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**Abu Dhabi Nurse is a not-for-profit publication used as a nurse's professional training resource for Continuing Medical Education (CME) of current nursing employees of the General Authority for Health Services for the Emirate of Abu Dhabi.**

**Editor's Note :** Front Cover "Putting the UAE on top of the world" Earth from space by NASA courtesy Pics 4 learning.



## LETTER FROM THE PROGRAMME DIRECTOR

Welcome, to the very first issue of the Abu Dhabi Nurse. This magazine was born out of the needs expressed by you, the professional nurse working in Abu Dhabi. The mission of the Continuing Medical Education Unit of the General Authority for Health Services is to support the continuing professional development of health professionals within the Emirate of Abu Dhabi, by offering opportunities to enrich and extend their knowledge. Each hospital Nursing Department continues to provide continuing education for their staff, this nursing magazine is an initiative of cooperation between various nurse educators across the Emirate in order to provide you with relevant and interesting nursing information that you can turn into opportunities for learning at a time and place that suits you.

In this issue, we begin to discuss ways you can turn information into a meaningful learning experience, information you may find in a magazine like this one as well as clinical information you gain working with colleagues and our patients can all be opportunities to learn from. We have included clinical updates as a regular feature of the magazine that may stimulate you and improve your practice. One of our first articles is on 'reflection'; you might like to reflect on one of the clinical articles and how you would apply it. Talk over the issues you have read about with your colleagues, you might find your tea break could be quite enlightening; yes, learning can even take place as you read and talk it over with someone even whilst having a cup of tea.

Nurses are the real face of our hospital system, it is difficult to imagine a hospital without a nurse, for it is often the nurse who is the first and last health professional a patient comes into contact with. One story highlights how a group of nurses have improved patient care by improving their initial contact with patients before the day of admission for a procedure.

Abu Dhabi Nurse welcomes your stories, and invites you to contribute to the professional body of knowledge of nurses in Abu Dhabi. Unfortunately, we have had no Arabic contributions for this first issue, we encourage contributions in either Arabic or English. There are instructions for contributions contained in the magazine, if you need further assistance please contact one of the editorial team in your facility.

Lastly, I want to give special thanks, in this very first issue, to the Chairman of the Abu Dhabi Continuing Medical Education Committee, Dr. Wael Almahmeed, for his tireless support of continuing education for all health professionals and his assistance in getting this first issue off the ground.

**Shaun D Bowden,**  
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Mafraq Hospital

Programme Director for CME activities  
for the Department of Nursing GAHS in the  
Emirate of Abu Dhabi

# Introducing members of the team working for your continuing multidisciplinary education

## Al Ain Hospital

*Aruna Samuel MScN RN RM*

Aruna obtained her Masters degree in 1989 specialising in Community Health Nursing. She has worked as a Lecturer in a College of Nursing - India, later actively involved in Nursing Administration in Oman. Currently functioning as a Manager of Nursing & Family Education.

## Al Jazeira/Central Hospital

*Dorothy Weber RN RM ROrthN CertNeuro/Surg RNEd RComHN BA(Cur) DipAdvNs*

Working in a nursing education role for the past seven years and is currently the Nurse Educator for both hospitals. At present, she is in the final stages of her Masters of Arts in Nursing.

## Corniche Hospital

*Beryl King PGDE, PGD (Adv Prac), BSc (HONS) Nursing, RN, RM, RMT, ENB 405, ITEC Massage*

Beryl currently works as Education Officer at the Corniche. Prior to this she had experience within higher education and hospital establishments in the UK. Her professional areas of interest are Neonatal Care, Career Counselling, Bereavement, Complementary Therapies and Transcultural Nursing. She recently became a qualified Stress Management Advisor.

## Mafrq Hospital

*Shaun D Bowden RN Cert- TESOL  
DipFIMan BN MN(Adv Prac)*

Shaun has been involved with nursing education and organisational wide training for over a decade in both hospitals and tertiary institutes. He was conferred his Masters of Nursing degree in Advanced Practice in 1997 as a practitioner in Australia, and holds further qualifications in both teaching and management.

