clinical assessment and the head CT findings, select the most likely diagnosis:

Correct answer

Acute ischemic stroke

2 Incorrect answer(s)

Hemorrhagic stroke

Cerebral venous thrombosis

Head CT question:

Question

Does this CT have signs of any intracranial hemorrhage?

Correct answer

No

1 Incorrect answer(s)

Yes

Head CT question:

Question

Based on the neurological assessment, please rate the stroke severity:

Correct answer

Moderate stroke

2 Incorrect answer(s)

Minor stroke

Severe stroke

Head CT question:

Question

Are there any contraindications for thrombolysis?

Correct answer

No

1 Incorrect answer(s)

Yes

Question(s) after simulation

Questions presented to the trainee in order to have a more detailed evaluation of the use of the clinical scenario.

Summative Multiple Choice Question:

Question

What is the most likely diagnosis?

Correct answer

Right hemisphere ischemic stroke

3 Incorrect answer(s)

Right hemisphere hemorrhage

Epileptic fit

Encephalitis

Formative Multiple Choice Question:

Question

Which of the following are possible etiologies for this patient's stroke?

Correct answer

Systemic thrombophilia

2 Incorrect answer(s)

Small vessel disease

Extracranial atherosclerosis

**Formative Multiple Choice
Question:**

Question

What exam is a priority for this patient to study stroke etiology?

Correct answer

Right-to-left shunt testing with TCD and transesophageal echocardiography

2 Incorrect answer(s)

Eletroencephalography

Venous CT angiogram

**Formative Multiple Choice
Question:**

Question

Which of the following can be considered stroke mimics?

Correct answer

Migraine with aura

2 Incorrect answer(s)

Peripheral polneuropathy

Parkinson's disease

Handoff question

Question presented to the trainee to assess their ability to effectively communicate patient information during a transition of care. This question is optional.

Question

Summarize this Body Interact scenario using a structured handoff pattern.

Review handoff pattern

SBAR (Situation, Background, Assessment, Recommendation): Includes

current condition and reason for handoff, relevant history and context, assessment details, and recommended actions.

SOAP (Subjective, Objective, Assessment, Plan): Covers patient-reported symptoms and history, measurable data and findings, clinical impressions and diagnoses, and the treatment plan.

I-PASS (Illness Severity, Patient Summary, Action List, Situation Awareness and Contingency Planning, Synthesis by Receiver): Encompasses illness status, patient background, tasks and actions, potential changes and plans, and confirmation of understanding.

AT-MIST (Age, Time of incident or onset of symptoms, Mechanism of injury/Medical Complaint, Injuries or Inspections head-to-toe, vital Signs, and Treatments): Describes the cause of injury or medical complaint, findings from head-to-toe inspection, vital signs, and treatments provided.

Simulation Ending Messages

Feedback messages shown to the user based on specific successful or unsuccessful approaches, triggered by defined conditional rules.

Title	Type	Message	Conditional
Success	Success	Excellent work! You gathered the full clinical history and ensured comprehensive	All Health conditions have been treated (Thrombectomy + Fibrinolytic)

patient care. This thorough approach guarantees safe and accurate management, allowing you to better meet your patient's needs. Keep it up!

Thrombectomy performed (but fibrinolytic not administered)	Success	You have solved the case with clinical success. However, your decisions weren't fully compliant with current treatment guidelines.	Fibrinolytic not administered
If thrombectomy is not performed	Failure	You have not used all the recommended treatments for the patient.	Treatments not administered: Cath Lab (Thrombectomy)

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