

**Chapter 55. Solid Organ Transplant, Self-Assessment Questions**

**Questions 1 to 9 are related to the following case:** A 38-year-old white man is scheduled to receive a living-unrelated renal transplant this week at your hospital. The donor is the patient's 35-year-old brother-in-law, who is a 6-out-of-6 HLA mismatch. The patient's underlying renal failure is presumed to be due to uncontrolled diabetes mellitus and hypertension. He has required hemodialysis for the past 3 months. His past medical history is significant for diabetes mellitus, obesity (95 kg), hypertension, hyperlipidemia, gout, depression, and hypothyroidism. He drinks alcohol socially and has a remote history of tobacco usage. He is a father of three and has been married for the past 12 years.

**Current medication list:** levothyroxine 125 mcg once daily, allopurinol 100 mg once daily, simvastatin 20 mg once daily, amlodipine 5 mg once daily, metoprolol succinate 100 mg once daily, insulin glargine 24 units at bedtime, insulin aspart (sliding scale), and sertraline 50 mg once daily

1. The patient is blood type-O. During the evaluation of his family members for a potential donor, the team told him that he required a donor with the same blood type. His brother-in-law was also a blood type-O. What type of rejection would the patient be at risk for if he received a renal transplant from a donor who wasn't a blood type-O donor?
  - A. Antibody-mediated rejection
  - B. Acute rejection
  - C. Hyperacute rejection
  - D. Chronic rejection
  - E. None of the above
2. The transplant surgeon on your team would prefer to use basiliximab as induction therapy due to its efficacy and superior tolerability. The team is aware that basiliximab is a monoclonal antibody but is unaware of how it exerts its effect on lymphocytes. What is the best description for basiliximab's mechanism of action?
  - A. Inhibits IL-2 receptor mediated activation of lymphocytes
  - B. Alters T-cell activation, homing, and cytotoxic activities
  - C. Targets the CD3 receptor found on activated T cells
  - D. Binds to CD52 found on B and T lymphocytes
  - E. Targets the CD20 receptor found on B cells
3. The patient understands the purpose of induction therapy and agrees to treatment. What side-effect of basiliximab can he expect to experience?
  - A. Hyperlipidemia
  - B. Hypertension
  - C. Hyperacute rejection
  - D. Infection
  - E. Hypertrophic cardiomyopathy

4. The team would like to begin the patient on a calcineurin inhibitor on postoperative day 1 after a 24-hour assessment of his renal function. Based on his medical history, which calcineurin inhibitor would be the most appropriate?

- A. Belatacept
- B. Tacrolimus
- C. Mycophenolate mofetil
- D. Sirolimus
- E. Prednisone

5. During rounds on postoperative day 1, the team decides to restart all of the patient's pretransplant medications. Additionally, the surgical resident asks if azathioprine would be an appropriate antiproliferative agent for him. You inform the team that azathioprine will have a significant interaction with which of his pretransplant medications?

- A. Metoprolol
- B. Amlodipine
- C. Simvastatin
- D. Allopurinol
- E. Sertraline

6. The patient becomes anxious about the amount of medications he'll be required to take as an outpatient. He states that he heard of an intermittent intravenous immunosuppressive called belatacept and is curious if he qualifies for its use. What viral serology would have to be assessed in the patient prior to administration of belatacept?

- A. Human Immunodeficiency Virus
- B. Herpes simplex virus
- C. Influenza virus
- D. Cytomegalovirus
- E. Epstein-Barr Virus

7. The team decides against the use of belatacept and begins the patient on tacrolimus, mycophenolate mofetil, and prednisone. Which of his comorbidities is the combination of prednisone and tacrolimus most likely to exasperate?

- A. Diabetes mellitus
- B. Depression
- C. Hypothyroidism
- D. Hyperlipidemia
- E. Gout

8. The team would like to begin antifungal therapy in the patient as a prophylaxis for thrush. Which of the following medications is not considered to interact with his current immunosuppressive therapy?

- A. Fluconazole
- B. Clotrimazole
- C. Voriconazole
- D. Nystatin

E. Itraconazole

9. In addition to his pretransplant medications, the patient is discharged on tacrolimus, mycophenolate mofetil, prednisone, valganciclovir, atovaquone, and clotrimazole. He returns to your clinic 1-week later with a tacrolimus trough concentration of greater than 20 ng/ml (20 mcg/L or 25 nmol/L). Which medication is most likely responsible for his supertherapeutic tacrolimus level?

- A. Tacrolimus
- B. Prednisone
- C. Mycophenolate mofetil
- D. Atovaquone
- E. Clotrimazole

10. Which of the following immunosuppressive medications is most likely to cause alopecia and new onset diabetes after transplantation?

- A. Azathioprine
- B. Prednisone
- C. Tacrolimus
- D. Cyclosporine
- E. Mycophenolate mofetil

11. What is the conversion to enteric coated mycophenolic acid if a patient is receiving 500 mg of mycophenolate mofetil twice daily?

- A. 180 mg twice daily
- B. 360 mg twice daily
- C. 540 mg twice daily
- D. 720 mg twice daily
- E. 1000 mg twice daily

12. Which of the following medications is contraindicated in liver transplant recipients?

- A. Mycophenolate mofetil
- B. Tacrolimus
- C. Sirolimus
- D. Cyclosporine microemulsion
- E. Azathioprine

13. The following best describes the mechanism of action of which immunosuppressant: a proteasome inhibitor that induces cell-cycle arrest and apoptosis of plasma cells.

- A. Bortezomib
- B. Rituximab
- C. Alemtuzumab
- D. Eculizumab
- E. Intravenous Immunoglobulin

14. Which of the following immunosuppressive medications has a FDA-approved risk evaluation and mitigation strategy in place?

- A. Enteric coated mycophenolic acid
- B. Tacrolimus
- C. Azathioprine
- D. Prednisone
- E. Cyclosporine

15. The process that allows organ-specific antigens to be accepted as self is also known as:

- A. Tolerance
- B. Allorecognition
- C. Adaptation
- D. Major histocompatibility complex
- E. Antibody-mediated rejection

**Answers**

1. C
2. A
3. D
4. B
5. D
6. E
7. A
8. D
9. E
10. C
11. B
12. C
13. A
14. A
15. A