## Sheikh Khalifa Medical Center

*Roberta Blakely RN BEd CNeph(C)*

Roberta is the Clinical Resource Nurse for Nephrology at SKMC. Her primary areas of interest include renal transplantation and paediatric haemodialysis. She is currently finishing her Masters focusing on 'Ethics in Transplantation'.

## Tawam Hospital

*Peggy Schofield BScN, M.Ed.*

Peggy is the Inservice Education Supervisor at Tawam Hospital. She has been working in the Middle East as a Nurse Educator since 1986, 13 years in Riyadh, Saudi Arabia and 4 years in Al Ain. Her most recent accomplishments are certification in teaching English as a second language and finally being able to interpret ECG's for the ACLS course.

## MULTIDISCIPLINARY WOUND CARE SYMPOSIUM

A recent wound symposium held in Abu Dhabi was a resounding success. Over two hundred attended this multidisciplinary event held on June 9th at the General Authority for Health Services for the Emirate of Abu Dhabi. It was organized by the multidisciplinary wound care team from Shaikh Khalifa Medical Center and funded by local companies.

During the interactive lectures by Physicians from the departments of Dermatology, Vascular Surgery, Plastic surgery and Infectious diseases, they highlighted the basic principles of wound healing as well as illustrated the various aetiologies of chronic wounds and explored therapeutic strategies of chronic wound care. The symposium provided an opportunity to foster the development of a health care professional network within the UAE. The team of expert presenters, whilst highlighting their own unique experience in the UAE, addressed evidence-based approaches to wound management, current practices and guidelines.

Allotted time was incorporated for participants to view exhibits and discuss with company representatives the array of wound care products available and the ways in which these products are best used. Further displays organised and demonstrated by wound care nurses included actual and video demonstrations of wound cleansing, dressing and compression therapy techniques. A diabetes clinician provided helpful information regarding foot care, prevention and screening for the diabetic foot. The overwhelming success of this event, and the positive response from participants indicated that there is a definite interest and will inspire the team to try and make this an annual event.

# Continuous Ambulatory Peritoneal Dialysis (CAPD)

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Adapted from Self Learning Package on CAPD  
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## INTRODUCTION

Peritoneal dialysis is a preferred treatment option for many patients with end stage renal disease. The increasing numbers of patients with renal disease means that more of our hospitalised patients will require specialised knowledge and nursing skills pertaining to this treatment. The following information will outline the process of peritoneal dialysis and the associated complications.

The purpose of this article is to give you a basic level of knowledge about peritoneal dialysis and the way these patients are cared for.

Upon completion of this article, you should be able to:

1. Describe the location of the peritoneal cavity.
2. Explain diffusion and osmotic ultrafiltration in relation to peritoneal dialysis.
3. Describe the post-op care required after insertion of a peritoneal catheter.
4. Define peritoneal dialysis.
5. Identify the reasons for selecting different dialysis solutions.
6. Describe the management and prevention of peritonitis.
7. Describe possible complications of peritoneal dialysis and their management.

## RENAL FAILURE

- Some factors that can significantly affect renal function include:
  - Diabetes

- Hypertension
- Surgery (e.g. Abdominal Aortic Aneurysm resection, Coronary Artery Bypass Graft)
- Allergic reactions to antibiotics or radiologic dye
- Myocardial Infarction
- Cancer or anti-carcinogenic drugs.
- Healthy kidneys:
  - Regulate electrolytes
  - Maintain acid-base balance
  - Regulate fluid
  - Remove waste products
  - Produce hormones.

When kidneys are damaged, each of the functions may be impaired to some degree. When a person has less than 10% of their kidney functions remaining, they are said to have "End Stage Renal Disease" (ESRD). Patients with ESRD have only 2 options if they wish to live: transplant or dialysis. Not all patients are eligible for a kidney transplant but most are able to receive dialysis. Patients and their physicians consider many medical and personal factors and then decide on either peritoneal or haemodialysis. No two patients are exactly alike and dialysis prescriptions are individualized accordingly.

