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VOL.17 NO.4 APRIL 2012

## Nephrology



Hong Kong Sanatorium & Hospital

# LI SHU PUI SYMPOSIUM 2012

## Contemporary Medical Practice



**Date: 17 June 2012 (Sunday)**

**Venue: N201, L2, Hong Kong Convention & Exhibition Centre (New Wing)**

<b>08:15 - 09:00</b>	Welcome Keynote Lecture 1: Hong Kong Sanatorium & Hospital in Evolution	Dr. Joseph CHAN Dr. Walton LI
<b>09:00 - 10:00</b>	Symposium 1 Minimally Invasive Procedure – Is There a Limit? Minimally Invasive Aesthetic Surgery for Breast The New Landscape of Interventional Cardiology Recent Advance in Minimally Invasive Surgery Can Spinal Surgery be Minimally Invasive?	Chairperson Dr. William WEI   Dr. Duncan HO Dr. Walter KING Dr. Vincent KWOK Dr. Michael LI Dr. Stephen WU
<b>10:00 - 11:00</b>	Symposium 2 Obstetrics/Paediatrics in 2012 Changing Trends of Prenatal Diagnosis Puberty, Genes and Environment The Success of IVF – Experience Over a Quarter Century Paediatrics Oncology – Drugs, Needles and What?	Chairperson Dr. YEUNG Chap Yung   Dr. Helena LAM Dr. Danny LEUNG Dr. Louis LOW Dr. Milton LEONG Prof. Godfrey CHAN
<b>11:15 - 12:15</b>	Symposium 3 Early Diagnosis of Cancer and Effective Therapy Improved Clinical Outcome of Patients with Leukaemia, Lymphoma and Myeloma Lung Cancer – Biomarkers & Diagnostic Tools Screen-Detected vs Self-Discovered Breast Cancers: A Hong Kong Study Surgery for Gynaecological Cancer	Chairperson Dr. KWAN Wing Hong   Dr. Thomas LEUNG Dr. Raymond LIANG Dr. Edmond MA/Dr. CHAN Wai Kong Dr. Polly CHEUNG/Miss Silvia LAU Dr. TAM Kar Fai
<b>12:15 - 13:15</b>	<b>Li Shu Pui Lecture</b> <b>PET in Contemporary Medical Practice</b>	Chairperson Dr. Garrett HO <b>Prof. Michael M. GRAHAM</b>
<b>13:15 - 14:00</b>	Lunch	
<b>14:00 - 15:00</b>	Symposium 4 Ultrasound, MRI, CT, PET – When and How? Ultrasound Sonography Applications in Pain Management Brief Overview of Interventional Radiology MRI for Head & Neck Diseases Hidden Treasures Behind Our CT Scanners	Chairperson Dr. Daniel CHUA   Dr. YEUNG Wing Hang Dr. Carina LI Dr. Victor AI Prof. Ann KING Dr. John CHAN
<b>15:00 - 16:00</b>	Symposium 5 Endoscope in Diagnosis and Therapy Endo-Laparoscopic Management of Co-Existing Gall Bladder & Common Bile Duct Stones Gynaecology – Endoscopic Surgery Optimal Surgery for Prostate Cancer – The Robot Colorectal Surgery with Endoscope	Chairperson Dr. FAN Sheung Tat   Dr. LAM Bing Dr. Angus CHAN Dr. YUEN Pong Mo Dr. WONG Wai Sang Prof. LAW Wai Lun
<b>16:15 - 16:45</b>	Keynote Lecture 2: A New Era of Functional CT and MR Imaging	Dr. Gladys LO
<b>16:45 - 17:45</b>	Symposium 6 Advances for Primary Care Diabetic Eye and Macula Eye Disease How Can Rehabilitation Medicine Help? The Cutting-Edge Technologies for Cutting Bone Accurately in Knee Replacement Strategy in Managing Chronic Constipation	Chairperson Dr. Alvin KWOK   Dr. Elaine TSUI Dr. CHAN Wai Man Dr. Alex CHOW Dr. TANG Wai Man Dr. CHAN On On

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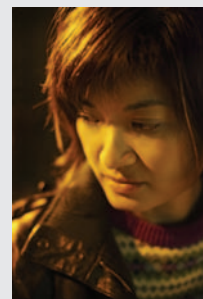
This photo was taken in Brussels in 2008.

This fountain acted as one of the many fountains supplying drinking water to the city a few centuries ago.

This photo demonstrated how the use of light could enhance photographs.

The use of side light caused the bronze statue to appear three-dimensional and the urine stream to sparkle.

By careful positioning the stream in the shadow of the background wall during execution, the side light reflected was further enhanced.



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Full prescribing information is available upon request.

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## Editorial

### Dr. Wai-kay TSANG

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Specialist in Nephrology

**Editor**



Dr. Wai-kay TSANG

According to the Hospital Authority's Renal Registry, there were 3308 patients on renal transplantation, 782 patients on haemodialysis and 3434 patients on peritoneal dialysis as of December 2010. Diabetic nephropathy (DMN) is the leading cause of end-stage renal disease (ESRD) worldwide and in Hong Kong. It is a clinical syndrome characterised by persistent albuminuria (> 300 mg/day), progressive decline in glomerular filtration rate and hypertension. Treatment strategies to control hypertension, proteinuria and to retard progression to ESRD are of vital importance.

Dr. Gary CHAN and Prof. Sydney TANG update the therapeutic approach to DMN. Apart from optimising the glycaemic and blood pressure control, blockade of the renin-angiotensin system confers additional anti-proteinuric and renoprotective effects in DMN. Angiotensin converting enzyme inhibitors (ACEi) or angiotensin II receptor blockers (ARB) are widely used in treating patients with DMN. However, RAS blockade is not complete by either ACEi or ARB. Combination therapy of ACEi and ARB, ARB and direct renin inhibitor, aliskiren, or ARB and spironolactone have been attempted to control proteinuria and to retard renal progression. The efficacy and side effects including hyperkalaemia are discussed.

Prof. Cheuk-chun SZETO writes on several practical issues related to the management of diabetic patients with chronic kidney disease (CKD). It is important to achieve tight glycaemic control and watch out for the increased hypoglycaemic risk. Anti-diabetic drugs should be revised to avoid biguanides, alpha-glucosidase inhibitors and pioglitazone. Moreover, screening for anaemia, treatment of hypercholesterolaemia and vitamin D supplement should be started early in the course of CKD.

Hyperphosphataemia often occurs in dialysis patients despite dietary restriction and usage of phosphate binders. It will cause cardiovascular calcification and secondary hyperparathyroidism, which remarkably impairs their prognosis. Hyperphosphataemia can be effectively controlled by Nocturnal Home Haemodialysis (NHHD). NHHD Programme has been started in 2006 in Hong Kong. Dr. Hon-lok TANG and Dr. Matthew Kwok-lung TONG share with us the beneficial effects of NHHD including better adequacy of dialysis, improved control of hyperphosphataemia and blood pressure, decreased erythropoietin dose requirement to treat anaemia and better quality of life.

Kidney transplantation is the best option of renal replacement therapy. Renal allograft recipients have better patient survival and good quality of life. The deceased kidney donation rates were 34.4, 21.9 and 7.5 donors per million population in Spain, USA and Hong Kong



respectively in 2009. There are 1717 patients waiting for renal transplant in Hong Kong in 2011. Promotion of living kidney donation should be encouraged in order to increase the donor source. However, the long-term safety of donor uni-nephrectomy is one concern. Dr Chu Kok-hong analyses the long-term effects of donor uni-nephrectomy at the Princess Margaret Hospital. He concludes that the risks of hypertension and progression to CKD in living kidney donors are not significant in well selected candidates.

