

Case 67
Ralph Sandford

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Version: v3.2

Date: 26/09/2019

Body Interact v5

OVERVIEW



CONTEXT		Ralph was found at home with slurred speech and left side hemiparesis.	
BRIEFING		Male patient of 69 years of age. He was found at home with slurred speech and left side hemiparesis. Relatives activated the emergency team for hospital transfer 3 hours ago.	
LEARNING OBJECTIVES	GENERAL	Recognize hypoglycemia as a stroke mimic	
	SPECIFIC	Management of hypoglycemia	
PATIENT CHARACTERIZATION		Patient name:	Ralph Sandford
		BMI:	31.9 (obesity)
		Weight (kg):	90
		Weight (lb):	198
		Chronic conditions:	Type 2 diabetes; Dyslipidemia; Hypertension; Previous Ischemic Stroke.

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

ABCDE ASSESSMENT

CATEGORY	PARAMETERS	EVALUATION	PRIORITY
AIRWAY	Upper airway noises	No readily audible breath sounds.	1st Priority
	Airway observation	Clear airway	1st Priority
BREATHING	Signs of respiratory distress	No signs of respiratory distress.	1st Priority
	Respiratory rate	14/min	1st Priority
	Chest excursion	Symmetric diaphragmatic excursion.	1st Priority
	Chest deformity	No	1st Priority
	O ₂ Sat	97%	1st Priority
	Chest percussion	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	2nd Priority
	Chest palpation	2L - normal; 2R - normal	2nd Priority
	Pulmonary auscultation	Normal vesicular murmurs in all sites.	1st Priority
CIRCULATION	Hands and digits	Pink and warm	1st Priority
	Heart rate	60 bpm	1st Priority
	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	110 / 75 mmHg	1st Priority
	Capillary refill time (CRT)	1.3 seconds	1st Priority
	Heart auscultation	S1 and S2 normal sounds, no murmurs.	1st Priority
	Urinary output	0.6 mL/kg/h / 54 mL/h	1st Priority
	Pupils (size, equality and	Right: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm	1st Priority

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DISABILITY	reaction to light)	Left: Size - 4 mm; Right eye light: 2 mm; Left eye light: 2 mm	1st Priority
	Glasgow Coma Scale	14 (E = 4; V = 4; M = 6)	1st Priority
	Blood Glucose	40 mg/dL / 2.2 mmol/L	1st Priority
	Abdominal auscultation	Normal hydro-aerial sounds without abdominal murmurs.	2nd Priority
	Abdominal palpation	No rigidity. No pain. No visceromegaly.	2nd Priority
	Abdominal percussion	6R - tympanic; 7R - tympanic; 6L - tympanic; 7L - tympanic	2nd Priority
	Temperature	36 °C / 97 °F	1st Priority

CLINICAL INFORMATION

Source:

Family members

Current medication:

- Insulin NPH 18 IU at breakfast and 9 IU at dinner [6 IU extra today after a big breakfast which was more or less 3 hours ago];
- Candesartan 16 milligrams daily;
- Atorvastatin 40 milligrams daily;
- Acetylsalicylic acid, 100 milligrams daily;
- Omeprazole 20 milligrams daily.

Note: This information will appear automatically 5 minutes after the start of the simulation.

Specification of dialogues with the patient during simulation:

CATEGORY	Question Availability	#	QUESTION	PATIENT REPLY	REPLY CONDITIONAL	PRIORITY
Medical condition	-	1	What happened to you?	I started to feel less strength in the ... left side of my body.	-	1st Priority
	-	2	Do you feel pain?	No.	-	2nd Priority
	-	3	Did you lose your senses?	I don't think so.	-	2nd Priority
	-	4	Do you have any sensory changes?	The left side of my body is numb.	-	2nd Priority
	-	5	Have the symptoms progressed?	Yes.	-	2nd Priority
	-	6	Is your eyesight OK?	Yes.	-	2nd Priority
	-	7	Are these symptoms relapsing?	Yes... I had a stroke where I had weakness in the left part of my body. But I recovered and had no major limitations.	-	2nd Priority
	-	8	Do you have concomitant health conditions?	I have type 2 diabetes, dyslipidemia and high blood pressure.	-	1st Priority
	-	9	Did you have any severe illness or injury before?	3 years ago I suffered an ischemic stroke.	-	1st Priority
	-	10	Any recent weight changes?	No.	-	Not a Priority
	-	11	Do you have any allergies?	No.	-	2nd Priority
Medication	-	12	What medication have you been taking?	I am taking Insulin, Candesartan, Atorvastatin, Acetylsalicylic acid and Omeprazole.	-	1st Priority
	-	13	Have you started any new medication?	No... Well... I have taken today extra of insulin.	-	1st Priority
	-	14	Have you felt any side effects from your medication?	No.	-	2nd Priority
Nutrition	-	15	What do you usually eat?	I eat everything. My wife cooks very good meals.	-	2nd Priority
	-	16	How many meals per day?	Normally, I have four meals a day.	-	2nd Priority
	-	17	Do you eat snacks in between meals?	Yes, sometimes.	-	Not a Priority
	-	18	Do you take dietary supplements?	No.	-	Not a Priority
	-	19	Have you felt any appetite changes?	No.	-	Not a Priority
	-	20	When was the last time that you had something to eat?	I ate more or less three hours ago.	-	1st Priority