## GENERAL PRINCIPALS OF PERITONEAL DIALYSIS

When normal kidney function begins to fail, the processes of removing waste products, and regulating fluid, electro-

lyte and acid-base balance need to be replaced by another method. Peritoneal dialysis is a form of dialysis that uses the body's own peritoneal membrane to perform these functions. Dialysate solution is instilled into the peritoneal cavity through a catheter. Waste products and extra water in the blood travel into the dialysate solution (across the peritoneal membrane). The dialysate containing the waste products and excess fluid are then "drained" from the body and discarded.

There are two main types of peritoneal dialysis that are in current use.

- Continuous Ambulatory Peritoneal Dialysis (CAPD):
  - fluid is always in the abdomen and is drained and replaced with fresh fluid approximately 4 times per day. Each "drain & fill" is called an exchange. Each exchange takes 30-45 minutes. The length of time the dialysate remains in the peritoneal cavity is referred to as the "dwell time". This varies from 4 - 8 hours.
  - Continuous Cycling Peritoneal Dialysis (CCPD):
    - also called automated peritoneal dialysis (APD).
    - fluid is drained and replaced into the abdomen at night while the person is asleep, using a small machine called a cycler. Fluid is may be left in the abdomen during the day to continue filtering waste.

**PERITONEAL DIALYSIS (PD): INDICATIONS & CONTRAINDICATIONS**

If you were suddenly faced with renal disease and the failure of your kidneys would you choose peritoneal dialysis? This is a difficult decision, but for many patients it is the treatment of choice next to receiving an organ transplant. Global utilization of peritoneal dialysis varies from 6% to 91% depending on where you live in the world. The following chart reviews some of the factors that are considered when a method of dialysis is selected.

	Medical Considerations		Psychosocial Considerations
<b>PD Strongly Indicated</b>	Age 0 - 5 years Vascular access difficult to establish Prosthetic valvular disease	Refractory chronic heart failure Problems on hemodialysis	Lives a long way from hemodialysis center Strong patient preference Strong need for autonomy, independence, or control
<b>PD Preferred</b>	Age 6 - 16 years Cardiovascular diseases/HTN Chronic disease: - multiple myeloma - labile diabetes - HIV positive - hepatitis B or C positive	Transfusion problem known bleeding disorder	Active lifestyle Variable schedule Travel Needle anxiety Demand for flexible diet
<b>PD or HD (hemodialysis) Equally Preferred</b>	Diabetes mellitus Polycystic kidney disease Chronic, stable angina	Peripheral vascular disease Scleroderma	
<b>PD not Preferred, but Possible with Added Considerations</b>	Large size (obesity) History of diverticulitis Severe low-back pain Hiatus hernia with reflux esophagitis	Multiple abdominal surgeries Impaired manual dexterity Blindness Hernias	Severe depression Social support needed Poor compliance
<b>Relative Contraindication for PD</b>	Severe malnutrition Multiple abdominal adhesions Ostomies Proteinuria > 10g/day Severe diabetic gastroparesis Severe hypertriglycerdemia	Advanced COPD Ascities  Patient with ventriculo-peritoneal shunt Transplant within 1 month	Chronic or poor hygiene Dementia Concern about body image
<b>Contraindicated for CAPD</b>	Severe inflammatory bowel disease Acute active diverticulitis Active ischemic bowel disease Abdominal abscess Starting dialysis in the third trimester of pregnancy		Severe active psychotic disorder or manic depressive Marked intellectual disability with no helper

Modified from Hamburger et al., Dial Transpl 1990; 19(2):66-69.

**PERITONEAL MEMBRANE & DIALYSIS**

Knowledge of the anatomy of the peritoneum and peritoneal membrane is essential to understanding how this form of dialysis works.

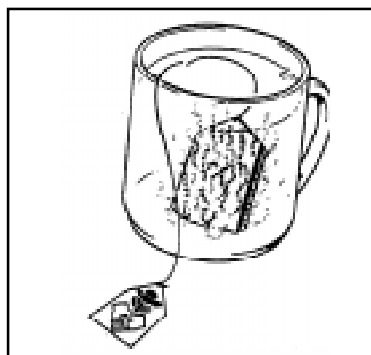
The peritoneal space is a "potential space" located between the parietal and visceral peritoneum. This space normally contains less than 10cc of fluid but has the capacity to hold large volumes of fluid (e.g. chronic ascites).