Dr. Tze-hoi KWAN is invited to share his hobby of bird watching, a relaxing hobby with families or friends. Many renal patients still remember the joy of the bird watching activity organised by the Hong Kong Society of Nephrology at the Mai Po Nature Reserve 10 years ago. I hope our readers will enjoy reading this issue of the Medical Diary which has covered various fields of nephrology.



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**Joint Scientific Meeting** of the  
Hong Kong Surgical Laser Association  
*and*  
The Hong Kong Medical Association



- Date:** 24 April 2012 Tuesday
- Venue:** Shantung Room, Level 8, Langham Place Hotel, Mongkok
- Time:** 7:00 pm Annual General Meeting 2012  
7:30 pm Scientific Meeting
- Topics:**
  1. IPL Treatment on Asian Faces  
*Dr. Fung Kin Kong, William, Specialist in Dermatology and Venereology*
  2. Laser for Retinal Diseases – What You Should Know  
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Reference : 1. Peter Sever et al. Potential synergy between lipid-lowering and blood pressure-lowering in the Anglo-Scandinavian Cardiac Outcomes Trial (ASCOT-LLA 2x2). *European Heart Journal* (2006) 27, 2982-2988

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# Current Practices in the Management of Diabetic Nephropathy

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Prof. Sydney CW TANG

*This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 30 April 2012.*

## Introduction

The burden of diabetes mellitus (DM) is rapidly rising. Current projections estimate the global prevalence of individuals with DM to rise from 6.4% (285 million) in 2010 to 7.7% (439 million) in 2030<sup>1</sup>. In fact, Asia is at the forefront of this epidemic and according to the World Health Organization, China alone will have 42 million diabetics by 2030. The main problem with this disease entity is its propensity to incur macro- and micro-vascular complications over time. In an era where there is an ageing trend to the global population, the threat of diabetic nephropathy (DMN) has become a fulfilled prophecy.

DMN affects approximately one third of individuals with diabetes. It is the leading cause of end-stage renal disease (ESRD) worldwide, accounting for 42% of all patients on renal replacement therapy in the United States and 25% in Hong Kong<sup>2</sup>. The magnitude of this problem has continued to grow in the face of an inexorable rise in the number of diabetic patients. The search for therapeutic modalities to stem this tide remains the quest of many nephrologists and diabetologists.

One of the hallmarks of DMN is increased urinary protein excretion and microalbuminuria has long been nominated as an early manifestation of this disease<sup>3,4</sup>. Albuminuria and chronic kidney disease are strong determinants of cardiovascular disease and to a large extent, the survival of patients with DMN is determined by cardiovascular morbidity. Although there remains no cure at present, treatment options to prevent or slow disease progression are available. In this update, we aim to address the current armamentarium in the management of DMN.

## Therapeutic Approach to DMN

### • Glycaemic Control Optimisation

Damage to the renal microvasculature to cause DMN correlates well with the levels of glycaemic control in diabetic patients. The UKPDS (United Kingdom Prospective Diabetes Study) randomised patients with type 2 DM to receive either intensive glucose lowering or conventional therapy. At a median follow up of 10 years, which achieved a median glycated haemoglobin (HbA1c) difference of 0.9% (7.0% vs 7.9%),

the risk reduction of incident microalbuminuria in the intensive arm was 33%<sup>5</sup>. These findings are in concert with the results of the DCCT (Diabetes Control and Complications Trial) which recruited patients with type 1 DM<sup>6</sup>. Current recommendation is to target a HbA1c <7% (The American Diabetes Association standard) in an attempt to balance out the risk of hypoglycaemia from the clear benefit of renoprotection in this cohort<sup>7</sup>.

### • Blood pressure control

Hypertension is a prevalent phenomenon in diabetic patients, even when clinically evident renal involvement is absent. In DMN, blood pressure control, irrespective of the agent used, postpones renal insufficiency, delays its progression and improves survival. Prospective observational study data from the UKPDS (36) revealed that every 10 mm Hg reduction in systolic blood pressure is associated with a 12% decrement of any diabetes related complication<sup>8</sup>. Such magnitude of impact was later supported by the more recent post hoc analyses of the RENAAL (Reduction of Endpoints in NIDDM with the Angiotensin II Antagonist Losartan) trial which found that every 10 mm Hg increase in baseline systolic blood pressure was associated with an enhanced risk of ESRD or death of 6.7%<sup>9</sup>. The National Kidney Foundation advises that the blood pressure goals should be less than 130/80 mm Hg for non-proteinuric patients and 125/70 mm Hg for those with proteinuria.

### • Blockers of the renin-angiotensin system (RAS)

There is little doubt that RAS blockade confers protection in patients with DMN. Angiotensin converting enzyme inhibitors (ACEi) and angiotensin II receptor blockers (ARB) are widely used to control blood pressure in the diabetic cohort. Moreover, they are superior to other antihypertensives in DMN by virtue of their capacity to reduce proteinuria, via reduction of intraglomerular pressure, which is considered to be an independent modifiable risk factor for disease progression. In fact, the landmark trials of Lewis et al<sup>10</sup>, IDNT (Irbesartan Diabetic Nephropathy Trial)<sup>11</sup> and RENAAL demonstrated clearly the renoprotective benefits of both ACEi and ARB to be statistically independent of blood pressure control. In the post-hoc analysis of RENAAL, reduction in albuminuria in the first 6 months of therapy with losartan was linearly related to the degree of long-term renoprotection: every 50% reduction in albuminuria in the first 6 months was associated with a risk reduction of 36% for renal end point and 45% for ESRD during later follow-up<sup>12</sup>.





With regard to the comparative effectiveness of ACEi and ARB in DMN, there are little data to favour one over the other. The general consensus is that they can be employed interchangeably as required, usually when patients develop intractable cough associated with ACE inhibition. This is supported by DETAIL, which was a randomised control trial designed to compare ACEi enalapril to ARB telmisartan in 250 type 2 DM patients complicated by early nephropathy as defined by albuminuria. At 5 years, there was no significant difference in the decline of glomerular filtration rates (GFR) between the study arms. Both groups were also matched with regard to secondary end points looking at changes in GFR, serum creatinine, quantity of albuminuria and ESRD<sup>13</sup>.

Combination therapy of ACEi plus ARB has been suggested in an attempt to achieve better RAS blockade. In fact, there is a body of evidence to demonstrate its superiority in lowering proteinuria, in the context of DMN, when compared to either therapy alone<sup>14,15</sup>. However, no trial to date has unequivocally shown combination therapy to retard CKD progression in the DM cohort. Moreover, ONTARGET (Ongoing Telmisartan Along and in Combination with Ramipril Global Endpoint Trial) showed combination therapy to worsen major renal outcomes of dialysis or doubling of serum creatinine as compared to ramipril or telmisartan alone. This trial, which recruited 25,620 subjects at high risk of vascular events, including diabetics, casts a damning shadow over the role of dual blockade in DMN<sup>16</sup>. Furthermore, the risk of refractory hyperkalaemia, particularly in patients with significant renal impairment, often thwarts the use of both agents simultaneously. At this juncture, combination therapy has not been advocated in the management of DMN.

