

Case 36
Silvia Ruth

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Version: V4

Date: 26/09/2019

Body Interact v5

OVERVIEW



CONTEXT		Silvia was in a nursing home watching television when she suddenly felt drowsiness and right-sided weakness. Institution staff witnessed the event and called immediately the emergency team that brought her to the Hospital.			
BRIEFING		Female, 84 years old. Patient had sudden onset of right-sided weakness, drowsiness and difficulty speaking three hours ago.			
LEARNING OBJECTIVES	GENERAL	Recognize acute stroke;			
	SPECIFIC	Start vital signs vigilance in acute care;			
		Performance of neurological assessments (NIHSS);			
		Blood pressure management in acute stroke;			
		Recognize contraindication to alteplase due to early CT changes.			
PATIENT CHARACTERIZATION		Patient name:	Silvia Ruth	Age (years):	84
		BMI:	31.1 (obesity)	Sex:	Female
		Weight (kg):	92	Height (cm):	172
		Weight (lb):	203	Height (in):	68
		Chronic conditions:	Hypertension.		

Notes: These patients are not real patients and their clinical cases, whilst clinically plausible, are fictional.

ABCDE ASSESSMENT

CATEGORY	PARAMETERS	EVALUATION	PRIORITY
AIRWAY	Breath sounds	Normal	1st Priority
	Airway observation	Clear	1st Priority
BREATHING	Signs of respiratory distress	Normal	1st Priority
	Respiratory rate	14/min	1st Priority
	Chest excursion	Normal	1st Priority
	Chest deformity, raised JVP, chest drains	Normal	1st Priority
	O2 Sat	91%	1st Priority
	Chest percussion	Right: 1R- resonance; 2R- resonance; 3R- resonance; 4R- resonance; 5R- dullness. Left: 1L- resonance; 2L- resonance; 3L- superficial cardiac dullness; 4L- superficial cardiac dullness; 5L- Resonance.	Not a Priority
	Chest palpation	2L-normal; 2R-normal.	Not a Priority
	Pulmonary auscultation	Normal	2nd Priority
CIRCULATION	Hands and digits	Pink and warm	1st Priority
	Heart rate	82 bpm	1st Priority
	Peripheral pulses	Carotid- Amplitude: strong; Rhythm: regular; Radial- Amplitude: strong; Rhythm: regular, equal both sides; Femoral- Amplitude: strong; Rhythm: regular, equal both sides; Dorsalis pedis- Amplitude: strong; Rhythm: regular, equal both sides.	Not a Priority
	Blood pressure	171 / 87 mmHg	1st Priority
	Capillary refill time (CRT)	1.3 seconds	Not a Priority
	Heart auscultation	Normal	2nd Priority
	Urinary output	139 mL/kg/h / 12788 mL/h	2nd Priority
	External hemorrhage (wounds), drains, concealed hemorrhage	No	2nd Priority
DISABILITY	<u>Pupils (size, equality and reaction to light)*</u>	Equal and reactive to light	2nd Priority
	Level of consciousness (Glasgow Coma Scale)	10 (E3-V2-M5)	2nd Priority
	Blood Glucose	92 mg/dL / 5.106 mmol/L	1st Priority
	<u>Full body (front)*</u>	Normal	Not a Priority

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EXPOSURE	<i>Full body (back)*</i>	Normal	Not a Priority
	Abdomen percussion	6R- tympanic; 7R- tympanic; 6L- tympanic; 7L- tympanic.	Not a Priority
	Abdomen palpation	Normal	Not a Priority
	Temperature	36.2 °C / 97.16 °F	2nd Priority

* In the current version of the case, these procedures are not implemented.