The peritoneum (membrane) is a serous membrane consisting of:

- Visceral peritoneum which covers the abdominal organs.
- Parietal peritoneum which covers the anterior abdominal wall and undersurface of the diaphragm.

The peritoneal membrane is composed of blood vessels, connective tissue, and a cellular lining that is a living selectively permeable membrane. The membrane allows waste to pass through the pores but prevents blood cells from

passing though, the same way a tea bag allows tea to pass through but keeps the leaves in the bag.



Dialysis takes place between the capillaries of the peritoneal membrane and the "dialysate", a solution that is infused into the peritoneal cavity. This occurs across the peritoneal membrane.

Peritoneal permeability can be affected by infection or changes in blood flow to the peritoneal membrane. Scarring from surgery or infections for example can reduce the surface area of the peritoneum available for dialysis. Vascular changes associated with diabetes

mellitus can decrease peritoneal permeability making it inefficient.

**Diffusion & Ultrafiltration**

Diffusion and osmotic ultrafiltration are the two main methods of water and waste product transport across the peritoneal membrane.

**Diffusion**

- Accounts for 99% of waste product (solute) removal.
- Is the movement of molecules or other particles in liquids from a region of higher concentration to lower concentration.
- This takes place between the blood in the capillary bed of the peritoneal membrane and the dialysate in the peritoneal cavity.
- It is affected by the selective permeability of the membrane, the molecular weight of the solute, temperature of the dialysate, and the concentration gradient between the blood and the dialysate.

**Osmotic Ultrafiltration**

- Is the primary mechanism for excess water removal.
- Is the movement of water which occurs along with solutes across the membrane.
- High dextrose concentrations are the most commonly used osmotic agent in dialysate solution.

**Example**

When 2 litres of 2.27% dextrose dialysis solution is infused and allowed to dwell for four hours there is a net loss

of approximately 400 ml of fluid. The peak volume loss (ultrafiltration rate) occurs at 2 to 3 hours into the dwell time and then decreases as the dialysis and blood concentration gradient equilibrates.

**Note:** The use of glucose as the osmotic agent may cause changes for some diabetic dialysis patients. If hypertonic solutions are used (ie. 3.86% dextrose) insulin **may** need to be added to the dialysate to counteract the possible hyperglycemia.

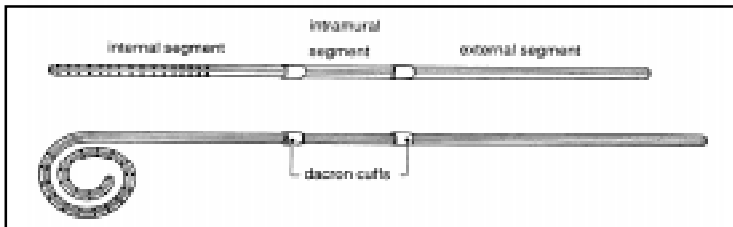
**PERITONEAL ACCESS**

Peritoneal catheters allow access to the peritoneal cavity for instillation and removal of dialysate. There are temporary (acute) accesses and permanent (long-term) accesses. In this article we will look at the permanent access catheters. The use of haemodialysis for emergencies means "acute" peritoneal dialysis is rarely performed. The Tenckhoff® Catheter is the most commonly used catheter for long-term access. It is made of silicone rubber with one or two Dacron cuffs. Each segment of the catheter has a particular function:

**Internal Segment** : Located in the peritoneal cavity has multiple small holes for inflow and outflow of fluid.

**Intramural Segment** : Located in the tunnel and has one or two cuffs to anchor the catheter, to prevent solution leakage and to prevent entry of bacteria into the peritoneum.

**External Segment** : Located outside the body and allows connection to the solution delivery solutions.



The placement of this catheter is a procedure which can be performed by the nephrologist in the Peritoneal Dialysis Unit using a local anaesthetic or a surgeon in the Operating Room using general anaesthetic. If the patient has other medical conditions such as multiple abdominal adhesions the procedure is usually done in the Operating Room. The catheter is first inserted into the peritoneal cavity. Then a second incision, lateral to the insertion site is made and the catheter is tunneled and pulled through to the surface. The Dacron cuffs are located in the tunnel.

