Date: 29/04/2019 Body Interact v5

OVERVIEW



CONTEXT		Adrianne was in the grocery store when she suddenly felt difficulty moving the left side of her body. Bystanders immediately called the emergency team and she was brought to the hospital.				
BRIEFING		Female patient, 60 years of age. She was brought to the Emergency Department due to sudden difficulty moving the left hemibody three hours ago. Previous medical background of high blood pressure, dyslipidemia and hyperuricemia.				
	GENERAL	Recognize symptoms of an ac	cute ischemic stroke.			
LEADANNA		Identification of indications and contraindications to Alteplase.				
LEARNING OBJECTIVES	SPECIFIC	Management of vital signs in acute stroke setting.				
OBSECTIVES		Recognize orolingual angioedema as side effect of Alteplase.				
		Management of lingual angioe	edema.			
		Patient name:	Adrianne Mason	Age (years):	60	
		BMI:	26.5 (overweight)	Sex:	Female	
PATIEI CHARACTER		Weight (kg):	74	Height (cm):	167	
OHAIRACILI	(IZATION	Weight (lb):	163	Height (in):	66	
		Chronic conditions:	Hypertension; Dyslipidemia; I	Hyperuricemia.		
Notes:	Notes: These patients are not real patients and their clinical cases, whilst clinically plausible, are fictional.					

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CATEGORY	PARAMETERS	EVALUATION	PRIORITY
AIDMAN	Upper airway noises	No readily audible breath sounds.	1st Priority
AIRWAY	Airway observation	Clear airway	1st Priority
	Signs of respiratory distress	No signs of respiratory distress.	1st Priority
	Respiratory rate	12/min	1st Priority
	Chest excursion	Symmetric diaphragmatic excursion.	1st Priority
	Chest deformity	No	1st Priority
	O ₂ Sat	99%	1st Priority
BREATHING	Chest percussion	Right: 1R - resonance; 2R - resonance; 3R - resonance; 4R - resonance; 5R - resonance	2nd Priority
	Chest percussion	Left: 1L - resonance; 2L - resonance; 3L - superficial cardiac dullness; 4L - superficial cardiac dullness; 5L - resonance	2nd Phonty
	Chest palpation	2L - normal; 2R - normal	2nd Priority
	Pulmonary auscultation	Normal vesicular murmurs in all sites.	1st Priority
	Hands and digits	Pink and warm	1st Priority
	Heart rate	70 bpm	1st Priority
CIRCULATION	Pulse palpation	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.	1st Priority
	Blood pressure	140 / 90 mmHg	1st Priority
	Capillary refill time (CRT)	1.5 seconds	1st Priority
	Heart auscultation	S1 and S2 normal sounds, no murmurs.	1st Priority
	Urinary output	0.6 mL/kg/h / 44.4 mL/h	1st Priority
	Pupils (size, equality and reaction to light)	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	1st Priority
DISABILITY	Glasgow Coma Scale	15 (E = 4; V = 5; M = 6)	1st Priority
	Blood Glucose	100 mg/dL / 5.6 mmol/L	1st Priority
	Full body*	Front: No visible alterations. Back: No visible alterations.	2nd Priority

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EXPOSURE	Abdominal auscultation	Normal hydro-aerial sounds without abdominal murmurs.	2nd Priority	
EXPOSURE	Abdomen palpation	No rigidity. No pain. No visceromegaly.	2nd Priority	
	Abdomen percussion	6R - tympanic; 7R - tympanic; 6L - tympanic; 7L - tympanic	2nd Priority	
	Temperature	36.5 °C / 98 °F	1st Priority	
Note:	* In the current version of the case, these procedures are not implemented.			

DIALOGUES

Specification of dialogues with the patient during simulation:

CATEGORY	Question Availability	#	QUESTION	PATIENT REPLY	REPLY CONDITIONAL	PRIORITY
	-	1	What happened to you?	I suddenly had difficulty moving the left side of my body.	-	1st Priority
	After question 1 is asked	2	What were you doing when you felt ill?	I was walking in a grocery store. I was feeling quite normal before this happened.	-	2nd Priority
Medical	-	3	Did you fall?	No, there were some people next to me that held me and called the emergency number.	-	2nd Priority
condition	-	4	Time since symptom onset?	Three hours ago.	-	2nd Priority
	-	5	Do you have any other diseases?	Yes, I have high blood pressure, high cholesterol and uric acid.	-	1st Priority
		6	Did you have any recent surgery?	No.	-	1st Priority
	-	7	Do you have any allergies?	No, I don't think so.	-	2nd Priority
Medication	-	8	Do you take any medication?	Yes, I am taking Ramipril 5 mg once a day; Rosuvastatin 10 mg once a day and Allopurinol 100 mg once a day.	-	1st Priority
Medication	After question 8 is asked	9	Are you taking any medication to prevent clots or make your blood thinner?	Not that I know of.	-	2nd Priority
	-	10	What do you do professionally?	I am retired.	-	Not a Priority
	-	11	Have you been under any stress lately?	No, I don't think so.	-	Not a Priority
Risk factors	-	12	Do you have high blood pressure?	Yes, I do.	-	Not a Priority
	-	13	Do you have high cholesterol?	Yes.	-	Not a Priority
	-	14	How often do you drink alcohol?	No, not really.	-	Not a Priority
	-	15	Do you smoke?	No, I've never smoked.	-	Not a Priority

