

MANIPAL UNIVERSITY

SECOND YEAR M.Sc. (RRT & DT) DEGREE EXAMINATION – MAY 2013

SUBJECT: MDT 701 – PRINCIPLES AND OVERVIEW OF TYPES OF RENAL REPLACEMENT THERAPY (HD & PD)

Monday, May 27, 2013

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1. Single best answer.

1A. Heparin effect during CRRT is monitored by

- i) Prothrombin time ii) Thrombin time
iii) Bleeding time iv) Activated partial thromboplastin time

1B. Which of these vitamin deficiencies can cause anemia?

- i) A ii) Cobalamin iii) D iv) K

1C. Serum Magnesium _____ in CKD

- i) Decreases ii) Increases iii) Remains normal iv) Varies

1D. _____ does not usually cause ESRD in children

- i) Minimal change disease ii) Vesicoureteric reflux
iii) Congenital anomalies of the kidney iv) Chronic pyelonephritis

1E. Iron deficiency in ESRD is due to all except

- i) Blood loss ii) Poor diet
iii) Erythropoietin deficiency iv) Inflammation

1F. Endogenous water production per day is usually

- i) 10 ml ii) 50 ml iii) 250ml iv) 650 ml

1G. GFR of 15ml/min in a CKD patients puts him in

- i) CKD4 ii) CKD3 iii) ESRD iv) CKD4/5

1H. AKIN classification is used for

- i) CKD ii) AKI iii) CCF iv) None of the above

1I. Calcitriol is useful in CKD to

- i) Reduce the phosphate level ii) Reduce the PTH level
iii) Reduce the calcium level iv) None of the above

1J. ACE inhibitors are to be used with caution in CKD because

- i) They may paradoxically increase the BP ii) They may cause hypercalcemia
iii) Hyperkalemia is more likely iv) All of the above

(1×10 = 10 marks)

2. Long essay questions:

- 2A. Describe the investigations used in a patient presenting with possible CKD.
- 2B. Discuss the timing of initiation of dialysis in CKD.

(10×2 = 20 marks)

3. Short essay questions:

- 3A. Discuss the management of mineral bone disorder of CKD.
- 3B. What are the principles of dietary prescription for a patient on CAPD?
- 3C. What are the methods used for assessment of nutrition in ESRD?
- 3D. Discuss Epoetin therapy.
- 3E. What are the advantages and disadvantages of chronic PD?
- 3F. Discuss the RRT options in the ICU setting.

(5×6 = 30 marks)

4. Short notes:

- 4A. List four common causes of CKD.
- 4B. What is a low phosphate diet?
- 4C. List the causes of anemia in CKD.
- 4D. What are the major complications of AKI?
- 4E. What are the dietary sources of the water soluble vitamins?
- 4F. What is dialysis disequilibrium syndrome?
- 4G. What are the side effects of heparin?
- 4H. How is the severe hyperparathyroidism of CKD managed?
- 4I. What are the uses of the MDRD GFR equation?
- 4J. What is the dietary protein recommendation in CKD stage 4?

(2×10 = 20 marks)



MANIPAL UNIVERSITY
SECOND YEAR M.Sc. (RRT & DT) DEGREE EXAMINATION – MAY 2013
SUBJECT: MDT 702 – RENAL TRANSPLANTATION

Wednesday, May 29, 2013

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

☞ **Single best answer.**

1A. IFTA means

- i) Interstitial Fibrosis and Tubular atrophy
- ii) Interstitial inflammation and tubular atrophy
- iii) Interstitial fibrosis and tubular acellularity
- iv) Interstitial inflammation and tubular acellularity

1B. Most common cause for rejection of graft is

- i) Infection
- ii) Non compliance with medication
- iii) Under dosage
- iv) HLA mismatch

1C. Best survival is seen with what type of renal replacement therapy in ESRD

- i) Transplantation
- ii) Hemodialysis
- iii) Peritoneal dialysis
- iv) Conservative treatment

1D. All of the followings are differential diagnosis for acute graft dysfunction except

- i) Acute rejection
- ii) Tacrolimus toxicity
- iii) Infection
- iv) Transplant glomerulopathy

1E. Which of the following is an absolute contraindication to kidney transplantation?

- i) Human immunodeficiency virus infection
- ii) History of renal cell cancer requiring nephrectomy 10 years earlier
- iii) Ongoing chemotherapy for metastatic breastcancer
- iv) Recent coronary artery stent placement

1F. Humoral immunity is also called as

- i) Antibody mediated immunity
- ii) Non-specific immune response
- iii) Antigen mediated immunity
- iv) All of these

1G. B cells differentiates to form

- i) Plasma cells
- ii) Effector cells
- iii) Plasma cells and memory B cells
- iv) None of these

1H. Which of the following is used for crossmatching?