Reactive increase in plasma renin activity, (the capacity of renin to convert angiotensinogen to angiotensin) in association with ACEi/ARB therapy has been well documented. In theory, direct renin inhibition as a method for RAS downregulation may be more complete and effective by acting upon this rate-limiting step at a higher level within the pharmacological axis. In 2007, the United States Food and Drug Administration approved aliskiren, a direct renin inhibitor, for the treatment of hypertension. AVOID (Aliskiren in the Evaluation of Proteinuria in Diabetes) enrolled 599 hypertensive patients with DMN and found aliskiren, in addition to ARB losartan, to possess anti-proteinuric effects defined by a reduction in urinary albumin-to-creatinine ratio by 20% independent of blood pressure control<sup>17</sup>. However, the only extrapolation from this 6 month study is plausible renoprotection from reduced urinary protein excretion. Long term beneficial data in a representative cohort are still awaited and the recent termination of ALTITUDE (Aliskiren Trial in Type 2 Diabetes Using Cardio-Renal Endpoints), which is a large international randomised control trial, prompts physicians to be wary of aliskiren.

#### • Transplantation

Ever since the 1970s, kidney transplantation has been a modality of renal replacement therapy (RRT) available to patients with diabetic ESRD. However, early attempts were faced with high morbidity and mortality. Currently, the modern era of immunosuppression has

significantly improved allograft survival in transplant recipients by reducing rejection rates. Available data indicate a 93.7% 1-year and 85.5% 3-year survival for recipients of cadaveric grafts and a 95.4% 1-year and 91.3% 3-year survival for recipients of living donor transplants.

Combined kidney pancreas transplantation also deserves a mention. The majority are simultaneous pancreas and kidney transplants (SPK), while a small proportion are performed as sequential pancreas after kidney transplant (PAK). Although not widely available, SPK offers a form of RRT in conjunction with the possibility to restore normoglycaemia. The result is a freedom from frequent blood sugar monitoring, insulin injections and hypoglycaemia, which offers undoubtedly an improved quality of life following engraftment<sup>18</sup>. Initially, SPK was reserved for Type 1 DM patients with ESRD. However, there is accumulating evidence to suggest benefits in selected Type 2 DM subjects with comparable survival rates. 1-year and 10-year patient survival have been quoted at 95% and 70% respectively and in comparison, SPK fares similarly to living donor kidney transplantation<sup>19,20</sup>.

## Into the Future: Regeneration for the Next Generation

Although the optimal therapy for DMN continues to evolve, current available strategies are all aimed at blunting disease progression. However, short of a definitive cure, the social economical burden of patients with DMN reaching ESRD is set to cripple our healthcare system in the future. This provides considerable impetus for novel investigations into DMN and significant progress has been made in our understanding of the pathogenic mechanisms, at a molecular level, of this condition. A few novel therapies have emerged on the horizon thus far in this expanding field. However, the vast majority have focused upon the attenuation of inflammatory pathways, elaborated by the disease process, delineated for DMN. Perhaps, the most exciting news is the prospect of kidney regeneration. Although still in its infancy, and hampered by many complexities and set backs, the concept of stem cells, as well as stem cell growth factors, have been envisioned as an opportunity for a brighter future.

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "Current Practices in the Management of Diabetic Nephropathy" by Dr. Gary CHAN and Prof. Sydney CW TANG and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 30 April 2012. Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. Nephrotic range proteinuria can be associated with DMN
2. DMN accounts for 25% of all patients on RRT in Hong Kong
3. Haematuria is an independent modifiable risk factor for progression of DMN
4. For DMN, current ADA recommendations suggest a HbA1c target of <7.0
5. RAS activation is a modality of treatment in the current armamentarium for the management of DMN
6. Potential adverse effects of RAS blockade include hypernatraemia and hyperkalaemia in patients with CKD
7. Dual RAS blockade is currently validated for treatment of DMN
8. Aliskiren is a direct renin inhibitor
9. Risk factors for de novo DM after renal transplantation include the use of tacrolimus
10. SPK graft survival rates are worse when compared to cadaveric renal transplants

ANSWER SHEET FOR APRIL 2012

Please return the completed answer sheet to the Federation Secretariat on or before 30 April 2012 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

Current Practices in the Management of Diabetic Nephropathy

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Contact Tel No.: \_\_\_\_\_

Answers to March 2012 Issue

Tools for Colorectal Cancer Screening of Average-Risk Individuals

1. T
2. T
3. F
4. F
5. T
6. F
7. F
8. F
9. T
10. T

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**LYRICA ABREVIATED PACKAGE INSERT** 1. **TRADE NAME:** LYRICA 2. **PRESENTATION:** Each Lyrica hard capsule contains 25mg, 50 mg, 75 mg, 150 mg, 225mg or 300 mg of pregabalin. (Not all strengths may be marketed). 3. **INDICATIONS:** Treatment of peripheral and central neuropathic pain in adults; As adjunctive therapy in adults with partial seizures (epilepsy) with or without secondary generalisation; Treatment of Generalised Anxiety Disorder (GAD) in adults; For the management of fibromyalgia. 4. **DOSEAGE:** 100 to 600 mg/day to be taken in two or three divided doses with or without food. For neuropathic pain: start at 150 mg/day, increase to 300 mg/day after 3 to 7 days, if needed, then to a maximum of 600 mg/day after an additional week. For epilepsy: start with 150 mg/day, increase to 300 mg/day after 1 week, if needed, then to a maximum of 600 mg/day after an additional week. For fibromyalgia, recommended dose is 300 to 450 mg/day, dosing should begin at 75 mg BID (150mg mg/day) and may be increased to 150mg BID (300 mg/day) within one week based on efficacy and tolerability. Patients who do not experience sufficient benefit with 300 mg/day may be further increased to 225 mg BID (450 mg/day). Renal impairment: daily dose should be adjusted based on renal function. Elderly may require a dose reduction. Discontinuation of pregabalin should be done gradually over a minimum of 1 week independent of indication. 5. **CONTRAINDICATIONS:** Hypersensitivity to the pregabalin or to any of the excipients. 6. **WARNINGS & PRECAUTIONS:** Avoid in patients with galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption. Adjust hypoglycaemic medications if weight gain occurs in diabetic patients. Use with caution in patients with severe congestive heart failure. Withdrawal symptoms may occur after discontinuation of short-term and long-term treatment. May cause dizziness and somnolence, which could increase the occurrence of accidental injury (falls) in the elderly population and influence the ability to drive or use machinery. The incidence of adverse events especially somnolence may be increased in the treatment of central neuropathic pain due to spinal cord injury which may be attributed to the additive effect from concomitant medication for the condition. 7. **INTERACTIONS:** Cyclosporin, ethanol and grapefruit. 8. **PREGNANCY AND LACTATION:** Should not be used during pregnancy unless in the opinion of the physician, the potential benefit outweighs the potential risk. Effective contraception must be used in women of child bearing potential. Breast-feeding is not recommended. 9. **SIDE EFFECTS:** Dizziness, somnolence, appetite increased, euphoric mood, confusion, libido decreased, instability, ataxia, disturbance in attention, coordination abnormal, memory impairment, tremor, dysarthria, paraesthesia, vision blurred, diplopia, vertigo, dry mouth, constipation, vomiting, flatulence, anorexia, oedema peripheral, feeling drunk, oedema, gait abnormal, weight increased, disorientation, insomnia, balance disorder, amnesia, sedation, lethargy, abdominal distension, feeling abnormal. Reference: HK 79 (Mar 2005). Date of preparation: May 2010. Identifier number: LYR1010P. FULL PRESCRIBING INFORMATION IS AVAILABLE UPON REQUEST.



# Chronic Renal Failure in Diabetes

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Dr. Cheuk-chun SZETO

Diabetic nephropathy is one of the most common microvascular complications of diabetes. It is the leading cause of dialysis-dependent end-stage renal disease (ESRD) in Hong Kong. In this article, I shall discuss several special issues related to the management of diabetic patients with chronic kidney disease (CKD).