INITIAL SIMULATION CONDITIONS								
CATEGORY	DESIGNATION			COMMENTS				
Signs & symptoms	Left sided weakness inclu- asymmetry (mouth deviation			Due to stroke				
Acute conditions at case start	Acute ischemic str	oke		-				
Parameters at case start:	Blood pressure (mmHg):	140 / 90						
	Heart rate (bpm):	70						
	Respiratory rate (/min):	12						
	O₂ saturation (%):	99						
	Blood glucose (mg/dL):	100	Blood glucose (mmol/L):	5.55				
	Temperature (°C):	36.5	Temperature (°F):	98				
	Hemoglobin (g/dL):	12						
	Urinary output (mL/kg/h):	0.6						

SEQUENCING OF CLINICAL CONDITIONS

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

SIMULATION TIME (MIN)		EVENT
0	Initial conditions:	Acute right ischemic stroke
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Note:

If Alteplase is administered, 10 seconds after its administration, the patient develops orolingual angioedema with swollen tongue and slurred speech. If it is not treated in 30 seconds the patient develops hypoxemia (Sat O_2 : 78%). After 3 minutes of hypoxia the patient goes into cardiac arrest and coma that can be reversed with advanced life support+adrenaline.

EXAMINATION PROCEDURES

Examination procedures relevant for the case with detailed results:

CATEGORY	TEST NAME	CONDITIONAL	RESULT DESCRIPTION	
CATEGORI		Initial	Clear airway	
	Airway observation	Orolingual Angioedema	Swollen tongue	
		Initial	15 (E = 4; V = 5; M = 6)	
	Glasgow Coma Scale	Severe Intracranial Hemorrhage	4 (E = 1; V = 1; M = 2)	
		Severe Consciousness Impairment	8 (E = 1; V = 3; M = 4)	
	Lung auscultation	Initial	Normal vesicular murmurs in all sites.	
	Lung auscultation	Cardiac Arrest	Silent	
	Heart auscultation	Initial	S1 and S2 normal sounds, no murmurs.	
	Heart auscultation	Cardiac Arrest	Silent	
Physical exam	Pulse palpation	Initial	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.	
		Cardiac Arrest	Carotid - Amplitude: absent; Radial - Amplitude: absent; Femoral - Amplitude: absent; Dorsalis pedis - Amplitude: absent.	
	Capillary refill time (CRT)	Initial	1.5 seconds	
	Capillary Terili tillle (CRT)	Cardiac Arrest	No perfusion	
	Pupils (size, equality and	Initial	Equal and reactive to light	
	reaction to light)	Deterioration to severe intracranial hemorrhage	Mydriatic right pupil and right oculomotor nerve lesion	

DIAGNOSTIC STRATEGIES

Complementary strategies for diagnosis relevant for the case:

