

Marks

1. A 28-year-old woman with a history of stage 3 chronic kidney disease (G3b-A3) secondary to Alport syndrome is currently at 12 weeks' gestation of her first pregnancy. She is taking prenatal multivitamins, folic acid 5 mg three times a week, and ASA 81 mg once daily. She is euvolemic and normotensive (BP 104/65 mm Hg).
- a) List **THREE** potential maternal and **THREE** potential fetal complications to review with this patient.

6

She is now at 27 weeks' gestation. Her kidney function and proteinuria have been steadily worsening. Her BP is 120/75 mm Hg today. Fetal ultrasound shows polyhydramnios but no growth restriction. Platelets and liver enzymes are normal.

Results of other laboratory investigations are shown in the table below.

| Test | Baseline | Current |
|-----------------------------------|-----------------|----------------|
| Creatinine | 150-170 µmol/L | 300 µmol/L |
| Urea | 9.1 mmol/L | 19.6 mmol/L |
| Potassium | 4.1 mmol/L | 4.4 mmol/L |
| Hemoglobin | 115 g/L | 85 g/L |
| HbA1c | 5.6% | |
| 24-h protein | 1.8 g/day | 8.7 g/day |
| Albumin to creatinine ratio (ACR) | 230 | 820 |
| Urine culture | | negative |

| | Marks |
|--|--------------|
| b) List TWO indications for initiation of hemodialysis in this patient. _____ _____ | 2 |
| c) Once hemodialysis is initiated, list the target values for the following parameters: (i) frequency of dialysis | 1 |
| (ii) blood pressure | 1 |
| (iii) hemoglobin | 1 |
| (iv) bicarbonate | 1 |
| (v) urea | 1 |
| (vi) protein intake _____ | 1 |

Model Answer

a) (1 mark each; total of 6 marks)

Three of the following maternal complications:

- Worsening kidney function/dialysis
- Worsening proteinuria
- Gestational hypertension
- Preeclampsia/eclampsia
- Death

AND

Three of the following fetal complications:

- Prematurity
- Intrauterine growth restriction
- Stillbirth/death

b) (1 mark each; total of 2 marks)

- Urea > 19 mmol/L
- Polyhydramnios

c) (1 mark each; total of 6 marks)

i) Frequency

- > 4

ii) Blood pressure

- < 140/90

iii) Hemoglobin

- 100-110 g/L

iv) Bicarbonate

- \geq 24 mmol/L

v) Urea

- < 16-17 mmol/L

vi) Protein intake

- 1 g/kg with additional 20 g for fetal growth

2. A 60-year-old woman with known small cell lung cancer is hospitalized on the oncology ward for weakness and alteration of general status. The serum sodium level is 112 mmol/L at admission and you diagnose syndrome of inappropriate antidiuretic hormone secretion based on measurement of urinary sodium and osmolality. Five days later, the patient is discharged with a normal serum sodium level. She is prescribed a daily fluid intake limit of 1.2 L, sodium chloride tablets (1 g three times daily), and furosemide 10 mg twice daily.

One month later, you are called by the oncologist who is seeing the patient in the outpatient clinic of your hospital. The serum sodium level, measured on that day, is 116 mmol/L.

- a) List **FIVE** elements of history that you will try to obtain from the oncologist.

- b) List **FOUR** recommendations for the immediate management of this patient.

| Marks |
|-------|
| 5 |
| 4 |

Model Answer

a) (5 marks)

- look for symptoms and signs of severe hyponatremia (confusion, decreased mental status, vomiting): MANDATORY ELEMENT, SUBTRACT ONE MARK IF NOT MENTIONED
- intercurrent illness with decrease in sodium intake/osmoles
- recent administration of large volume of IV fluids for chemotherapy/radiologic tests
- non-adherence to the fluid intake limit
- discontinuation of the sodium tablets or furosemide
- recent introduction of an SSRI or another medication associated with SIADH
- progression of the neoplasm
- [consider any other reasonable/relevant answers]

b) (4 marks)

- hospitalize the patient: MANDATORY ELEMENT, SUBTRACT ONE MARK IF NOT MENTIONED
- repeat urinary sodium and osmolality
- restart sodium tablets/furosemide if they were stopped
- increased doses of sodium tablets/furosemide if they were not stopped
- serial measurement of serum sodium
- [consider any other reasonable/relevant answers]

End

Before you leave the room, please return your examination booklet(s) to the invigilator.