### Diabetic Control

The "Clinical Practice Guidelines and Clinical Practice Recommendations for Diabetes and Chronic Kidney Disease" from the NKF-KDOQI<sup>1</sup> have endorsed the American Diabetes Association (ADA) Standards of Medical Care in Diabetes recommendation of haemoglobin A1c (HbA1c) goal of <7% for patients with CKD<sup>1</sup>. Benefits of intensive control of hyperglycaemia on prevention of microvascular complications, including diabetic nephropathy, is generally accepted in types 2 diabetes. However, more recent studies (for example, the ACCORD study) that targeted HbA1c goals below 6–6.5% failed to show cardiovascular disease risk reduction with more intensive glycaemic control regimens<sup>2</sup>. More importantly, hypoglycaemia and inadvertent weight gain were much more common in the group that received intensive treatment. Taken together, it is important to liberalise HbA1c target in high risk groups and those with greater risk of hypoglycaemia (for example, patients with CKD).

### Assessment of Diabetic Control

The NKF-KDOQI Guideline recommends that assessment of glycaemic control in diabetes and CKD, even at advanced stages, should follow the standards of care set by the ADA<sup>1</sup>. Self-monitoring of blood glucose is particularly important for assessment of glycaemic control. Traditionally, the approach is to monitor pre-meal and bedtime blood glucose levels by finger prick testing. However, postprandial testing may be helpful in patients with autonomic neuropathy and gastroparesis, which are common in patients with advanced CKD.

Inaccuracy in the relationship between HbA1c and average plasma glucose levels may hinder good glycaemic control in diabetic patients with CKD. Reduced red cell lifespan, haemolysis, and anaemia tend to falsely decrease the HbA1c value. A recent study showed that in diabetic patients on dialysis, HbA1c level is around 1% lower for the same degree of mean serum glucose than diabetic patients without nephropathy,

while glycated albumin levels reflect more accurately the mean serum glucose level<sup>3</sup>.

### Anti-diabetic Drugs

A few drug classes for treatment of hyperglycaemia can be used in patients with advanced CKD. The major concern in the setting of impaired kidney function is increased incidence of hypoglycaemia due to decreased drug clearance, drug interactions, and impaired kidney gluconeogenesis<sup>4</sup>.

Insulin is generally recommended for diabetic patients with substantial renal insufficiency, even though they are not insulin-dependent by the traditional definition. However, insulin requirements change with reduction of kidney function. In general, the dosage of insulin should be individually adjusted according to insulin sensitivity, frequency and severity of hypoglycaemia, and presence of co-morbidities that additionally increase hypoglycaemic risk.

Among sulfonylureas, the preferred agent in CKD patients is glipizide and gliclazide because of hepatic metabolism is the major route of elimination. Biguanides (i.e. metformin) and alpha-glucosidase inhibitors (e.g. acarbose) are not recommended in patients with serum creatinine above 177  $\mu\text{mol/l}$  (2 mg/dL). The thiazolidinedione class of drugs (e.g. pioglitazone) should be avoided in view of the cardiovascular risk. As to other new anti-diabetic agents, repaglinide is the preferred agent in the meglitinide class of insulin secretagogues, and no dose adjustment is needed for creatinine clearance  $\geq 20$  ml/min. Sitagliptin is an oral dipeptidyl peptidase-4 (DPP-4) inhibitor that requires dose reduction for reduced kidney function. Exenatide is an analog of glucagon-like-peptide-1 (GLP-1); it enhances pancreatic insulin secretion. Although doses of this agent do not require adjustment for reduced kidney function, risk of hypoglycaemia in patients with advanced CKD is increased. Furthermore, both sitagliptin and exenatide slow gastric emptying and suppress appetite; they should be avoided in patients with known gastroparesis.

### Blood Pressure Control

Hypertension is a critical risk factor for progression of CKD in both diabetic and non-diabetic patients. It is also one of the most prevalent co-morbidities in CKD. There

is very little dispute in the treatment of high blood pressure because treatment of hypertension is a well-established tactic to slow progression of diabetic kidney disease. The NKF-KDOQI Guideline recommends target BP <130/80 mmHg in diabetic patients with CKD stages 1 to 4<sup>1</sup>. The preferred agents are angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB), usually in combination with a diuretic. Dietary sodium intake should be restricted within 2.3 g/day.

A few practical issues should be noted for the use of ACE inhibitor and ARB in CKD patients. First, transient worsening of renal function is very common following the initiation of therapy. The Royal College of Physicians of London recommends that serum creatinine should be checked 2 weeks after starting the treatment and after subsequent increase in dose<sup>5</sup>. If serum creatinine level increases by over 20%, or there is a fall in estimated glomerular filtration rate (GFR) by over 15%, treatment should be stopped and evaluation for renal artery stenosis should be considered.

As to the upper limit of serum creatinine below which one could start ACE inhibitor or ARB treatment, there is no good clinical trial on diabetic nephropathy in this respect. For non-diabetic CKD, Hou et al<sup>6</sup> showed that benazepril conferred substantial renal benefits in patients with pre-treatment serum creatinine below 442 µmol/l. There seems no reason that the result could not be related to diabetic patients.

On the other hand, when a CKD patient is already taking ACE inhibitor or ARB, and the renal function continues to deteriorate, there is minimal, if any, renal benefit to stop the treatment. In general, despite progressive worsening of renal function, ACE inhibitor or ARB could be continued unless there is resistant hyperkalaemia.

## Lipid Control

The NKF-KDOQI "Clinical Practice Guidelines for Management of Dyslipidaemia in Diabetes and CKD" recommend treatment of LDL-C in CKD stages 1 to 4 with a statin if the level is higher than 100 mg/dL (2.6 mmol/l)<sup>1</sup>. As for other populations at high cardiovascular risk, targeting the LDL-C to below 70 mg/dL (1.8 mmol/l) should be considered as the therapeutic target. It is important, however, to appreciate that the recommendation for stage 4 CKD was by extrapolation of data on earlier stages of CKD. In addition, these recommendations were based on secondary, subgroup, or post-hoc analyses of previous clinical trials that examined the use of statins in diabetes patients with stages 1 to 3 CKD. On the contrary, there are direct clinical trial data regarding statin treatment for diabetic patients on haemodialysis: to-date, two major trials have demonstrated no benefit on major cardiovascular events or death. The 4D study used atorvastatin and actually showed increased risk of fatal ischaemic stroke<sup>7</sup>. The diabetes subset of the more recent AURORA trial also confirmed no benefit of rosuvastatin on cardiovascular events or death<sup>8</sup>.

More recently, the Study of Heart and Renal Protection

(SHARP), which is the largest-ever statin trial in renal patients announced the result<sup>9</sup>. In this study, 9438 CKD patients were randomised to simvastatin plus ezetimibe treatment or placebo. Over nearly 5 years of follow-up, there was a 16.5% overall risk reduction in the primary atherosclerotic end point. More importantly, subgroup analysis found a higher effect size in predialysis than in dialysis CKD patients, with a risk reduction of 20% and 10%, respectively. In the dialysis cohort alone, the risk reduction was actually not statistically significant, which is in accordance with the 4D and AURORA trials. Taken together, available evidence indicates that lipid-lowering therapy does offer cardiovascular protection, at least in CKD classes lower than 5.

## Anaemia

Anaemia is a common complication and occurs earlier in patients with diabetic nephropathy than in nondiabetic individuals with comparable renal function. There are many reasons for the high prevalence of anaemia in diabetic CKD patients. The most important reason, however, appears to be diabetes-related chronic hyperglycaemia, which leads to a hypoxic environment in the renal interstitium, resulting in impaired production of erythropoietin by the peritubular fibroblasts and subsequent anaemia.