CATEGORY	TEST NAME		RESULT DESCRIP	TION	PRIORITY	
		Initial	ventricles of normal volume for the patient cisterns with normal configuration. Sligh	No evidence of focal lesions in the brain parenchyma. Cerebral ventricles of normal volume for the patient's age. Basal subarachnoid cisterns with normal configuration. Slight arterial calcifications on vertebral arteries and carotid siphons. ASPECTS: 10		
Imaging	Head CT	Hemorrhagic transformation	adjacent insular cortex and corona radiata hemorrhage in the right frontal and parieta hemorrhage. It has significant mass effect causing midline shift, transtentorial and s	A large intracerebral hematoma is visible in the right basal ganglia and adjacent insular cortex and corona radiata with nearby subarachnoid hemorrhage in the right frontal and parietal lobes, and tetraventricular hemorrhage. It has significant mass effect over the nearby structures causing midline shift, transtentorial and subfalciform herniation. No other acute lesions are visible.		
	Transcranial Dop	ppler	Distal occlusion of rigl	ht MCA	2nd Priority	
	Cerebral CT angiogram	Initial	Occlusion of distal M2/proximal M3 branch artery. No other occlusions or vascular r		1st Priority	
		After stroke treatment	No occlusions, stenosis or vascular ma			
Lab tests	Biochemistry		No significant changes (beside	* * * * * * * * * * * * * * * * * * * *	2nd Priority	
	Complete blood		No significant char	nges	2nd Priority	
	Lipid profile		Dyslipidemia		Not a Priority	
Electrophysiology	12-Lead ECC		Sinus rhythm, no alterations to electroca	0 1 1 07	Not a Priority	
Decision aids	Stroke Scale (NIHSS)		TEST 1.a - Level of Consciousness	RESULT		
			1.b- LOC - Questions (month and age)	0 - Alert, Keenly responsive 0 - Both correctly		
			1.c- LOC - Verbal Commands (open/close eyes, grip/release non-paretic hand)	0 - Both tasks correctly		
		Initial	2 - Best gaze (Only horizontal eye movements, voluntary or reflexive)	0 - Normal		
			Visual fields (stimuli or threats in each eye's 4 quadrants)	0 - No visual loss		
			4 - Facial palsy	1 - Left side minor paralysis		
			5.a - Motor Right Arm (10" sitting at 90°, supine at 45°)	0 - No drift		
			5.b - Motor Left Arm (10" sitting at 90°, supine at 45°)	2 - Some effort against gravity; Drifts down to bed		
			6.a - Motor Right Leg (5" lying at 30°) 6.b - Motor Left Leg (5" lying at 30°)	0 - No drift 1 - Drift, drifts does not hit bed		
			7- Limb ataxia (finger-nose-finger; heel-shin)	0 - Absent		
			8 - Sensory (sensation to pinprick when tested or withdrawal from noxious stimulus)	1 - Mild to moderate sensory loss		
			9 - Best Language (name items, describe a picture, read sentences)	0 - No aphasia		
			10 - Dysarthria (clarity of articulation of speech when reading or repeating words)	0 - Normal		
			11 -Extinction and inattention (simultaneous bilateral visual and tactile stimuli; anosognosia)	2 - Profound hemi-inattention or extinction to more than one modality		
			Total	7 - Moderate stroke		
			TEST	RESULT		
			1.a - Level of Consciousness	2 - Not Alert, requires repeated and strong stimulation		
			1.b- LOC - Questions (month and age)	2 - None correct		
			1.c- LOC - Verbal Commands (open/close eyes, grip/release non-paretic hand)	2 - Neither task correct		
			2 - Best gaze (Only horizontal eye movements, voluntary or reflexive) 3 - Visual fields (stimuli or threats in each eye's 4	2 - Forced deviation		
			visual fields (stimuli or threats in each eye's 4 quadrants) 4 - Facial palsy	2 - Complete hemianopia 2 - Left side partial paralysis		
		Homorrhagie	4 - Facial paisy 5.a - Motor Right Arm (10" sitting at 90°, supine at 45°)	Leπ side partial paralysis Drift, drifts does not hit bed		
		Hemorrhagic transformatio	5.b - Motor Left Arm (10" sitting at 90°, supine at 45°)	4 - No movement	1st Priority	
			6.a - Motor Right Leg (5" lying at 30°)	1 - Drift, drifts does not hit bed		
			6.b - Motor Left Leg (5" lying at 30°)	4 - No movement		
			7- Limb ataxia (finger-nose-finger; heel-shin)	0 - Absent		
			8 - Sensory (sensation to pinprick when tested or withdrawal from noxious stimulus) 9 - Rest Language (name items, describe a picture, read.	2 - Severe to total sensory loss		
			9 - Best Language (name items, describe a picture, read sentences) 10 - Dysarthria (clarity of articulation of speech when	3 - Mute, global aphasia		
			reading or repeating words)	2 - Severe dysarthria; Mute/anarthric		

