

D.M. – INFECTIOUS DISEASES

**Paper IV – RECENT ADVANCES INCLUDING TRANSPLANT
INFECTIOUS DISEASES**

Q.P. Code: 161494

Time: Three Hours

Maximum: 100 Marks

I. Elaborate on: (2 x 15 = 30)

1. Mr. B is a 24-year old male who underwent matched, unrelated allogeneic hematopoietic stem cell transplantation 12 days ago. He has been having fever for the last 7 days despite being on a combination of meropenem and amikacin. The absolute neutrophil count is <100 cells/mm³. Blood cultures are sterile. There were two episodes of febrile neutropenia (FUO) during the induction chemotherapy. Discuss the further management of this patient.
2. Discuss the recent advances in the diagnosis and management of rifampicin-resistant and multidrug-resistant tuberculosis.

II. Write notes on: (10 x 7 = 70)

1. Fecal microbiota transplantation.
2. Post-transplant lymphoproliferative disease.
3. Non-culture methods for laboratory diagnosis of systemic fungal infections.
4. Ebola virus outbreak in West Africa.
5. Isavuconazole.
6. Candida auris.
7. Chemotherapy to prevent HIV – related tuberculosis.
8. Pan-genotypic, directly acting antivirals for treatment of chronic hepatitis C virus infection.
9. Acute encephalitis-like syndrome and hypoglycemic toxins.
10. Neurologic complications of Zika virus infection.

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I. Elaborate on:

(2 x 15 = 30)

1. A 52-year-old male, diabetic, and hypertensive with chronic renal failure is referred to you as he is being considered for a renal transplant.

What evaluation would you do in this patient before clearing him for a renal transplant?

Discuss the recommended vaccines and antibiotics that you would prescribe before renal transplant.

2. A 43-year-old male, day 10 following a bone marrow transplant for severe aplastic anaemia develops high spiking fevers with chills. Multiple blood cultures are growing yeast.

Enumerate the risk factors for developing candidemia.

What are the various treatment strategies, therapeutic options, and complications of candidemia.

II. Write notes on:

(10 x 7 = 70)

1. MALDI-TOF.
2. Pre-emptive therapy for CMV.
3. Anti-viral therapy for SARS-Cov 2.
4. Post transplant lymphoproliferative disorder.
5. Whole genome sequencing.
6. Non-invasive diagnostic modalities for the diagnosis of invasive fungal infections post stem cell transplant.
7. HHV 6 encephalitis.
8. Cryptococcal disease following solid organ transplant.
9. BK virus nephropathy.
10. Typhilitis.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0124]

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Maximum: 100 Marks

I. Elaborate on: **(2 x 15 = 30)**

1. A 39yr/F, case of deceased donor kidney transplantation received induction with Basiliximab and is now on triple immunosuppression with Tacrolimus, Mycophenolate Mofetil and Prednisolone. She is discharged after 10 days with an uneventful post-operative period.
 - a) Draw the time table of infections expected after transplantation in this patient.
 - b) How will you plan prophylaxis in this patient and what will be given at each stage of the transplant (pre, peri and post transplantation) and why?
 - c) Eight months later she presents with dysphagia and vomiting. A gastroscopy is done, an oesophageal ulcer is visualized and a biopsy reveals a polymorphous infiltrate of atypical lymphoid cells. What is your diagnosis, risk factors known to produce this condition, possible management options?
2. Discuss the evolving landscape of COVID-19 infection, recent strains, current therapeutic strategies and vaccines.

II. Write notes on: **(10 x 7 = 70)**

1. Fifth generation cephalosporins.
2. Letemovir.
3. Hepatosplenic Candidiasis.
4. Nuclear medicine imaging in infections.
5. Non-infectious mimics post PBSCT.
6. CAR-T cell therapy and implications for infection.
7. Progressive multifocal leukoencephalopathy.
8. RSV vaccines.
9. BK viraemia in Solid organ transplantation.
10. IVIG indications in Infections.

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I. Elaborate on: (2 x 15 = 30)

1. A 39-year female, case of deceased donor bilateral lung transplantation received induction with Basiliximab and anti-thymocyte globulin and is now on triple immunosuppression with Tacrolimus, Mycophenolate Mofetil and Prednisolone. She needed extracorporeal membrane oxygenation (ECMO) for nearly 7 days after clamping the second pulmonary artery after the second transplant
 - a) Draw the time table of infections expected after transplantation in this patient.
 - b) What is the pathogenesis, causes and timeline of ECMO infections in this patient?
 - c) How will you plan prophylaxis in this patient and what will be given at each stage of the transplant (pre, peri and post transplantation) and why?
2. Elaborate on M pox epidemiology, recent outbreaks, clinical features, diagnosis, current therapeutic strategies and vaccines.

II. Write notes on: (10 x 7 = 70)

1. Olorofim.
2. Glycopeptide antibiotics.
3. Fusariosis.
4. High resolution computed tomography (HRCT) imaging in pulmonary infections.
5. Gastrointestinal decolonization and Solid organ transplantation.
6. Biological response modifiers and implications for infection.
7. Parvovirus related syndromes in Hematopoietic stem cell transplant (HSCT) and Solid organ transplantation (SOT).
8. Influenza vaccines.
9. Differentiation syndrome.
10. Z-MAPP.