Anaemia does not only affect patients' quality of life; it amplifies risks of major complications in the setting of diabetic kidney disease. Notably, anaemia is an independent contributor to the pathogenesis and progression of other diabetes-related complications (especially left ventricular hypertrophy). In CKD patients with diabetes mellitus, correction of anaemia improves quality of life and might delay the progression of diabetic complications. Therefore, routine screening for anaemia is recommended, and treatment with recombinant human erythropoietin should be considered for anaemic patients. Treatment should aim to achieve haemoglobin level of 10 to 12 g/dL.

## Mineral Bone Disease

Diabetic patients often have underlying bone and mineral diseases that are further exacerbated once CKD ensues. For traditional renal osteodystrophy, adynamic bone disease predominates over hyperparathyroidism, which is distinctly uncommon in diabetic patients with ESRD. Since insulin is a co-factor for parathyroid hormone secretion and bone turn-over, adynamic bone disease may reflect insulin lack or resistance within the parathyroid glands and bone.

Vitamin D deficiency has recently emerged as an important issue within the spectrum of bone and mineral disease in CKD. Across the spectrum of CKD stages, several studies have demonstrated that 25-hydroxy and 1, 25-dihydroxy vitamin D levels are more likely to be low in patients with diabetes or who are females. There are several mechanisms of vitamin D deficiency in patients with diabetic kidney disease. Uraemia impairs production of cholecalciferol from 7-dehydrocholesterol by UVB light radiation. In addition, CKD per se reduces the formation of



1,25-(OH)<sub>2</sub>D<sub>3</sub> due to profound tubulointerstitial injury and early loss of 1 $\alpha$ -hydroxylase activity. Furthermore, hyperglycaemia down-regulates the vitamin D receptor. A number of other factors also contribute to the bone and mineral diseases in patients with diabetic kidney disease. Poorly-controlled diabetes is associated with hypercalciuria, which predisposes to bone loss. Besides osteoporosis, patients with diabetic kidney disease have increased risk of fall and fracture because of poor vision (due to retinopathy) and peripheral neuropathy.

## Conclusions

Management of patients with diabetes and CKD is often a complicated and tedious matter. Physicians need to remind themselves not to be narrow minded because multiple therapeutic targets are often necessary at the same time. There is good evidence of having a tight glycaemic control, although the benefit must be balanced against the risk of hypoglycaemia, especially in patients with multiple comorbidities and poor kidney function. Blood pressure control is absolute necessary. Most patients actually require multiple anti-hypertensive agents to achieve the blood pressure target. For the majority of patients, ACE inhibitor or ARB should be continued as long as possible despite progressive worsening of kidney function. There is now evidence for the treatment of hypercholesterolaemia, at least for pre-dialysis CKD patients. Anaemia is common and worths to be screened for, because recombinant human erythropoietin treatment is usually effective. Bone and mineral diseases are also common. Because adynamic bone disease and vitamin D deficiency

are common, one must not try to over-suppress the parathyroid hormone level, and vitamin D supplement should be considered early in the course of CKD.

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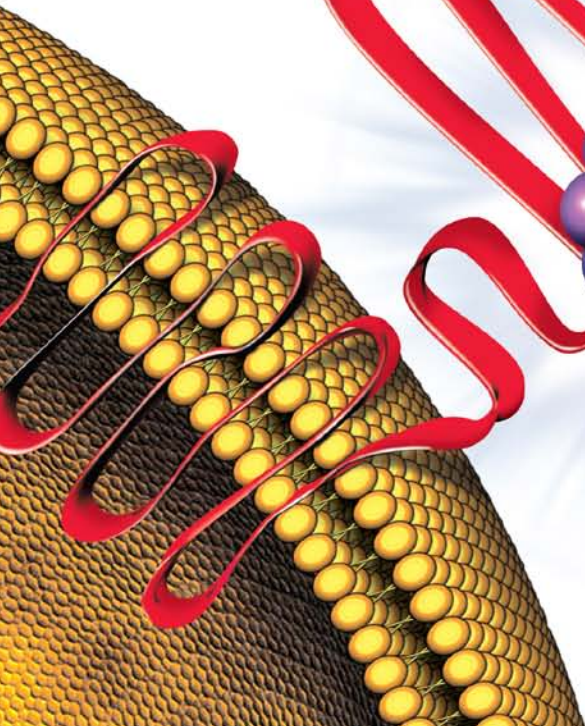
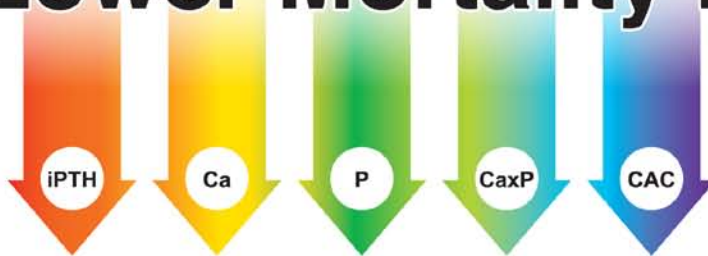


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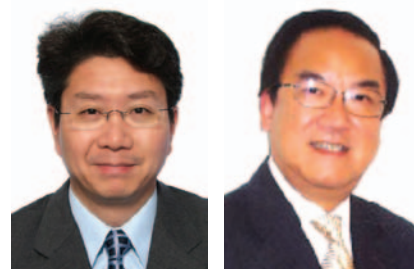
# Nocturnal Home Haemodialysis

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## Introduction

Conventional haemodialysis (HD) involves a dialytic therapy performed two or three times a week with a duration of 4 to 5 hours for each session, either in-centre or at a satellite centre. With this dialysis schedule, the interdialytic interval is long and rapid solute and fluid removal are needed during each dialysis session, resulting in significant problems such as intradialytic hypotension, high interdialytic weight gain and fluid retention. Dialysis with longer durations and higher frequencies correlates with better outcomes.<sup>1,2</sup> The ideal dialysis regimen should be longer, more frequent and be done at home at night time during sleep. This rationale was used to design nocturnal home haemodialysis (NHHD).<sup>3</sup>

## Benefits Associated with Nocturnal Home Haemodialysis

Overnight dialysis was introduced by Baillod et al as early as 1965.<sup>4</sup> Charra et al in Tassin, France has dialysed patients with long, slow overnight in-centre dialysis three times a week since mid-1970s.<sup>1</sup> In 1993, Uldall<sup>5</sup> and Pierratos<sup>6</sup> first introduced the Nocturnal Home Haemodialysis Programme in Canada, as a more desirable alternative to conventional HD since it allows an increase in the frequency of dialysis and the treatment duration. NHHD was performed at home 6 or 7 nights a week during sleep for a variable amount of time depending on the length of sleep (usually 6 to 12 hours). Partners were not required.