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			11 -Extinction and inattention (simultaneous bilateral visual and tactile stimuli; anosognosia)	0 - No abnormality
			Total	29 - Severe stroke
			TEST	RESULT
			1.a - Level of Consciousness	0 - Alert, Keenly responsive
			1.b- LOC - Questions (month and age)	0 - Both correctly
			1.c- LOC - Verbal Commands (open/close eyes, grip/release non-paretic hand)	0 - Both tasks correctly
			2 - Best gaze (Only horizontal eye movements, voluntary or reflexive)	0 - Normal
			Visual fields (stimuli or threats in each eye's 4 quadrants)	0 - No visual loss
			4 - Facial palsy	1 - Left side minor paralysis
			5.a - Motor Right Arm (10" sitting at 90°, supine at 45°)	0 - No drift
			5.b - Motor Left Arm (10" sitting at 90°, supine at 45°)	1 - Drift, drifts does not hit bed
		Improved	6.a - Motor Right Leg (5" lying at 30°)	0 - No drift
			6.b - Motor Left Leg (5" lying at 30°)	0 - No drift
			7- Limb ataxia (finger-nose-finger; heel-shin)	0 - Absent
			Sensory (sensation to pinprick when tested or withdrawal from noxious stimulus)	1 - Mild to moderate sensory loss
			9 - Best Language (name items, describe a picture, read sentences)	0 - No aphasia
			10 - Dysarthria (clarity of articulation of speech when reading or repeating words)	0 - Normal
			11 -Extinction and inattention (simultaneous bilateral visual and tactile stimuli; anosognosia)	Visual, tactile, auditory, spatial or personal inattention or extinction to one modality
			Total	4 - Minor stroke
Notes:	CT = computed tomography;	NIHSS = Natio	nal 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.

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
ACUTE ISCHEMIC STROKE	MEDICATION	FIBRINOLYTIC	Alteplase	0.9 * 10%	mg/kg	IV bolus	1st Priority
				0.9 * 90%	mg/kg	IV infusion	
	TYPE	CATEGORY	DESCRIPTION			PRIORITY	
	CALL	STROKE UNIT	The st		stroke unit is notified.		

Note: To treat this condition, the user can optionally Call the Stroke unit to intervene (1st priority)

To treat:	TYPE	CATEGORY	DESIGNATION	DOSE	UNIT	ROUTE OF ADMINISTRATION	PRIORITY
OROLINGUAL ANGIOEDEMA	MEDICATION	VASOACTIVE AGENTS	Adrenaline	0.5	mg	IM	1st Priority
	MEDICATION	ANTI- INFLAMMATORIE	Methylprednisolone	125-250	mg	IV bolus	Ond Drington
		S	Hydrocortisone	200	mg	IV bolus	2nd Priority
			Chlorphenamine	10	mg	IV bolus	
		ANTIHISTAMINES	Clemastine	2	mg	IV bolus	2nd Priority
			Ranitidine	25	mg	IV bolus	
	MEDICATION	FLUIDS & IONS	Crystalloid	1000	ml	IV infusion	2nd Priority

Note:

After Alteplase infusion the patient develops acutely a swollen tongue with slurred speech. According to current recommendations, the patient should be given Adrenaline as soon as possible due to possible airway impairment. As a second priority the patient should be given IV fluid, steroid and anti-histaminergic. If adrenaline is not administered the patient will deteriorate to cardiac arrest. The cardiac arrest will be reversible if advanced life support and adrenaline are administered.

To treat:	TYPE	CATEGORY	DESIGNATION	DOSE	UNIT	ROUTE OF ADMINISTRATION	PRIORITY
HYPOXIA / SEVERE	INTERVENTION	OVVOEN	Nasal cannula*	2	L /min	-	2nd Priority
		OXYGEN	High flow mask*	40	%	-	2nd Priority
HYPOXIA		VENTILATION	DESIGNATION	DESCRIPTION		PRIORITY	
			Invasive Ventilation	Orotracheal tube is placed and ventilator is turned on.		2nd Priority	

Note: *When patient has Orolingual Angioedema - Oxygen masks perform less effect on O2 Sat (until a maximum value of 94%.

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To treat:	TYPE	CATEGORY	DESIGNATION	DESCRIPTION		PRIORITY	
CARDIAC ARREST	INTERVENTION	VENTILATION	Invasive Ventilation	Orotracheal tube is placed and ventilator is turned on.			2nd Priority
		LIFE SUPPORT	Chest compressions	100 compressions / min			Not a Priority
	MEDICATION	VASOACTIVE AGENT	Adrenaline	1	mg	IV bolus	1st Priority

ENDING MESSAGES

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

TYPE	CONDITIONAL	MESSAGE
Success	Treating the patient's conditions according to guidelines	Congratulations, your practice meets the guidelines' requirements.
Failure	Patient suffered a cardiac arrest and was not resuscitated.	Unfortunately your patient didn't make it. Try again!
	Patient suffered a Severe Intracranial Hemorrhage	The patient suffered a severe intracranial hemorrhage.

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	Anxiety crisis
		Epileptic fit
		Asthma exacerbation

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