- i) Complement dependent cytotoxicity
- ii) ELISA
- iii) Flowcytometry
- iv) All of the above

- 1I. Mycophenolate is
- | | |
|----------------------|---------------------------|
| i) An antimetabolite | ii) Calcineurin inhibitor |
| iii) Steroid | iv) An antibiotic |
- 1J. Which of the following is a Calcineurin inhibitor?
- | | | | |
|-----------------|------------------|---------------|---------------|
| i) Cyclosporine | ii) Azathioprine | iii) Steroids | iv) Sirolimus |
|-----------------|------------------|---------------|---------------|
- (1×10 = 10 marks)

2. Long essay questions:

- 2A. Describe HLA and discuss its relevance to renal transplantation.
- 2B. Discuss the evaluation of early acute renal graft dysfunction.
- (10×2 = 20 marks)

3. Short essay questions:

- 3A. How is acute rejection treated?
- 3B. Discuss chronic allograft nephropathy.
- 3C. Discuss the relevance of acquired immunity to renal transplantation.
- 3D. Describe the monitoring required for post transplant immunosuppression.
- 3E. Discuss the side effects of calcineurin inhibitors.
- 3F. Describe the typical workup for a potential living renal donor.
- (5×6 = 30 marks)

4. Short notes:

- 4A. What are the disadvantages of deceased donor transplantation?
- 4B. How is Azathioprine therapy monitored?
- 4C. What are the longterm sequelae of steroid therapy?
- 4D. What is meant by the highly sensitized patient?
- 4E. What is innate immunity?
- 4F. What is HLA typing?
- 4G. What is the role of plasmapheresis in renal transplantation?
- 4H. List the drugs used in induction immunosuppression.
- 4I. What is the relevance of PRA in transplantation?
- 4J. Mention the causes of renal tract obstruction post transplantation.
- (2×10 = 20 marks)



MANIPAL UNIVERSITY

SECOND YEAR M.Sc. (RRT & DT) DEGREE EXAMINATION – MAY 2013

SUBJECT: MDT 703 – CONCEPTS & PRINCIPLES OF HD & PD AND ITS APPLICATION TO PATIENT CARE

Friday, May 31, 2013

Time: 10:00 – 13:00 Hrs.

Max. Marks: 80

1. Single best answer:

1A. Which of the following Iron preparations is preferred in treating iron deficiency in Chronic HD?

- i) Iron sucrose ii) Ferrous sulphate
iii) Ferrous fumarate iv) Iron dextran

1B. Typical dose of Darbepoetin used to treat anemia in CKD is

- i) 0.5mcg.kg.wk ii) 2 mcg/kg/wk
iii) 5-10mcg/kg/wk iv) 500U/kg/wk

1C. _____ has no access recirculation

- i) AVgraft ii) AVF
iii) AV shunt iv) Central venous catheters

1D. The formula used to measure access recirculation is

- i) $100(A-S/V-S)$ ii) $100(S-A/S-V)$
iii) $100(S-V/S-A)$ iv) $100(V-S/A-S)$

1E. _____ is not a indication for heparin free HD

- i) Vasculitis ii) 12 hours post laparotomy
iii) Uremic pericarditis iv) HIT

1F. The empirical antibiotic for severe CRBSI is

- i) Ampicillin ii) Aminoglycosides
iii) Vancomycin iv) B) or C)

1G. Mean arterial pressure is

- i) $\frac{1}{2} \times (SBP+DBP)$ ii) $\frac{1}{2} \times (SBP-DBP)$
iii) $SBP + DBP/3$ iv) $DBP + 1/3 \times \text{Pulse pressure}$

1H. Chemical contamination of water may cause

- i) Dementia ii) Osteomalacia
iii) Hemolysis iv) All of the above

- 1I. _____ is not a step in reprocessing technique
- i) Germicide sterilisation
 - ii) Rinsing with formaldehyde
 - iii) Heat sterilization
 - iv) Performance testing
- 1J. Clearance in chronic PD can be increased by all of the following except
- i) Longer dwells
 - ii) Larger dwells
 - iii) Use of amino acid based PD fluid
 - iv) Icodextrin night time dwell

(1×10 = 10 marks)

2. Long essay questions:

- 2A. Discuss how the PET influences PD prescription.
2B. Discuss the role of the dialyzer types on clearance.

(10×2 = 20 marks)

3. Short essay questions:

- 3A. Write briefly on PD peritonitis.
3B. What are the RRT options for a hypotensive patient?
3C. What are the complications of Tunnelled vascular catheters?
3D. How can Ultrafiltration be maximized in chronic PD?
3E. What is the typical composition of HD dialysate and why?
3F. What are the risk factors for CRBSI?

(5×6 = 30 marks)

4. Short notes:

- 4A. Write a note on DDS.
4B. What precaution is necessary when dialyzing a severely hyponatremic patient?
4C. What is the indication for SLED?
4D. What is CVVHDF?
4E. How is regional heparinisation done?
4F. What are the risks of dialyzer reprocessing?
4G. What is mTAC?
4H. What is the concentration of the osmotic agent in the commonly used PD fluids?
4I. What is convection?
4J. What are the advantages of button holing?

(2×10 = 20 marks)