Clearance of solutes is enhanced with NHHD. Even at low dialysate flow rate, NHHD is able to provide an equilibrated Kt/V for urea of approximately 1.0 per session.<sup>6</sup> The weekly standard Kt/V, a measure of dialysis dose across different dialysis modalities,<sup>7</sup> is approximately 5, making this technique particularly suitable for large patients.<sup>8</sup> A study on 8 chronic HD patients has shown that the cumulative weekly phosphate removal was significantly higher with NHHD as compared to conventional HD (161.6 vs 75.8 mmol/week) and the serum phosphate levels were significantly lower with NHHD (1.3 vs 2.1 mmol/L). Despite an increase in phosphate intake by 50%, none of the patients was taking any phosphate binders by the fourth month.<sup>9</sup> A randomised controlled trial has also shown that, compared with conventional HD, patients in the NHHD group had a significant decrease in serum phosphate despite a reduction in the use of phosphate

binders.<sup>10</sup>  $\beta$ 2-microglobulin removal in NHHD was four times higher (585 vs 127 mg/week) and the percentage reduction of serum  $\beta$ 2-microglobulin level was greater than that achieved with conventional HD in one study (39% vs 21%).<sup>11</sup>

A substantial increase in haemoglobin level and a decrease in recombinant human erythropoietin requirement after switching to NHHD have been reported.<sup>12</sup> A study by Chan et al in Canada has shown that enhanced clearance by NHHD was associated with an improvement in haematopoietic progenitor cell growth and a coordinated increase in expression of genes responsible for haematopoietic progenitor cell mobilisation, growth and production of red blood cells.<sup>13</sup> Blood pressure control has been excellent with NHHD, with almost all patients able to cease antihypertensive medications in a report of patients performing NHHD 6 to 7 nights a week.<sup>3</sup> NHHD is associated with regression of left ventricular hypertrophy<sup>14,15</sup> and improvement in ejection fraction.<sup>16</sup> In a recent study, more frequent HD regimens including NHHD were associated with less dialysis-induced cardiac injury (myocardial stunning).<sup>17</sup>

Studies using a range of qualitative assessment tools to assess quality of life (QOL) have shown improvements in these measures as a result of switching to NHHD.<sup>15,18</sup> Although the improvement in QOL was not confirmed in a randomised controlled study, some of the kidney disease-specific QOL domain parameters improved.<sup>19</sup> Sleep disturbance is minimal during NHHD<sup>6</sup> and sleep architecture appears to improve.<sup>20</sup> In one study, assessment of sleep performed before and after conversion to NHHD showed that NHHD significantly improves pre-existing sleep apnoea.<sup>21</sup> With regard to fertility, successful pregnancies while on NHHD have been reported. In a cohort study, five women undergoing NHHD had seven pregnancies, delivering six live infants.<sup>22</sup>

Alternate night NHHD is a popular modality in some countries such as Australia, but data on this modality are limited. A study by Mahadevan et al comparing NHHD 6 nights per week (NHHD<sub>6</sub>) and NHHD alternate nights, 3.5 sessions per week (NHHD<sub>3.5</sub>) showed that benefits on biochemical parameters are also evident with NHHD<sub>3.5</sub>. However, all NHHD<sub>6</sub> needed phosphate supplementation compared with 19% NHHD<sub>3.5</sub>. They concluded that although small molecule clearance and dietary freedoms are less, phosphate control seems close to ideal without the added burden of phosphate replacement in the dialysate, as is required in NHHD 6 nights a week.<sup>23</sup>

Survival data on NHHD have been published. A US Renal Data System (USRDS) study has shown that NHHD was associated with significant reductions in mortality risk and risk for mortality or major morbid event when compared to conventional HD.<sup>24</sup> Another report has demonstrated similar survival between patients undergoing NHHD and deceased donor kidney transplantation, and suggested this intensive dialysis modality may be a bridge or even alternative to transplantation in the current era of organ donor scarcity.<sup>25</sup> The Canadian Slow Long nightly ExtENDED dialysis Programs (CAN-SLEEP) Collaborative Group has shown that NHHD is associated with excellent adverse event-free survivals. The unadjusted 1- and 5-year adverse event-free survival was 95.2 and 80.1% respectively.<sup>26</sup>

A recent randomised controlled trial, the Frequent Hemodialysis Network (FHN) Trial, comparing NHHD and conventional HD, has failed to demonstrate a significant effect of NHHD for two coprimary outcomes: death or left ventricular mass.<sup>27</sup> Patients in the nocturnal arm had improved control of hyperphosphataemia and hypertension, but no significant benefit among the other secondary outcomes including cognitive performance, self-reported depression, laboratory markers of nutrition, mineral metabolism, anaemia, rates of hospitalisation, and vascular access interventions. However, the major limitations of this trial were the relatively small sample size and the lower adherence to the dialysis prescription in the frequent nocturnal arm, both of which reduced the power of the study. Therefore, larger scale trials are needed to study these outcomes before any conclusion can be made.

### Local experiences

In Hong Kong, the Nocturnal Home Haemodialysis Programme was started in 2006.<sup>28</sup> Hong Kong has piloted the NHHD programme in Asia. Patients are dialysing on alternate nights (3.5 sessions a week) instead of 6 or 7 nights a week because of cost advantage and patient preference.

Retrospectively analysis of clinical parameters was performed on 14 patients from the Haemodialysis Units of the Princess Margaret Hospital and Queen Elizabeth Hospital.<sup>29</sup> These 14 patients had completed 1 year of NHHD. All patients were dialysing on an alternate night schedule (3.5 sessions/week) with a dialysis length ranging from 6 to 8 hours. After 1 year of NHHD, the erythropoietin dose (EPO) requirement reduced significantly from  $120.6 \pm 44.3$  U/kg/week (mean  $\pm$  SD) before starting NHHD to  $59.4 \pm 74.6$  U/kg/week ( $P < 0.05$ ,  $n = 13$ ) (Fig. 1). Despite a reduction in EPO dose, haemoglobin level increased from  $9.6 \pm 1.6$  g/dL before NHHD to  $11.4 \pm 2.2$  g/dL 1 year after NHHD ( $P < 0.05$ ) (Fig. 1). Four patients (29 %) were able to stop taking EPO at a mean time of  $7.3 \pm 4.3$  months and their haemoglobin level was well maintained after stopping EPO. The pre-dialysis serum phosphate level reduced from  $2.33 \pm 0.41$  at baseline to  $1.59 \pm 0.29$  mmol/L ( $P < 0.01$ ) at 12 months (Fig. 2) and calcium phosphate product decreased significantly from  $5.29 \pm 0.96$  to  $3.74 \pm 0.90$  mmol<sup>2</sup>/L<sup>2</sup> ( $P < 0.01$ ) (Fig. 2). Phosphate binder dose for those taking calcium carbonate decreased from  $2.0 \pm$

$1.0$  to  $0.7 \pm 1.3$  g/day of elemental calcium ( $P < 0.05$ ,  $n = 7$ ) and for those taking aluminium hydroxide, decreased from  $2.3 \pm 1.4$  g/day to a minimal dose of  $0.1 \pm 0.2$  g/day ( $P < 0.05$ ,  $n = 5$ ) at 12 months (Fig. 3). The remaining two patients had no phosphate binders taken at the beginning. Eight patients (67 %) were able to stop taking phosphate binders and the mean time for stopping phosphate binder was  $4.4 \pm 2.8$  months. Only two patients (14 %) required addition of phosphate into the dialysate due to low pre-dialysis serum phosphate level. Serum parathyroid hormone level showed no significant changes ( $32.2 \pm 18.8$  at baseline vs  $33.8 \pm 30.8$  pmol/L at 1 year,  $P = 0.285$ ).