**Beginning Peritoneal Dialysis**

The catheter tunnel should ideally be allowed to heal for a minimum of 10 to 15 days after insertion. When dialysis starts, low volume (1000ml) exchanges and positioning the patient in a supine position will decrease the incidence of leakage and other problems. If immediate dialysis is required then haemodialysis may be used as an interim measure.

**PRE AND POST-OP MANAGEMENT AFTER INSERTION OF A PD CATHETER**

Pre-op Care	Post-op Care
<ul style="list-style-type: none"> <li>- Patient education regarding care of catheter</li> <li>- Site should be selected away from the belt line.</li> <li>- Prophylactic antibiotics given on insertion.</li> </ul>	<ul style="list-style-type: none"> <li>- Avoid coughing or straining of the abdominal area.</li> <li>- Prevent constipation.</li> <li>- Ensure catheter is well secured to avoid tugs or pulls.</li> <li>- Sterile dressing change every day. (cover the catheter exit site with a large Mepore dressing until incision is healed and sutures are removed).</li> </ul>

**Exit Site Care**

Daily care of the exit site is very important to prevent infection. Patients may use a variety of techniques at home but in the hospital they must have a dressing to cover the catheter exit site.

**Daily Assessment**

Assess the exit site and along the tunnel for:

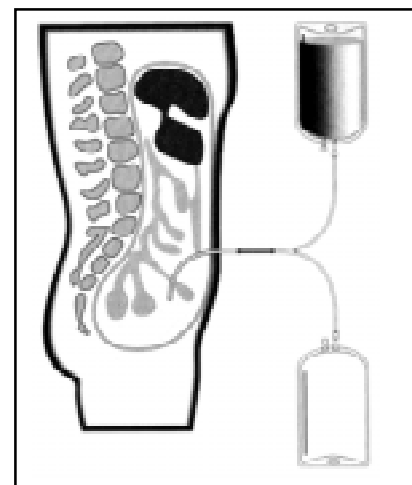
- Redness of surrounding skin
- Drainage from exit
- Bleeding
- Tenderness
- Fever

**Treatment**

- Sterile dressing changes every day and when necessary.
- Ensure catheter is well secured to avoid pulling.
- Patients are permitted to shower 4 weeks after the peritoneal catheter is inserted, providing the catheter exit site is well healed and the peritoneal unit has been consulted. Dressings must be changed after the shower. Baths are not permitted.

**DIALYSIS EQUIPMENT**

**Delivery Systems**



- An extension tubing is attached to the peritoneal catheter which allows the patient to connect to the dialysis solutions. The transfer set is usually changed every six months by staff in the Peritoneal dialysis Unit. The transfer set is protected between each treatment by a sterile cap which is lined with a sponge soaked in (Iodine skin

preparation) Betadine. It is changed with each exchange (four times a day with the disconnect system, one a day with the cyclor system).

- One type of dialysis system is called a 'disconnect' or "twin-bag" system of dialysis. This system is a set that includes the dialysis solution, a drain bag, and tubing all connected together. Approximately four times a day the patient will remove the cap and connect the tubing. They will first drain out the "old" fluid, and then fill with fresh dialysate. The entire procedure takes about 35 minutes. When complete the patient disconnects the tubing and attaches a sterile cap. The bag, tubing and old solution are discarded.
- A second delivery system is a machine called a "cyclor" that is set up beside the patient's bed. This system requires a cyclor machine, special tubing designed for the machine, solutions and a cap for the extension set. Solutions and tubing are set up each night and the tubing is connected to the patient's extension set. While the patient sleeps, the cyclor regulates the fluid, allowing a specified amount to fill the abdomen, dwell, then drain, repeating the cycle until the dialysis is finished the next morning. When the patient's treatment is finished, he attaches a sterile cap to the extension tubing as above.

## Dialysis Solutions

### Dextrose Dialysis Solutions

The most common dialysis solutions use dextrose as the osmotic agent. These solutions are available in a variety of glucose concentrations and volumes. Glucose concentrations available include 0.5% (hypotonic), 1.36% (isotonic), 2.27% (hypertonic) and 3.86% (very hypertonic). Volumes range from 2 to 3 litres. Some solutions are stocked in the hospital and others are available through special order. Each patient will have a dialysis prescription written by the physician. The physician orders the volume, frequency and concentration of exchanges.

