**Answers:**

Question 1:

1a. Novolin 70/30 has an onset of approximately 30-60 minutes and peaks in 2 to 10 hours. His insulin dosing has "stacked" leaving him hypoglycemic 2 hours after his second dose of 70/30. He has AKI on CKD, altering insulin metabolism.

1b. 75 kg x 0.2 units/kg = 15 units TDD; 15 / 2 = 7.5 basal and 7.5 mealtime. 7.5 / 3 = 2.5 units short-acting per meal. Use sliding scale with lowest correction factor.

1c. Hold mealtime insulin. Still give basal insulin at 50% usual dose.

Question 2:

2a. 2 units/hr x 20 = 40 units = TDD in 24 hours. 40 x 0.6 = 24 units basal and 16 units mealtime. 16 / 3 = 5.5 units for meals

2b. Insulin gtt can be turned off 1 hour after rapid-acting or regular insulin and 2-3 hours after intermediate or long-acting.

Question 3:

3a. Yes, unless you consult Endocrinology at admission.

3b. 112 kg x 0.6 units/kg = 67.2 units TDD; 67.2 / 2 = 33.6 units basal and 33.6 units mealtime; 33.6 / 3 = 11.2 units for meals

3c. Increase dosing by 10-20%. 74 units is increase by 10% of TDD. 74 / 2 = 37 units basal and 37 units mealtime; 37 / 3 = 12

Question 4:

4a. Hold oral anti-diabetic medications. Calculate TDD based on weight. 80 kg x 0.4 units/kg (normal weight pt) = 32 units TDD; 16 units basal and 5 units TIDAC rapid acting, plus sliding scale insulin

4b. Based on reported blood glucose levels, the patient's A1C should be between 6 and 7 (corresponds to blood sugar of 126-154 mg/dL). One explanation could be post-prandial hyperglycemic excursions. Conditions with high red cell turnover, e.g., iron deficiency anemia, and certain hemoglobinopathies can also make A1C falsely high.

**How to estimate total daily dose (TDD) insulin based on medical co-morbidities:**

- Malnourished, elderly, CKD, ESRD, ESLD – 0.2-0.3 units/kg
- Normal-weight patients, incl. Type I DM – 0.4 units/kg
- Overweight – 0.5 units/kg
- Obese, high-dose steroids, insulin resistance – 0.6 units/kg

Avanzini, F. et al. and on behalf of the Desio Diabetes Diagram Study Group. Transition from Intravenous to Subcutaneous Insulin. *Diabetes Care.* Jul 2011, 34 (7): 1445-1450.