

UNIVERSITY OF ESWATINI

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF GENERAL NURSING

FINAL EXAMINATION MAY 2019

COURSE NAME: PERITONEAL DIALYSIS

COURSE CODE: GNS 470

TIME ALLOWED: 2HOURS

PAGES: 10 INCLUDING COVER PAGE

MARKS: 75

INSTRUCTIONS:

- 1. ENSURE YOU ARE WRITING THE EXAMINATION FOR THE COURSE IN WHICH YOU ARE ENROLLED**
- 2. THERE ARE THREE(3) QUESTIONS**
- 3. START EACH QUESTION ON A NEW PAGE**
- 4. WRITE LEGIBLY**

QUESTION 1

SECTION A

INSTRUCTIONS: For the following questions or statements, select the most correct response. In your answer sheet write the letter that corresponds with the most correct response e.g. 1.C.

SCENARIO:

Susan Dlamini is a 25 years old single female who has had diabetes mellitus for 13 years. Despite Susan's effort to maintain rigid serum glucose control, over the past year and a half, she has experienced visual disturbances and hypertension. During a regular appointment with her endocrinologist, she is found to have bilateral ankle oedema, and blood pressure of 160/110 mmHg erect. Urine dipstick indicated 3+ protein. Blood work revealed a haemoglobin of 9 g/L, creatinine of 330 pmol/L, urea 25 mmol/L, glucose 14.0 mmol/L and serum albumin of 25 gm/l. Despite evidence of renal impairment, Susan has never had renal biopsy. The physician has advised her that she has end stage renal disease, (ESRD), most likely as a result of diabetic nephropathy, and that she will eventually require renal replacement therapy. Questions 1 - 12 relate to this scenario.

1. Which of the following explanations best describes why a renal biopsy was not felt to be necessary in Susan's case?
 - A. Renal biopsy is contraindicated in diabetics because of their increased bleeding tendencies.
 - B. Her serum glucose was well controlled which is the only way to prevent diabetic complications.
 - C. She has visual disturbances and proteinuria which are often early indicators of diabetic nephropathy.
 - D. She has had diabetes for 13 years which is the appropriate time for presentation with diabetic nephropathy.

2. An early sign of diabetic nephrosclerosis is microalbuminuria (proteinuria). In an individual with normal kidney function, which one of the following findings would the nephrology nurse expect?
 - A. Maximum protein excretion of 3+ on urine dipstick.
 - B. Maximum protein excretion in the urine of up to 150 mg per day.
 - C. Maximum protein excretion in the urine of up to 2 grams per day.
 - D. Approximately 500 to 1000 mg of protein excreted in the urine per day.

3. With Susan's degree of renal impairment, the nephrology nurse might expect her insulin requirements to be?
 - A. Higher, due to increased insulin production by the pancreas.
 - B. Lower, due to diet restrictions employed to maintain renal integrity.
 - C. Lower, due to a reduction in the breakdown of insulin by the kidneys.
 - D. Higher, due to an increase in the breakdown of insulin by the kidneys.

4. Which one of the following dietary measures should the nephrology nurse encourage Susan to follow to help slow the progression of her renal disease?
 - A. Increase sodium intake to prevent salt-wasting.
 - B. Reduce fats and carbohydrates to decrease insulin needs.
 - C. Restrict protein intake to only low biological value proteins.
 - D. Reduce protein intake, but include mostly high biological value proteins.

SCENARIO 1 (continued)

In spite of her efforts, Susan's kidney functions continue to decline and she begins to complain of nausea, anorexia and weight loss. Susan also complains of burning and pain in her hands and feet. She continues to be grossly oedematous with a blood pressure of 140/90 mmHg supine, 130/85 mmHg erect. Her blood reveals:

Creatinine 600umol/L; urea 30 mmol/L; potassium 5.8mmol/L; fasting serum glucose 10.0 mmol/L; Calcium 1.9mmol/L; and phosphorus 1.9mmol/L.