### Low Calcium Solutions

Low calcium solutions also use glucose as the osmotic agent; however, the percentage of calcium is lower than the standard solutions. There are 2.5 meq/1 of calcium in the "lo-cal" bags and 3.25 meq in the "standard" solutions. The increasing use of calcium carbonate as

a phosphate binder has led to the use of low calcium solutions to help reduce the incidence of hypercalcemia that is sometimes associated with calcium salt administration.

### Nutrineal

Nutrineal is an amino acid dialysate that prevents excessive protein depletion for patients on peritoneal dialysis. In most circumstances, only one bag of Nutrineal is used per day. It is considered an isotonic solution because the bags contain 1.1% amino acids that give ultrafiltration equivalent to a 1.36% glucose solution. Nutrineal may be scheduled at any time, although an exchange near the main meal is preferred.

### Extraneal

Extraneal is a nearly isotonic solution that uses 7.5% Icodextrin instead of glucose for osmotic effect. Icodextrin has a strong osmotic effect similar to albumin. Extraneal is usually recommended as a once daily exchange and is scheduled for the longest dwell period.

## Medications Added To Dialysis Solutions

There are a variety of medications that can be added to dialysis solutions prior to instilling. This is done only when necessary because it may increase the risk of bacterial contamination.

### 1. Heparin

Usually 1000 iu is used in each dialysate bag when fibrin is present or the dialysate is slow to drain. It may also be used routinely during the initial days or weeks after catheter insertion to prevent blood clots from obstructing the catheter.

### 2. Potassium Chloride

Dialysis solutions do not normally contain potassium. Most patients maintain normal potassium by adequate dietary intake. Some patients may develop hypokalemia and the addition of potassium to the dialysis solution may help promote "normokalemia".

### 3. Insulin

Regular insulin may be added to the dialysis bag to help regulate blood sugars. Sometimes the physician will order insulin to be added to each bag based on the dextrose strength (i.e. add 2 units to a 1.36% bag, 4 units to a 2.27% bag and 6 units to a 3.86% bag). Insulin added to dialysate may be

the only insulin ordered OR may be in addition the regular subcutaneous insulin the patient receives. This will require co-ordination of dialysis, blood sugars and meals.

## 4. Antibiotics

A variety of antibiotics are given intra-peritoneally (IP) usually for peritonitis. Intra-peritoneal (IP) administration of antimicrobials is generally more efficacious than systemic antimicrobials for treating peritonitis.

## PATIENT ASSESSMENT

The actual procedure for performing an exchange is very simple. It has been developed as a procedure for a patient and/or family who have little or no medical knowledge. The most important part of the exchange is the assessment which the patient is taught to perform. If the patient is admitted to the hospital, the nurse usually becomes responsible for assessments. The assessment should include:

### 1. Cardiovascular Status

Include HR, BP - lying and standing. (to assess for postural drop).

### 2. Fluid Balance

Assess for signs and symptoms of dehydration/overhydration. The patient's "dry weight" (drained weight) is an essential part of clinical monitoring. Whenever possible, regular patient weights should be performed. The selection of appropriate dialysate solutions is based on their fluid balance.

### 3. Catheter Exit Site, Tunnel and Drained Dialysate

Assess for signs and symptoms of infection. Drained dialysate should be clear although the color may vary from pale to dark yellow depending on diet and medications.

The catheter exit site should be clean and well healed and free of drainage of any kind. Both the exit site and tunnel should be free from pain or tenderness.

Pain, tenderness and/or drainage from the exit site or tunnel indicates infection. Dialysate that is cloudy is the most common indication of peritonitis, followed by fever. The presence of fibrin (protein fibers) may indicate early peritonitis.

## **NURSING CARE OF PATIENTS RECEIVING PERITONEAL DIALYSIS**

Patients receiving peritoneal dialysis face a multitude of special problems. Some things to consider when caring for a PD patient are the following:

### **1. Blood Pressure**

This may become very labile as diseased kidneys often lose the ability to effectively regulate BP. Many patients will be receiving multiple anti-hypertensive medications.

