King Saud University

College of Applied Medical Sciences

Community Health Sciences

CHS 431

Enteral and Parental Nutrition

(Practical Part)

1st semester 1432-1433

Student Name: ……

Student Number: ……..

Total Mark: ……/**15**……..

Q1: Choose one answer for each of the following MCQ: (2.5 marks)

1. All of the following statements concerning standard polymeric are true **EXCEPT**:
    a. Formula containing intact nutrition.
    b. Need normal digestive and absorptive capacity.
    c. Can be found in pharmacy and big store as oral supplement.
    d. Peptamin is a good example of standard formula.
2. Crucial is :
    a. Complete elemental peptide-based formula.
    b. Used for immune support, wound healing and trauma patient.
    c. Have 1.5 kcal /mL
    d. All of the above.
3. Best formula for 2 years old boy diagnosed with chylothorax:
    a) Pediasure.
    b) Nan 1
    c) Neocate advance.
    d) Portagen.
4. Ensure plus is:
    a. It's a type of elemental formula.
    b. Suitable for fluid restriction disease.
    c. Concentrated to provide more Kcal.
    d. B + C
5. All of the following statements concerning Polycose are false **EXCEPT**:
    a. A good source of protein.
    b. Rich in gluten.
    c. Used to increase calories.
    d. Suitable to use with diabetic patient.

6. Enteral formula that is restricted in protein is designed for:

a) Renal patient pre-dialysis.
b) Pulmonary patient.
c) Renal patient on hemodialysis.
d) Both a+b

7. Best formula for infant with renal disease and needs low electrolyte formula :

a. Nan 1.
b. infatrini.
c. Similac PM 60/40.
d. A + c.

8. 30% lipid emulsion provide: ……. Kcal

a) 1.2
b) 3
c) 3.4
d) 2

9. Enteral formulas marketed for used in patients with liver disease have:

a) Low in BCAA and high in AAA.
b) Low in AAA and high in BCAA.
c) High in protein content.
d) Low in calorie.

10. Enteral formulas that contain less CHO, higher fat is designed for:

a) Diabetes patient.
b) Liver patient.
c) Pulmonary patient
d) Both a + c

Q2: Put **(T)** for True OR **(F)** for false statements of the following: (2.5 marks)

1. Alitraq is a complete intact formula for impaired GI function. (F)
2. Harris –Benedict equation is the most accurate method for determining resting energy expenditure (REE) for hospitalized individuals. (F)
3. 4gm/kg is the maximum amount of carbohydrate to be used in parenteral nutrition. (F)
4. Amino plasmal-Hepa 10% is suitable to be used for short bowel syndrome. (F)
5. Patients on renal replacement therapy (RRT) (**dialysis**) have lower protein need. (F)
6. Iron- containing in HMF is 1.4 mg / 4 packets. (T)
7. Carbohydrate and protein oxidation produce a higher RQ than fat. (T)
8. For pediatric on continues feeding we start with half the volume and gradually increase it. (F)
9. All types of fat in parenteral nutrition contain 9 kcal/gm. (F)
10. S32 formula contains 1.6 kcal /mL (F)

Q3: Give a reasons for each: (2 marks)

1- Pulmocare is suitable for Chronic obstructive pulmonary disease:

--1/--Because its high in fat and low in carbohydrate to reduce Co_2 production----------

----2/ Concentrated formula suitable for fluid restriction ----------

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2- Al 110 is not suitable for galactosemia patient:

- Since milk protein is used there may be traces of lactose

Q4: Calculate NPC, gm of N2, % fat from NPC, ratio NPC: N and total volume for hepatic insufficiencies patient on parenteral nutrition:

500 ml of AA, 300 ml of 70% dextrose and 150 ml of 20% fat emulsion.

(2.5 marks)

- Total volume = 300+150+500= 950 ml
- NPC = (0.7x 300x 3.4) + (2x 150) = 714+ 300 = 1014 kcal
- % fat from NPC = 300/1014 = 29.5 = 30%
- gm of N2 = 500x15/1000 = 7.5 gm
- NPC: N = 1014/ 7.5 = 135: 1

Q5: A 5 months old boy on Similac advance ad lib. His intake is fair; he can only finish 65mL every 3hrs.

- Concentrate the formula to S27 to meet patient's need if the 1 scoop from Similac advance have 8.8 gm and the Kcal/gm = 5.26

(2.5 marks)

For 24 oz concentrated

Total volume = 65x 8= 520

1- 520 ml x 0.8 = 416 kcal/cc

2- 416 kcal / 5.26 (kcal in Similac advance) = 79.08 gm = 79 gm

3- Total scoop from the formula = 79/8.8 = 8.9 = 9 scoop

For 27 oz concentrated

520 mL x 0.9 = 468Kcal/cc

Kcal from Polycose = 468-416 = 52kcal

Polycose powder = 52 /3.8 = 13.6 = 14 gm

Water needed to dissolve the powder = {79 gm (from s 24) + 14 gm (Polycose)} x 0.7 = 65.1 = 65 ml

Total H_2o needed = 520 – 65 = 455 mL

Finally

a. Powder : 9 scoop = 79 gm Similac advance + 14 gm Polycose

b. Water : 455 ml

Q6: A 60 years old female weighing 75 kg and is a 168 cm tall, admitted to the hospital due to stroke and he is known case of chronic renal failure on hemodialysis and fluid restriction 1100 ml/day. Today is his second day and he still in coma. The doctor refers the patient to you in order to start his diet.

1- Calculate his nutritional requirement.
2- What is the best route you can use to meet his nutritional need?
3- Write a complete nutritional plan for him.

(3 marks)

Sex: F wt = 75kg Ht = 168 cm

BMI = 75/ (1.68x1.68) = 26.57 kg/m^2 (over wt.)

IBW = 1.68 x 1.68 x 22.1 = 62kg

%IBW = 75/62= 120.9 = 121% (over wt.)

Diagnosis: renal failure on hemodialysis + stroke

The patient in coma and can't take oral diet so I will start enteral feeding

Energy requirement= 30-35 kcal/kg = 1860 – 2170 kcal/day

Protein requirement = 1-1.2 gm/kg = 62 – 74 gm / day

Fluid requirement = 30x 62 = 1860 mL

Fluid restriction = 1100 mL/day

Formulas: Nepro

1ml → 2kcal

?? ?→2000 kcal → total volume = 1000cc/day

Formula	Volume mL	Energy kcal	Protein gm	CHO gm	Fat gm
Nepro	1000	2000	70	215	96

Flow rate = 1000/24 = 42 cc/h/day

NPC:

70x4 = 280 kcal

N= 70/6.25 = 11.2 gm

NPC = 2000-280 = 1720 kcal

NPC:N = 1720/11.2 = 154:1

Plan:

1- Start patient on 21 cc/h Nepro and gradually increase it to 42 cc/h as tolerated

2- Monitor fluid and electrolyte balance.

3- Monitor tolerance.

4- f/u 7/7