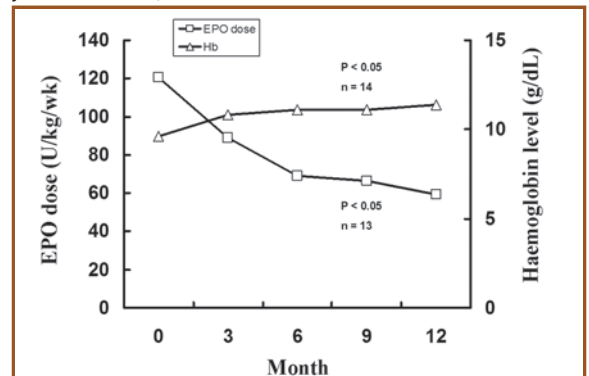


Fig. 1 Haemoglobin level and erythropoietin (EPO) dose requirement before and 12 months after nocturnal home haemodialysis

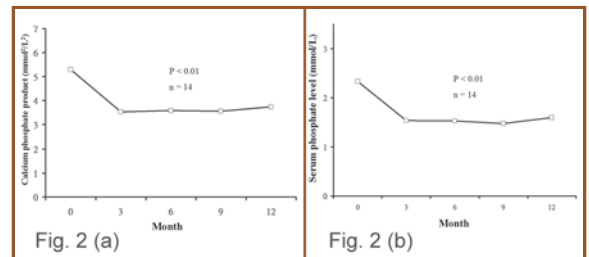


Fig. 2 (a) Serum phosphate level before and 12 months after nocturnal home haemodialysis (NHHD)  
Fig. 2 (b) Calcium phosphate product before and 12 months after NHHD

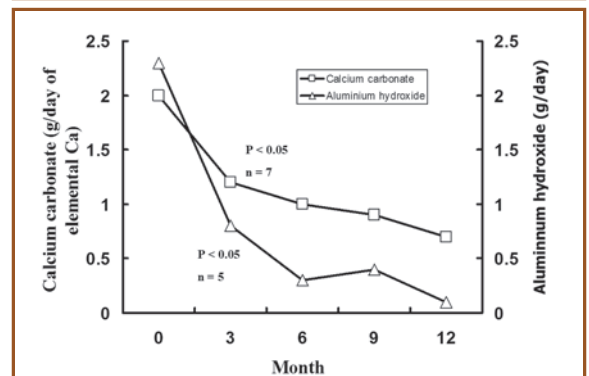


Fig. 3 Phosphate binder dose before and 12 months after nocturnal home haemodialysis

Systolic and diastolic blood pressure (BP) remained static. Systolic BP was  $149 \pm 22$  mmHg before NHHD vs  $136 \pm 10$  mmHg at 1 year ( $P = 0.140$ ) and diastolic BP was  $91 \pm 11$  mmHg before NHHD vs  $83 \pm 8$  mmHg at 1 year



( $P = 0.059$ ). However, the number of antihypertensive medications tended to reduce from  $2.5 \pm 1.3$  to  $1.6 \pm 1.5$  ( $P = 0.067$ ) at 1 year. Four patients (29 %) were able to stop taking antihypertensives at a mean time of  $4.0 \pm 3.6$  months. Echocardiogram was performed at baseline and 1 year after NHHD to assess ejection fraction and left ventricular mass index (LVMI). Ejection fraction showed no significant changes after NHHD ( $64 \pm 10$  % at baseline vs  $67 \pm 12$  % at 1 year,  $P = 0.349$ ) while LVMI decreased from baseline of  $186 \pm 62$  to  $168 \pm 60$  g/m<sup>2</sup> at 1 year although not reaching statistical significance ( $P = 0.463$ ).

Before starting NHHD, the patients were given NHHD training with conventional HD. During the training period, all patients received 4 hours HD three times a week, except one who received 5 hours HD twice a week. Dialysis adequacy index, single-pool Kt/V (spKt/V) was calculated using the Daugirdas second generation equation.<sup>30</sup> The weekly spKt/V during conventional HD was  $3.63 \pm 0.95$  whereas that during NHHD was three times higher,  $11.09 \pm 6.44$  ( $P < 0.01$ ) (Fig. 4). The quality of life indexes assessed by questionnaires at 12 months after NHHD revealed a 34% decrease in the severity of perceived stressor, 9% decrease in the need of coping with stress and 10% improvement in the satisfaction on QOL.<sup>29</sup>

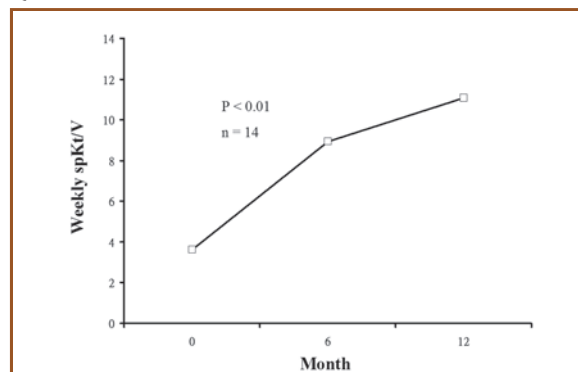


Fig. 4 Weekly spKt/V before and 12 months after nocturnal home haemodialysis

## Conclusion

Both overseas and local data of NHHD on various clinical parameters are promising. The local 1 year experience of NHHD demonstrates beneficial effects in terms of anaemia control, EPO requirement, serum phosphate and calcium phosphate product reduction, blood pressure control, dialysis adequacy and quality of life. The beneficial effect is most marked in anaemia control with one-third of patients able to stop EPO after NHHD.<sup>29</sup> The alternate night schedule is well accepted by the patients and has the advantage of alleviating the burden of dialysate phosphate supplementation. Nocturnal home haemodialysis with an alternate night schedule, 3.5 sessions/week, is a promising dialytic therapy for end-stage renal disease patients receiving chronic haemodialysis in Hong Kong.

## Acknowledgement

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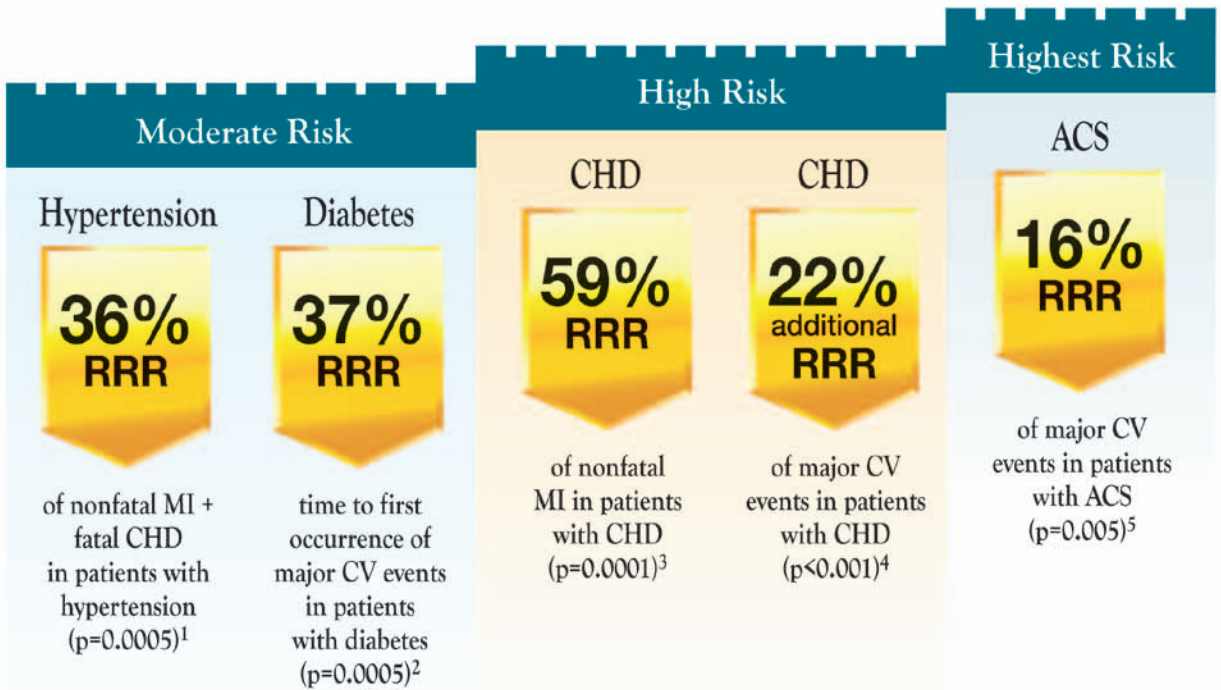