Clinical Information

Source:	Emergency medical team report
Previous level of function:	Partial dependence
Previous medication:	Atenolol 50 mg daily, aspirin 100 mg daily, digoxin 0.125 mg daily
Other information:	Onset of speech impairment, drowsiness and right sided weakness 3 hours ago
Note:	This information will appear automatically 3 minutes after the start of the simulation

DIALOGUES

Specification of dialogues with the patient during simulation:

CATEGORY	Question Availability	#	QUESTION	PATIENT REPLY	REPLY CONDITIONAL	PRIORITY
Medical condition	-	1	How are you feeling?	Boo... streen...	-	1st Priority
	-	2	What happened to you?	Remeen... leeff...	-	1st Priority
	-	3	Do you have concomitant health conditions?	Diabee...knowo..	-	2nd Priority
	-	4	Feeling pain?	Haavv... laa...	-	2nd Priority
	-	5	Diabetes diagnosis?	Stree... boo...	-	2nd Priority
	-	6	Any recent weight changes?	Boo... streen...	-	Not a Priority
	-	7	History of severe illness?	Remeen... leeff...	-	2nd Priority
	-	8	Time since symptom onset?	Diabee...knowo..	-	2nd Priority
	-	9	Do you have any allergies?	Stree... boo...	-	2nd Priority
Medication	-	10	Taking any medication?	Haavv... laa...	-	2nd Priority
	-	11	Medication side-effects present?	Boo... streen...	-	2nd Priority
Nutrition	-	12	Describe your diet.	Remeen... leeff...	-	Not a Priority
	-	13	Last time you ate?	Diabee...knowo..	-	Not a Priority
	-	14	What did you eat last time?	Stree... boo...	-	Not a Priority
	-	15	Snacks between meals?	Haavv... laa...	-	Not a Priority
	-	16	Do you take dietary supplements?	Boo... streen...	-	Not a Priority
Activity	-	17	Have there been changes in appetite?	Remeen... leeff...	-	Not a Priority
	-	18	How active are you?	Diabee...knowo..	-	Not a Priority
	-	19	What were you doing when you felt ill?	Stree... boo...	-	2nd Priority
Risk factors	-	20	Physical effort at time of event?	Haavv... laa...	-	Not a Priority
	-	21	Recently under stress?	Boo... streen...	-	2nd Priority
	-	22	Frequency of alcohol consumption?	Remeen... leeff...	-	Not a Priority
	-	23	Are you hypertensive?	Diabee...knowo..	-	2nd Priority
	-	24	High cholesterol present?	Stree... boo...	-	2nd Priority
	-	25	Are you a smoker?	Haavv... laa...	-	2nd Priority

INITIAL SIMULATION CONDITIONS

CATEGORY	DESIGNATION	COMMENTS
Signs & symptoms	Broca aphasia	Due to Stroke
	Right sided weakness including facial asymmetry	Due to Stroke
Acute conditions at case start	Ischemic embolic stroke (left side, short duration)	-

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Parameters at case start:	Blood pressure (mmHg):	171 / 87	
	Heart rate (bpm):	82	
	Respiratory rate (/min):	14	
	O ₂ saturation (%):	91	
	Blood glucose (mg/dL):	92	Blood glucose (mmol/L): 5.11
	Temperature (°C):	36.2	Temperature (°F): 97
	Hemoglobin (g/dL):	14.9	
	Urinary output (mL/kg/h):	0.54	Urinary output (mL/h): 12788

SEQUENCING OF CLINICAL CONDITIONS

Description of the predefined evolution of the patient's state:

SIMULATION TIME (MIN)	EVENT
0	Initial conditions: - Left ischemic embolic stroke
1	
2	
3	
4	
5	
6	
7	- Left ischemic embolic stroke causes Severe Left ischemic embolic stroke
8	
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20	

EXAMINATION PROCEDURES

Examination procedures relevant for the case with detailed results:

CATEGORY	TEST NAME	HEALTH CONDITIONS	TEST	RESULT DESCRIPTION
Physical exam	Glasgow coma scale	LEFT HEMISPHERE ISCHEMIC STROKE OR AFTER ANTIPLATELET OR NO THERAPY	Eye opening	3 - To sound
			Verbal response	2 - Sounds
			Motor response	5 - Localizing
			Total result	10 - Moderate impairment of consciousness
		SEVERE LEFT HEMISPHERE ISCHEMIC STROKE	Eye opening	2 - To pressure
			Verbal response	2 - Sounds
			Motor response	5 - Localizing
			Total result	9 - Moderate impairment of consciousness
		AFTER ALTEPLASE	Eye opening	2 - To pressure
			Verbal response	2 - Sounds
			Motor response	4 - Normal flexion
			Total result	8 - Severe impairment of consciousness