Susan is admitted to hospital for initiation of dialysis. She has decided to try peritoneal dialysis and is booked for a peritoneal dialysis (PD) catheter insertion the

next morning. Her admission orders include serum glucose q.i.d., sodium polystyrene (Kayexalate) 30 gm p.o daily and fluid restriction.

5. Which one of the following nursing action should be carried out preoperatively before PD catheter insertion?
- A. Ensure bowels are evacuated to decrease the risk of perforation during catheter insertion
 - B. Ensure bladder is full to allow for land marking and ease of catheter placement.
 - C. Ensure that the client abdomen is firm to facilitate ease of catheter placement
 - D. Ensure high fluid intake to prevent dehydration and ensure adequate fluid volume for dialysis.
6. Which of the following factors should be included in the immediate preoperative nursing assessment of Susan?
- (i) Current and usual weight.
 - (ii) Current and usual menstrual cycle.
 - (iii) Physical assessment of the abdomen.
 - (iv) Physical exam of the musculoskeletal.
- A. i, iii
 - B. i, iv
 - C. ii, iv
 - D. ii, iii
7. Which of the following approaches would be most accurate for determining the appropriate fluid restriction for Susan?
- A. Allow 20 ml fluids per kilogram of body weight.
 - B. Take daily weight to calculate fluid loss and allow this amount.
 - C. Begin with 1000 ml per day and observe for signs of fluid overload.
 - D. Allow the equivalent of 24hour urine output +/-500 ml for insensible losses.

SCENARIO 1 (continued)

Susan has her PD catheter inserted and after one week she begins intermittent peritoneal dialysis. Susan's current weight is 55 kg and her dry (ideal, target) weight is set at 54 kg. Her blood pressure is 150/90 mmHg supine, 140/85 mmHg erect.

After getting established on dialysis, Susan decides to learn continuous ambulatory peritoneal dialysis (CAPD) and is scheduled to begin home training in two weeks' time.

8. Which of the following observation should cause the nephrology nurse the most concern in the immediate postoperative period after a PD catheter insertion?
 - A. The catheter is allowed to hang freely.
 - B. The exit site is covered by a sterile dressing.
 - C. The client is experiencing pelvic discomfort.
 - D. The client is experiencing pain at incision site.

9. Which of the following nursing actions would be most appropriate for Susan's initial intermittent dialysis treatment?
 - A. To prevent postoperative bleeding, avoid using heparinized dialysate.
 - B. To clear uraemic wastes more effectively, extend dwell times to one hour.
 - C. To prevent leakage, use small exchange volumes (500ml) for the first treatment.
 - D. To ensure adequate dialysis, increase exchange volumes to 2 litres within first 24 hours.

10. Which of the following actions should the nephrology nurse take if Susan experiences poor dialysate outflow?
 - A. Immediate cap off Susan's catheter.
 - B. Facilitate colonic evacuation with laxatives or enemas as ordered.
 - C. Manually manipulate the catheter to establish more effective positioning.
 - D. Infuse additional dialysate solution to ensure adequate volume for drainage.

11. Which one of the following options most accurately reflects information Susan should know about her diet while on CAPD?
- A. Increase dietary proteins to maintain normal serum levels.
 - B. Restrict dietary protein to ensure more effective ultrafiltration.
 - C. Restrict dietary potassium to avoid consequences of hyperkalaemia.
 - D. Increase dietary carbohydrates to counteract insulin in dialysis solution.
12. Which one of the following behaviours would best demonstrate that Susan is following her prescribed CAPD regimen at home?
- A. Susan is ordering the appropriate supplies on monthly basis.
 - B. Susan never calls the home dialysis office with problems or question
 - C. At clinic visits Susan's weight and blood pressure are within expected limits.
 - D. Susan is able to demonstrate good technique to the technology nurse on a home visit.

SECTION B

13. Which is an early symptom of disequilibrium syndrome during haemodialysis?
- A. Headache.
 - B. Bradycardia.
 - C. Hypotension.
 - D. Euphoria.
14. Which of the following factors affect the rate of diffusion in haemodialysis?
- A. Resistance.
 - B. Amount of protamine used.
 - C. Molecule size.
 - D. Both A and C
15. Net flux relates to the
- A. flow rate of dialysate per minute.
 - B. flow rate of blood per minute.
 - C. Amount of solute leaving the blood and entering the dialysate during a specific time interval.
 - D. Difference between dialysate flow rate and blood flow rate.

