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

[DM 0822] **AUGUST 2022** **Sub. Code :1487**

D.M. – CRITICAL CARE MEDICINE
Paper II – GENERAL CRITICAL CARE
Q.P. Code: 161487

Time: Three Hours **Maximum: 100 Marks**

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

1. A 26-year-old female is admitted to the ICU post operatively with faecal peritonitis because of multiple bowel perforations secondary to Crohn's disease. She has had most of her small bowel resected and is to be prescribed total parenteral nutrition (TPN).
    a. Describe the available methods to estimate total energy expenditure in critically ill patients and outline their advantages and limitations.
    b. The basal energy expenditure of this patient is determined to be 2000 kcal /day and she weighs 50 kg. Briefly outline how you would decide her Total parenteral nutrition (TPN) order.
2. With respect to trans-pulmonary pressure (TPP)
    a. Explain what is meant by the phrase "trans-pulmonary pressure (TPP)".
    b. Describe the technique of measurement, including any limitations
    c. Discuss the rationale for its clinical use
    d. Briefly outline the evidence for its role in the management of patients with acute respiratory distress syndrome (ARDS).

II. Write notes on: **(10x7=70)**

1. Outline the key issues in the post-operative management of a morbidly obese (BMI 59) patient with type 2 diabetes following sleeve gastrectomy.
2. You are asked to admit a 46-year-old male who has just been intubated in the Emergency Department (ED) after collapsing from a brain stem stroke, two hours earlier. His Glasgow Coma Scale (GCS) prior to intubation was 6. Outline your management strategy for him for the first 24 hours.
3. Biofilm, quorum sensing and their contribution to hospital acquired infections.
4. What issues would you consider in providing renal replacement therapy to a 22-year-old patient with a traumatic brain injury and raised intracranial pressure? How would you manage these issues?

5. Regarding severe post-partum haemorrhage (PPH), list the causes and outline the management of such a patient in the ICU.
6. In a patient with acute pancreatitis admitted to the ICU, briefly discuss the following issues:
    a. Optimal timing and method of delivery of nutrition
    b. Role of antimicrobials
    c. Role of endoscopic retrograde cholangiopancreatography
7. List important clinical features of thyroid storm. Outline the principles of management of myxoedema coma.
8. Brain death: criteria, recommendations for declaration and importance for organ transplant.
9. Compare and contrast SLED and CRRT.
10. A 76-year-old male returns to the ICU following a right sided thoracotomy and right upper lobectomy. He is extubated but has a large air leak from the intercostal catheter.
    a. Describe your assessment and specific management of the air leak.
    b. The patient desaturates and requires re-intubation. Describe your management of his ventilation.

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[DM 0822]

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

[DM 0124] JANUARY 2024 Sub. Code :1487

D.M. – CRITICAL CARE MEDICINE
PAPER II – GENERAL CRITICAL CARE
Q.P. Code: 161487

Time: Three Hours **Maximum: 100 Marks**

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

1. Define massive pulmonary embolism. Discuss the advantages and disadvantages of thrombolysis, catheter directed clot removal and surgical embolectomy, in the treatment of massive pulmonary embolism.

2. Outline the ICU management of a 25-year-old male who has fulfilled brain death criteria and is awaiting surgery for organ donation.

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

1. Discuss the advantages and disadvantages of techniques for assessing fluid responsiveness.
2. Define delirium. Outline your approach to the diagnosis and prevention of delirium in patients in your ICU.
3. With respect to standard adult ALS algorithm needed in the management of cardiac arrest in the following clinical situations. Give the rationale for the modifications where appropriate.
   a) A 72-year-old female ventilated in ICU 4 hours post-cardiac surgery.
   b) A 66-year-old male with accidental hypothermia and core temperature < 24^{o}C.
   c) A 34-year-old 32/40 gestation pregnant female.
4. With respect to nutritional support in the critically ill: Outline how you would assess the nutritional status of a patient with suspected malnutrition. Prescribe an initial diet for such a patient with the rationale.
5. A 55-year-old female is admitted to your ICU with severe respiratory failure caused by a community acquired pneumonia. She has a history of rheumatoid arthritis. What factors related to her rheumatoid arthritis require consideration during her care in the ICU?
6. A 74-year-old male has been intubated for respiratory failure developing two weeks after oesophagectomy for adenocarcinoma. He has no other significant past medical history. After intubation, an audible air leak was apparent. Urgent bronchoscopy demonstrated a fistula between the proximal left main bronchus and the oesophago-gastric anastomosis. Outline the principles and priorities in the management of this patient.

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7. With reference to fat embolism syndrome (FES), outline the precipitants, clinical features, diagnosis and management.
8. Outline the therapeutic options with rationale for the treatment of right ventricular dysfunction in an ICU patient.
9. Biomarkers for fungal infection.
10. With respect to positive end-expiratory pressure (PEEP) in a ventilated patient with acute respiratory distress syndrome (ARDS):
    a) Describe the possible approaches to setting PEEP.
    b) List the disadvantages of excessive PEEP in this situation.

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[DM 0124]

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

[DM 0225] **FEBRUARY 2025** **Sub. Code :1487**

D.M. – CRITICAL CARE MEDICINE

PAPER II – GENERAL CRITICAL CARE

Q.P. Code: 161487

Time: Three Hours **Maximum: 100 Marks**

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

1. Outline the therapeutic options with rationale for the treatment of right ventricular dysfunction in an ICU patient.

2. With respect to delirium in critically ill patients:
   a) Define delirium and describe the different types of delirium encountered in the ICU patient.
   b) List the causes and predisposing factors.
   c) Briefly outline its prevention, assessment, and treatment.

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

1. Aneurysmal subarachnoid hemorrhage-management in ICU.
2. What is driving pressure? Describe in brief triggers and strategies to prevent ventilator-induced lung injury.
3. Resuscitative thoracotomy.
4. A 30-year-old male who has undergone stem cell transplantation for aplastic anemia is admitted to the ICU on D9 with hypotension. Discuss the reasons for this and how you would manage this patient?
5. Regarding severe post-partum hemorrhage (PPH), list the causes and outline the management of such a patient in the ICU.
6. Outline the clinical manifestations, diagnosis and management of acalculous cholecystitis in the critically ill.
7. Enlist the acute and early complications post bone marrow transplant. Write a brief note on diagnosis and management of Veno-occlusive disease.
8. Reversal of anticoagulation for massive bleeding.
9. Biomarkers for fungal infection.
10. Intra-abdominal hypertension in critically ill patients: definition, how to measure, common causes, adverse effects and management.

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