DIAGNOSTIC STRATEGIES

Complementary strategies for diagnosis relevant for the case:

CATEGORY	TEST NAME	RESULT DESCRIPTION	PRIORITY																																
Imaging	Carotid Doppler Ultrasound	No significant alterations	2nd Priority																																
	Head CT	Hypodense lesion in 1/3 of territory of left middle cerebral artery	1st Priority																																
	Cerebral angio CT	Occlusion of M1 segment of left MCA	1st Priority																																
	Cerebral perfusion CT	Absence mismatch in left MCA territory	1st Priority																																
	Transcranial doppler	M1 Left Occlusion	2nd Priority																																
Lab tests	Biochemistry	No significant alterations	2nd Priority																																
	Complete blood count	No significant alterations	1st Priority																																
	Coagulation Tests	No significant alterations	2nd Priority																																
Electrophysiology	12-Lead ECG	Normal sinus rhythm	2nd Priority																																
	Stroke Scale (NIHSS)	<table border="1"> <thead> <tr> <th>HEALTH CONDITIONS</th> <th>TEST</th> <th>RESULT</th> </tr> </thead> <tbody> <tr> <td rowspan="10">LEFT HEMISPHERE ISCHEMIC STROKE OR AFTER ANTIPLATELET OR NO THERAPY</td> <td>1.a- Level of Consciousness 0- Alert, Keenly responsive; 1-Not Alert; but arousable by minor stimulation; 2- Not Alert, requires repeated and strong stimulation;- 3- coma.</td> <td>1 - Not Alert; but arousable by minor stimulation</td> </tr> <tr> <td>1.b- LOC- Questions (month and age) 0- Both correct; 1- one correct; 2- none correct.</td> <td>2 - None correct</td> </tr> <tr> <td>1.c- LOC - Verbal Commands (open/close eyes, grip/release non-paretic hand) 0-both tasks correctly; 1- one task correctly; 2- none task correctly.</td> <td>2- None task correctly</td> </tr> <tr> <td>2- Best gaze (Only horizontal eye movements, voluntary or reflexive) 0- Normal; 1- partial gaze palsy; 2- forced deviation.</td> <td>2 - Forced deviation</td> </tr> <tr> <td>3- Visual fields (stimuli or threats in each eye's 4 quadrants) 0- No visual loss; 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Decision aids	HEALTH CONDITIONS	TEST	RESULT
		<p>11-Extinction and inattention (simultaneous bilateral visual and tactile stimuli; anosagnosia) 0- No abnormality; 1-Visual, tactile, auditory, spatial or personal inattention or extinction to one modality; 2- Profound hemi-inattention or extinction to more than one modality.</p> <p>Total</p>	<p>0 - No abnormality</p> <p>26 - Severe stroke</p>
Decision aids	SEVERE LEFT HEMISPHERE ISCHEMIC STROKE	<p>1.a- Level of Consciousness 0- Alert, Keenly responsive; 1-Not Alert; but arousable by minor stimulation; 2- Not Alert, requires repeated and strong stimulation;- 3- coma.</p>	<p>2 - Not Alert, requires repeated and strong stimulation</p>
		<p>1.b- LOC- Questions (month and age) 0- Both correct; 1- one correct; 2- none correct.</p>	<p>2 - None correct</p>
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		<p>2- Best gaze (Only horizontal eye movements, voluntary or reflexive) 0- Normal; 1- partial gaze palsy; 2- forced deviation.</p>	<p>2 - Forced deviation</p>
		<p>3- Visual fields (stimuli or threats in each eye's 4 quadrants) 0- No visual loss; 1- partial hemianopia ; 2- complete hemianopia; 3- bilateral hemianopia (blind/cortical blindness).</p>	<p>2 - Complete hemianopia</p>
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		<p>5.a- Motor Right Arm (10" sitting at 90°, supine at 45°) 0- No drift; 1- drift, drifts does not hit bed; 2- Some effort against gravity; drifts down to bed; 3- No effort against gravity, limb falls; 4- No movement; UN - amputation or join fusion.</p>	<p>4 - No movement</p>
		<p>5.b- Motor Left Arm (10" sitting at 90°, supine at 45°)</p>	<p>2 - Some effort against gravity; Drifts down to bed</p>
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<p>11-Extinction and inattention (simultaneous bilateral visual and tactile stimuli; anosagnosia) 0- No abnormality; 1-Visual, tactile, auditory, spatial or personal inattention or extinction to one modality; 2- Profound hemi-inattention or extinction to more than one modality.</p> <p>Total</p>	<p>0 - No abnormality</p> <p>31 - Severe stroke</p>		