16. Which of the following dialyzer designs provides the least net solute flux?
- A. Cross-current.
 - B. Counter-current.
 - C. Co-current.
 - D. Co-cross-current.
17. Clearance is an expression of
- A. The performance of the dialyzing process.
 - B. The volume of blood totally cleared of a solute by the dialyzer in one minute
 - C. The blood flux rate per minute.
 - D. Both A and B.
18. Ultrafiltration in haemodialysis is primarily related to the amount of?
- A. Hydrostatic pressure.
 - B. Osmotic pressure.
 - C. Serum albumin.
 - D. Solute drag.
19. What does coefficient of ultrafiltration refer to?
- A. The amount of water removed from the blood during a given time period at a specific pressure.
 - B. The resistance of the dialyzing membrane to water removal.
 - C. The amount of solute removed in a given time period by the dialyzer.
 - D. The resistance of the dialyzing membrane to solute diffusion.
20. Peritoneal dialysis solution usually is potassium-free because.....
- A. It is caustic to use intraperitoneal.
 - B. Peritoneal dialysis patients eat more potassium in the diet.
 - C. The slow process of chronic peritoneal dialysis does not remove excess potassium efficiently.
 - D. Potassium containing dialysis solution has a shorter shelf life.

21. Use isotonic dialysis solutions for long dwell exchange can result in.....
- A. Greater ultrafiltration.
 - B. More comfortable dialysis.
 - C. Decompensating acidosis.
 - D. Reabsorption of the dialysate.
22. What is the rationale for the use of small volume exchanges after catheter insertion?
- A. It increases patient comfort.
 - B. It decreases dialysate leakage.
 - C. Small volume exchanges may put stress on the incision
 - D. May increase wound healing
23. Dialysis solution is warmed to body temperature in order to
- A. Hinder clearance.
 - B. Promote vasoconstriction.
 - C. Prevent chilling
 - D. Increase in core body temperature
24. Why is dry heat the preferred method of warming dialysis solutions?
- A. It warms solution faster than water bath.
 - B. It is less expensive than using a water bath.
 - C. Water contains micro-organisms which may contaminate the peritoneal dialysis system.
 - D. Water baths require more space and not always available.
25. What is the rationale for using a closed system for peritoneal dialysis?
- A. To prevent loss of any dialysate and ensure accurate dialysate measurement.
 - B. To maintain asepsis and prevent contamination of the peritoneal cavity.
 - C. It simplifies the exchange procedure.
 - D. B and C

TOTAL= 25 MARKS

QUESTION 2

SCEANARIO:Mr. Dlamini has been on peritoneal dialysis for the past eight months, he stays 200km from the renal unit and weigh 92kg.

-CAPD regimes: Due to discomfort and working hours, he put himself on the following regimen: three 1 litre exchanges (08:00-1.5%, 16:00- 1.5% and 21:00 -4.25%) you suspect inadequate dialysis.

-his residual renal output diminishes over the past six months from 900ml to 200ml/day.

-he gained 5kg in 5 days

-complains of back pain and since yesterday about abdominal pain.

- he loves Simba chips.

2.1 What changes in his dialysis regimen will you consider in order to achieve adequate clearance? (5)

2.2 You suspect peritonitis is the cause of his abdominal pain. What will you instruct him to do and monitor at home, until he is able to come to the unit for treatment? (5)

2.3 Describe the reason for his fluid overload? (5)

2.4 You advise him to perform exercise to relief his back pain. Describe the specific exercises that will be suitable for him? (5)

2.5 What test will assist you in determining his dialysis adequacy and what will you take into consideration to do such a test? (5)

TOTAL = 25 MARKS

QUESTION 3

3.1 Describe the factors affecting the efficiency of peritoneal dialysis. (10)

3.2 Describe complications of peritoneal dialysis and their management. (15)

TOTAL = 25 MARKS