



# Cardiac and endocrine comorbidities

Medea Amasukeli  
Endocrinologist at Cardiology Hospital  
Tbilisi, Georgia

# Chief Complaints

- 42 years old male patient admitted to ICU
- Breathlessness at rest
- Muscle weakness
- Excessive thirst
- Weight loss (20 kg over the last 2 months)
- Blurred vision
- Fatigue

# Medical History

- Dilated cardiomyopathy diagnosed for 1 year
- Stopped medications over the last 2 months
- Chronic Hepatitis C Virus
- Alcohol abuse
- Poor socioeconomic status

# Physical Findings

- BP – 100/60 mmHg, HR – 85', RR – 28', SaO<sub>2</sub> – 89%
- Weight – 80 kg, height -185 cm, BMI – 23.4 kg/m<sup>2</sup>
- Heart – systolic murmur at the apex
- Chest – rales bilateral in lower bases
- Liver - palpable 3 cm below right costal margin
- Neurologic status – drowsiness, no stupor

# Lab findings upon admission

- CBC – normal
- ALT – 61.5 U/L (< 31)
- AST – 29.7 U/L (<32)
- Serum Creatinine – 0.86 mg/dl (0.5 – 0.9)
- Na<sup>+</sup> - 112.6 mmol/L (136 - 145)
- K<sup>+</sup> - 4.99 mmol/L (3.5 – 5.1)

# Primary objectives

- Work-up exam ?
- Diagnosis ?
- Treatment ?

# Instrumental Findings

- ECG: sinus rhythm, complete LBBB
- Echocardiography: EF – 18%, dilation of cardiac chambers, diffuse hypokinesis, no pericardial or pleural effusions
- Chest X-ray: cardiomegaly with diffuse pulmonary infiltrate consistent with pulmonary edema

# Additional lab

- Serum blood glucose – 1324 mg/dl (73.5 mmol/L)
- Corrected Na<sup>+</sup> - 132 mEq/kg
- Effective serum osmolarity – 298 mOsm/kg (275 - 295)
  
- Urine analysis:  
Glucose 27.8 mmol/L  
Protein 0.099 g/L  
Ketones – negative
  
- Arterial blood gases:  
pH – 7.40, pCO<sub>2</sub> – 42 mmHg (35-45), HCO<sub>3</sub> – 25.7 mEq/L (24-26), pO<sub>2</sub> – 68 mmHg (80-100)



# Treatment

- Sol. NaCl 0.9% + sol.KCl 4% infusion
- Regular insulin infusion 12 ml i.v.bolus + 8 ml/hr
- Furosemide i.v.
- Heparin 7500 u s.c.
- Glycemia dropped down to 830 mg/dl – over 5 hours, then to 290 mg/dl – over the next 6 hours
- 5% dextrose added

# In 24 hours

- Blood Glucose – 251 mg/dl
- Na<sup>+</sup> - 129.2 mmol/L
- K<sup>+</sup> - 3.61 mmol/L
  
- C-peptide - 1.5 ng/ml (0.8 – 3.1)
- ICA, IAA, antiGAD, IA2 antibodies - negative

# Diagnosis

- Congestive heart failure due to dilated cardiomyopathy
- Manifestation of type 2 diabetes mellitus with hyperglycemic hyperosmolar state
- Precipitating factor - alcohol abuse