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HEALTH CONDITIONS	TEST	RESULT
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	1.b- LOC- Questions (month and age) 0- Both correct; 1- one correct; 2- none correct.	2 - None correct
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AFTER ALTEPLASE	5.b- Motor Left Arm (10" sitting at 90°, supine at 45°)	3 - No effort against gravity, limb falls
	6.a- Motor Right Leg (5" lying at 30°)	4 - No movement
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	Total	34 - Severe stroke

Notes: CT = computed tomography; NIHSS = National Institutes of Health Stroke Scale

TREATMENT / INTERVENTION OPTIONS

Medication / intervention options to treat all patient's conditions.

This table contains treatments required to treat all relevant acute health conditions present in this case.

Each cell in the first column designates a condition and the cells to the right describe its treatment options.

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The "type" and "category" columns refer to the location of the treatment item in Body Interact user interface (to be filled in only by the Body Interact team).

To treat:	TYPE	CATEGORY	DESIGNATION	DOSE	UNIT	ROUTE OF ADMINISTRATION	PRIORITY
ISCHEMIC EMBOLIC LEFT STROKE / SEVERE ISCHEMIC EMBOLIC LEFT STROKE WITH ALTEPLASE CONTRAINDICATION	MEDICATION	ANTIPLATELET (ONE OF THE FOLLOWING)	Acetylsalicylic acid	100	mg	PO	1st Priority
			Acetylsalicylic acid	300	mg	RECTAL	1st Priority
			Clopidogrel	75	mg	PO	1st Priority
		TYPE		DESCRIPTION			PRIORITY
	CALL		Stroke Unit *	The stroke unit is notified.			1st Priority

Note:

- Firstly, verify if there are contraindications for alteplase treatment (there are contraindications).
- A patient with contraindication to alteplase should start secondary stroke prevention as soon as possible, and alteplase should not be administered as lesion is already installed, which may cause neurological worsening at this stage.
- *For Ischemic embolic stroke treatment, Call Stroke unit intervention, is an optional intervention.
- Regarding Antiplatelet treatment, preferably Acetylsalicylic acid is administered.

To treat:	TYPE	CATEGORY	DESIGNATION	DOSE	UNIT	DESCRIPTION	PRIORITY
REDUCED OXYGENATION	INTERVENTION	OXYGEN	Nasal cannula	-	-	-	1st Priority
			High flow mask	40	%	-	1st Priority

Note:

ENDING MESSAGES

Each ending message text is required to have no more than 200 characters (including spaces).

TYPE	CONDITIONAL	MESSAGE
Success	Antiplatelet administration	Congratulations, your practice meets the guidelines' requirements.
Failure	Alteplase administration	Unfortunately your patient didn't make it. Try again!

DIFFERENTIAL DIAGNOSIS

Indication of the options of diagnostic answers that the user will be presented at the end of the simulation (multiple choice question):

DIFFERENTIAL DIAGNOSIS MULTIPLE CHOICE QUESTION	Correct answer	Ischemic stroke
	3 incorrect answers	Subdural hematoma Hemorrhagic stroke Cerebral venous thrombosis

REFERENCES

1. European Stroke Organisation (ESO) Executive Committee, ESO Writing Committee. Guidelines for management of ischaemic stroke and transient ischaemic attack 2008. *Cerebrovasc Dis.* 2008;25(5):457-507.

2. Powers WJ, Rabinstein AA, Ackerson T, et al. 2018 Guidelines for the Early Management of Patients With Acute Ischemic Stroke: A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association. *Stroke.* March 2018.

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