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	-	21	What did you eat last time?	I had breakfast. It was an English breakfast with French pastries.	-	2nd Priority
Activity	-	22	How active are you?	Well, I'm not very active. For example, I only go for a walk very occasionally.	-	Not a Priority
	-	23	What were you doing when you felt ill?	I was watching TV. I haven't done anything special this afternoon.	-	2nd Priority
	-	24	Physical effort at time of event?	I wasn't exerting myself at all.	-	2nd Priority
Risk factors	-	25	What do you do professionally?	I am retired.	-	Not a Priority
	-	26	Have you been under any stress lately?	No.	-	Not a Priority
	-	27	Do you have high blood pressure?	Yes.	-	2nd Priority
	-	28	Do you have high cholesterol?	Yes.	-	2nd Priority
	-	29	How often do you drink alcohol?	I normally drink a glass of wine with meals.	-	Not a Priority
	-	30	Do you smoke?	No.	-	Not a Priority

Note: When patient has Hypoglycemia, dialogs will present impaired word articulation, and they will become normal when Hypoglycemia is treated.

INITIAL SIMULATION CONDITIONS

CATEGORY	DESIGNATION	COMMENTS
Signs & symptoms	Left sided weakness including facial asymmetry (mouth deviation to right side)	Due to previous Stroke
	Diaphoresis	Due to low blood glucose value
Acute conditions at case start	Hypoglycemia	Due to low blood glucose value
Parameters at case start:	Blood pressure (mmHg): 110 / 75	
	Heart rate (bpm): 60	
	Respiratory rate (/min): 14	
	O ₂ saturation (%): 97	
	Blood glucose (mg/dL): 40	Blood glucose (mmol/L): 2.22
	Temperature (°C): 36	Temperature (°F): 97
	Hemoglobin (g/dL): 13.3	
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: Hypoglycemia leads to O ₂ Saturation decrease (-1.75 % / min)
1	
2	
3	
4	
5	Hypoglycemia leads to Hypoxia
6	Hypoglycemia leads to unconsciousness
7	
8	
9	
10	Hypoglycemia leads to Severe Hypoxia
11	
12	
13	
14	
15	Hypoglycemia leads to Coma
16	

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EXAMINATION PROCEDURES

Examination procedures relevant for the case with detailed results:

CATEGORY	TEST NAME	CONDITIONAL	RESULT DESCRIPTION
Physical exam	Hands and Digits	Initial	Pink and warm
		Hypoxia and Severe Hypoxia	Cold and blue
	Glasgow coma scale	Initial	14 (E = 4; V = 4; M = 6)
		Coma	8 (E = 2; V = 3; M = 3)
	Blood Glucose	Initial	40 mg/dL / 2.2 mmol/L
		Hypoglycemia is treated	Normal

DIAGNOSTIC STRATEGIES

Complementary strategies for diagnosis relevant for the case:

CATEGORY	TEST NAME	RESULT DESCRIPTION	PRIORITY
Decision Aids	FAST Scale	Initial Facial droop: One side of face does not move at all Arm drift: Both arms move equally Speech: Slurred or inappropriate words	1st Priority
		Hypoglycemia is treated Facial droop: Both sides of face move equally Arm drift: Both arms move equally Speech: Patient uses correct words with no slurring	
Electrophysiology	12-Lead ECG	No significant changes	Not a Priority

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
HYPOGLYCEMIA	MEDICATION	FLUIDS & ELECTROLYTES	30% Glucose	60 - 100	mL	IV bolus	1st Priority
			50% Glucose	50	mL	IV bolus	
		HORMONES	Glucagon	2 - 4	mg	IM	2nd Priority
		FLUIDS & ELECTROLYTES	5% Glucose	500 - 1000	mL	IV infusion	
			10% Glucose	250 - 500	mL	IV infusion	
			Oral glucose	20 - 50	g	PO	
HYPOXIA / SEVERE HYPOXIA	INTERVENTION	OXYGEN	Nasal cannula	2	L / min	-	1st Priority
			Non-rebreathing mask	70, 7	%, L/min	-	2nd Priority
			High Flow Mask	40, 10	%, L/min	-	1st Priority
Other required intervention:	CALL	NOTIFY HOSPITAL	Patient is transferred to hospital				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	Hypoglycemia or Hypoxia have been left untreated or Notify Hospital hasn't been performed.	Time is over. Check the results on the debriefing page.

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	Hypoglycemia
	3 incorrect answers	Acute ischemic stroke
		Meningitis
		Epileptic fit

REFERENCES

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3. Wahlgren N, Moreira T, Michel P, et al. Mechanical thrombectomy in acute ischemic stroke: Consensus statement by ESO-Karolinska Stroke Update 2014/2015, supported by ESO, ESMINT, ESNR and EAN. *International Journal of Stroke*. 2016;11(1):134-147.