1- Kymriah™ (tisagenlecleucel) is indicated for the treatment of:
   a. Pediatric and young adult patients up to 25 years of age newly diagnosed B-cell acute lymphoblastic leukemia (ALL)
   b. Pediatric and young adult patients up to 25 years of age with refractory or in 2nd or later relapse B-cell ALL
   c. Pediatric and young adult patients newly diagnosed non-Hodgkin lymphoma (NHL)
   d. Pediatric and young adult patients up to 25 years of age with relapsed refractory NHL

2- Cytokine release syndrome (CRS) is the most common adverse event observed with Kymriah. The severity of CRS was correlated with the following, except:
   a. Infused Kymriah dose
   b. Leukemia burden
   c. Concurrent infection
   d. Early onset of fever

3- Clinically, patients with CRS can manifest with the following signs and symptoms, except:
   a. High grade fever
   b. Hypotension
   c. Skin ulcers
   d. Respiratory distress
   e. Encephalopathy

4- Which one of the following is true regarding the time to onset of CRS? It typically occurs:
   a. 7-14 days following Kymriah infusion, with a median time to onset of 10 days
   b. 7-21 days following Kymriah infusion, with a median time to onset of 10 days
   c. 1-22 days following Kymriah infusion, with a median time to onset of 3 days
   d. Rarely starts during the first week following Kymriah infusion
5- As a part of planning for infusion, it is required to have two doses of tocilizumab on site prior to dispensing and administering Kymriah to patients:
   - a. True
   - b. False

6- A 5-year-old male with refractory ALL was treated with Kymriah. One day following infusion, he developed high grade fever (40-41°C) and was hospitalized. On day 2, he developed hypotension, which improved with fluid resuscitation. He was transferred to the PICU for close observation, and later developed recurrent hypotension, mild tachypnea and hypoxia (O₂ saturation 91%). He was started on norepinephrine at a low dose and O₂ supplement via nasal cannula. The patient is now stable with normalization of blood pressure and O₂ saturation. What is the next step in management:
   - a. Administer one dose of tocilizumab (IL-6 receptor antibody)
   - b. Start IV methylprednisolone at 2 mg/kg/day
   - c. Start myeloid growth factor to expedite neutrophil recovery
   - d. Continue supportive care and close monitoring of hemodynamic, respiratory and neurological status

7- Neurological toxicities were observed with Kymriah, and the patient and the caregiver should be informed about this risk. All of the following are correct except:
   - a. May occur in the context of CRS, following the resolution of CRS or without CRS
   - b. Symptoms range from headache and confusion to encephalopathy and seizures
   - c. The majority of events were transient and self-limiting
   - d. Can be prevented with the administration of tocilizumab

8- All of the following about neurological toxicities as a result of Kymriah are correct, except:
   - a. Perform neurological work-up as appropriate to exclude other etiologies of neurological symptoms
   - b. Management includes supportive care
   - c. Routine management includes high dose systemic corticosteroids
   - d. Majority occurred within 30 days following Kymriah infusion

9- A 12-year-old female with relapsed ALL following an allogeneic transplantation was treated with Kymriah. One day post-infusion, she developed high grade fever (40°C) and myalgia, and started on broad spectrum antibiotics. Subsequently, she developed hypotension requiring multiple fluid boluses and high dose vasopressors (norepinephrine and epinephrine); hypoxia at 90% O₂ saturation requiring high flow O₂ supplement; elevated liver enzymes, serum creatinine and ferritin; and mild confusion. She was treated with one dose of tocilizumab, which resulted in transient improvement. 12 hours following tocilizumab administration, the patient's clinical status started deteriorating with worsening hypotension requiring increase in vasopressor doses, worsening respiratory distress and altered mental status. What is/are the appropriate next step/s in management:
   - a. Cortisol level for the evaluation of adrenal insufficiency
   - b. Start IV methylprednisolone at 2 mg/kg/day
   - c. Second dose of tocilizumab if no improvement with steroids within 24 hours (inability to wean vasopressors and persistent fever)
   - d. All of the above

10- A 10-year-old female with multiply relapsed ALL treated with Kymriah. On day 3 following infusion, the patient developed symptoms consistent with severe CRS including persistent high grade fevers, hypotension requiring high dose vasopressors, progressive respiratory distress requiring intubation and mechanical ventilation, liver and renal function abnormalities. She was treated with 2 doses of tocilizumab, IV methylprednisolone at 2 mg/kg/day, and broad spectrum antibiotics. The patient had transient short-lived improvement in hemodynamic status, with inability to wean vasopressors or ventilator settings. What is/are the appropriate next step/s in management:
   - a. Evaluate the patient for sepsis
   - b. Consider a third dose of tocilizumab
   - c. Check platelet count, PT/INR/PTT and fibrinogen and replace with platelets, fresh frozen plasma and/or cryoprecipitate as needed
   - d. All of the above