### **2. Production of Red Blood Cells**

The kidneys are no longer producing erythropoietin (EPO) to stimulate red blood cell production. Patients will require medication 1-3 times per week to prevent anaemia. EPO takes 4 - 6 weeks to increase haemoglobin. The patient may also require iron supplements that enable the EPO to work effectively.

### **3. Regulation of Calcium and Phosphorus**

The normal kidney helps maintain calcium and phosphorous at normal levels. In ESRD the patient will often have elevated phosphorous levels, which causes changes in bone metabolism. If left untreated the changes can result in debilitating bone loss and potentially life-threatening soft tissue calcification. Patients are asked to limit dietary intake of dairy products and use phosphate binders such as calcium carbonate. These bind with the phosphorous in the gut to prevent phosphate absorption. However, calcium can be absorbed and patients must be observed for hypercalcaemia. Phosphate binders must be given with meals to be effective. If phosphate levels rise, patients often become itchy and may develop calcium deposits in soft tissue areas like heart valves.

### **4. Malnutrition**

CAPD patients lose 6 - 12 grams of protein per day through their drained dialysate. This means dietary intake of protein must increase. This is often a substantial change from their recommended pre-renal diet. Many ESRD patients also experience anorexia, which makes it difficult to maintain adequate intake. The use of Nutrineal and nutritional supplements is often a part of their management.

### **5. Diabetes**

A significant number of renal patients are also diabetics. Morbidity

and mortality are substantially higher in this patient population and there are many challenges in providing peritoneal dialysis. For example, the use of glucose in the dialysate solution complicates blood sugar control but episodes of hypoglycaemia are rare when compared to haemodialysis. The associated co-morbid conditions of diabetes are accentuated with ESRD. Problems associated with this patient population include:

- Difficult vascular access (for hemodialysis patients)
- Glycemic control
- Angina, MI
- Visual impairment
- Foot ulcers
- Peripheral vascular disease, limb amputation
- Gastroparesis
- Neuropathic problems
- Malnutrition

Due to vascular changes in the peritoneal membrane and changes in transport capability, less than half of the diabetic peritoneal dialysis patients remain on this mode of treatment after two years.

## **COMPLICATIONS OF PERITONEAL DIALYSIS**

### **Infection / Peritonitis**

Infections cause much of the morbidity associated with peritoneal dialysis. The incidence in CAPD is approximately one episode per patient per 18-36 months. Regular assessments for signs of infection are essential in early intervention and treatment. Three primary areas are assessed:

- Dialysate fluid
- Exit site
- Tunnel.

The causative organism is variable and prognosis depends upon identification of site of the inflicting organism. The infection may lead to removal of the catheter, conversion to hemodialysis for 4 - 6 weeks and prolonged antibiotic therapy. Repeated infections leave the peritoneal membrane scarred and less effective, often necessitating a change to haemodialysis permanently.

Prevention of infection is essential. Potential routes of infection include:

- Periluminal: bacteria on skin surface enter via poor technique, or trauma to exit site.

- Haematogenous: bacteria travel via bloodstream.
- Transvaginal: ascending from the vagina.
- Bowel leaks - transmural from the bowel especially with diverticular disease.

Prevention techniques include good hand washing, -wearing a mask during procedures, **strict** aseptic exchanges, treatment of constipation and early treatment of other bacterial infections.

### **Fluid Balance**

The fluid assessment is essential in providing adequate dialysis and safe care. Hypotension is usually the result of hypertonic solutions combined with malnutrition and decreased salt intake. The treatment consists of increasing salt and water intake and decreasing the strength of solutions. Hypervolaemia is the opposite, too hypotonic solutions combined with increased fluid intake. This treatment consists of increasing the strength of solutions and evaluating intake from all sources.

### **Metabolic Complications**

There are a variety of metabolic conditions that must be monitored including:

- Hyponatraemia/hypernatraemia
- Hypokalaemia/hyperkalaemia
- Alkalosis/acidosis
- Protein malnutrition
- Obesity
- Hypertriglyceridaemia.

### **Complications Related to the Abdominal Wall**

Abdominal hernias develop in about 10% of patients on CAPD due to the increased inter abdominal pressures. Scrotal or labial oedema may develop and usually occurs early on in treatment. It is often the result of dialysate leakage through hernias or catheter tracks. Low back pain may become a severe problem sometimes forcing a modality change.

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# Care of New Dialysis Fistula or Graft

By Roberta Blakely  
Clinical Resource Nurse, SKMC

Arterio-venous fistulas and grafts are special, surgically created vascular accesses that allow haemodialysis nurses to "access" the blood and perform haemodialysis. Do you have a patient on your ward with a fistula or graft that is used for haemodialysis? Are you familiar with the recommended care for these vascular accesses? Below are a few tips for caring for patients with established and newly created accesses.

## After the operation

- Keep arm elevated above heart to reduce swelling
- Do not use tight or encircling bandages, use only loose dressings
- Change the dressing daily until the sutures are removed
- Check frequently for bleeding and swelling
- Encourage patient to use the arm as normally as possible (eating, grooming, etc) as this will help increase circulation and decrease swelling
- Some pain and swelling is expected. However, notify the doc-

tor right away if you notice

- Increased pain that does not go away
- Numbness
- Signs of infection
- Sutures should be removed after 7-10 days. This is longer than most other types of patients because renal patients tend to be immunocompromised and heal slower.

## After first week

- Check the access daily for a bruit, which indicates the new fistula or graft is working well. Show your patient how to check for this by listening for a buzzing sound, or feeling for a vibration. Notify the doctor right away if this is not present.
- Advise the patient not to:
  - wear restrictive clothing or jewellery on the access arm
  - carry heavy objects on the access arm
  - sleep on the same side as your access

## Exercises (FISTULAS ONLY)

- Exercising is advised for patients with newly created fistulas to help the veins enlarge so they can be used for dialysis. This may take up to 12 weeks, depending on the person's veins. Grafts do not need exercising, as they will not change.
- Exercising may begin after the sutures have been removed
- Start by having the patient squeeze a soft ball for five minutes, three times a day. After one week, create pressure above the fistula by applying a light tourniquet, then squeeze a soft ball for 5 minutes, three times a day

Please arrange for the patient to visit a dialysis nurse if they have any questions or need more information.

**NEVER allow anyone to use a haemodialysis access arm for taking blood pressure or blood samples, or for starting an intravenous, unless authorized by a nephrologist!**

## 5th National MOH Nursing Initiatives Symposium: Comfort with Change - Change with Comfort

The Federal Department of Nursing is proud to announce the Fifth National Ministry of Health Nursing Initiatives Symposium. This symposium focuses on and celebrates nurses' unique ability to initiate and manage change in various health care contexts - being at ease with change in its various forms and application in the UAE.

Nurses are kindly invited to submit abstracts for presentation at this symposium.

**Date(s) and venue:** May 2nd & 3rd 2004 - Venue to be confirmed.

**Presenters - target group:** Although the emphasis will be on presentations from clinical practice, abstracts from nursing education and nursing management will also be considered.

**General guidelines:** All abstracts submitted for presentation will be assessed using a blind review process and prospective presenters will be informed of the outcome. Nurses presenting at this prestigious event will also be supported by the Federal Department of Nursing to enhance their presentation skills through a workshop presented prior to the event.

**Nurses are advised to keep the following guiding principles in mind when planning both the abstract and presentation:**

- Relate to and provide evidence of contemporary approaches within or related to clinical practice - keeping in mind the conference theme.
- Provide evidence of scientific / critical thinking - for example problem solving or research approach used.
- Emphasize nurse's role, involvement and contribution within a team framework.
- Provide evidence of logical process and / or structure utilized - for example placing problem / issue in context, describing process followed, outcome(s) achieved, recommendations and limitations.
- Utilise recommended guidelines provided for preparing abstracts - please contact the FDN for an 'Abstract Accompanying Form'.

**Final date for submission of abstracts:** The Federal Department of Nursing - **Continuing Education & Research Development Section (CERD)** to receive Abstracts and Abstract Accompanying Forms not later than **30th October 2003**.