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# A Special Report on Living Kidney Donor Follow-up

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The first cadaveric kidney transplantation was performed in the Queen Mary Hospital in 1969. There has been steady development both in terms of patient/donor management and system development. In 1988, trained renal nurses were recruited as Transplant Coordinators to facilitate organ procurement. An electronic based central Renal Registry was created in 1995 for better information storage and sharing. The Human Organ Ordinance was enacted in 1998, governing the control of organ transplantation. Currently, there are 4 kidney transplant centres in Hong Kong. Regarding patient management, the first year graft survival rate is greater than 90% - comparable to international levels. According to the Hospital Authority Renal Registry, there were 3308 patients on renal transplantation (RT), 782 patients on haemodialysis and 3434 patients on PD as of December 2010 (Fig. 1). At first glance, it appeared that the growth of RT patients had caught up with the dialysis patients. The whole story may not be true since the survival of RT patients far outweighs that of dialysis patients. In fact, the prognosis of having end-stage renal disease (ESRD) is likened to that of having malignancy. The annual mortality can be more than 20%. The number of new patients requiring dialysis is not low but they are dying young. According to the US Renal Data system (USRDS) 2010 Annual Data Report, Hong Kong was among the top 10 regions with high prevalence of ESRD<sup>1</sup>. High cumulative RT patients simply point to the fact that transplantation is the best outcome for ESRD patients.

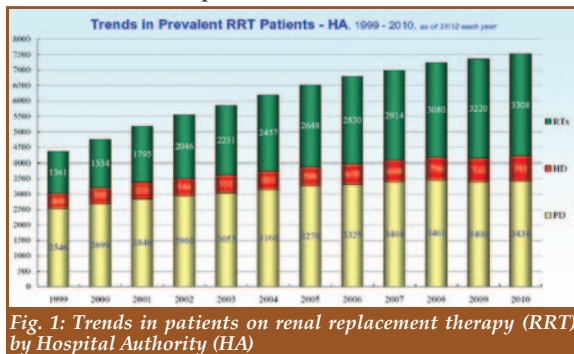


Fig. 1: Trends in patients on renal replacement therapy (RRT) by Hospital Authority (HA)

The number of organ transplantation is far from enough. There were 1717 patients waiting for kidney grafts as of August 2011 (Fig. 2). Many of them died while waiting. The situation is slightly better in countries with high deceased organs donation rates. For example, the deceased organs donation rates were 34.4 and 21.9 donors per million populations (pmp) in Spain and the USA respectively in 2009<sup>2</sup>. In Hong Kong,

the deceased donation rate was 7.5 donors pmp in 2009 (Fig. 3)<sup>3</sup>. With such a low deceased donation rate, the living kidney donors become the alternative source. In fact, living kidney donations produce the best outcomes by virtue of good quality kidney grafts and shorter time on dialysis. The graft survival for living kidney transplantation in Hong Kong between 1995 and 2005 was significantly better than for corresponding deceased kidney transplantation (Figure 4)<sup>4</sup>.

香港醫院管理局人體器官/組織捐贈用作移植宗數及等候人數 (1.1.2005-31.08.2011)

器官 / 組織	2005	2006	2007	2008	2009	2010	31.8.2011	等候人數 Waiting (at 31.08.2011)
腎臟捐贈 Kidney donation								
過世捐贈 Deceased donor	50	53	58	65	87	74	43	1717
活體捐贈 Live donor	8	13	8	12	8	7	4	
肝臟捐贈 Liver donation								
過世捐贈 Deceased donor	24	23	26	26	43	42	22	101
活體捐贈 Live donor	38	48	41	42	41	53	31	
心臟捐贈 Heart donation	8	7	5	6	10	13	5	21
雙肺捐贈 Double Lung donation	2	1	1	1	2	2	1	13
眼角膜捐贈 Cornea donation (片數 / piece)	214	244	130	211	203	250	157	500
皮膚捐贈 Skin donation	13	8	13	19	17	23	17	不確定 uncertain
骨質捐贈 Bone donation	3	3	1	1	0	6	0	不確定 uncertain

Prepared on 07.07.2011

Fig. 2: Number of organs/tissue donation and patient waiting for transplantation under Hospital Authority

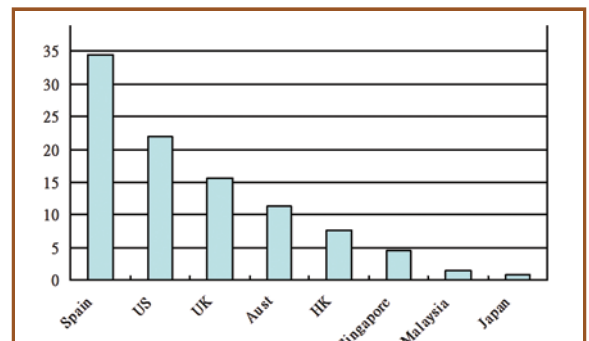


Fig. 3: Deceased donors per million population - 2009

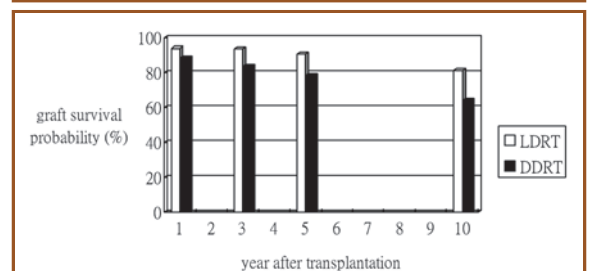


Fig. 4: Renal transplant survival probability - living donor (LDRT) v.s. deceased donor (DDRT) 1995-2005

The long-term effects of donor uni-nephrectomy have not been properly studied. This is reflected by the fact that not all transplant units provide long-term follow-up for the kidney donors. There has been a wealth of researches on kidney graft recipients, ranging from basic sciences to psychological aspects. On the other hand, there are no parallel studies on the donors who risk a major operation to save the life of another human being, whether related or un-related. The Princess Margaret Hospital provides long-term, if not life-long, follow-up facilities for living kidney donors. In a previous paper published in 1999, we highlighted an initial significant drop in creatinine clearance post-nephrectomy and a significant increase in blood pressure in kidney donors<sup>5</sup>. Although there was no significant increase in proteinuria and there was subsequent improvement in creatinine clearance, these findings called for more detailed and comprehensive follow-up of kidney donors.

Our group reexamined and published an extended study of the living kidney donors last year<sup>6</sup>. From 1980 to 2009, a total of 149 living kidney transplantations were performed at the Princess Margaret Hospital. 139 (93.3%) records were available for analysis. 41/136 (30.1%) defaulted follow-up at various time-points. One donor died of multiple myeloma 17 years after kidney donation. No donor developed end-stage kidney disease or required renal replacement therapy. The male to female ratio was 1.00 to 1.52. The mean age at donation was 33.94 +/- 9.66 years (range 17 – 57 years). The mean follow-up duration after donation was 160.39 +/- 87.96 months (range 0 – 341 months). Hypertension (HT) was diagnosed in 27 donors (19.9%). The mean time to HT was 10.58 +/- 5.87 years (range 1 – 22 years). The median time to HT was 10.5 years. Estimated Glomerular Filtration Rates (GFR) dropped from 90.95 +/- 15.62 ml/min/1.73m<sup>2</sup> at pre-donation to 66.29 +/- 12.06 ml/min/1.73m<sup>2</sup> at 2 years post-donation. GFR improved in subsequent years and became stable for up to 25 years post-donation. 22 donors (17.3%) had deteriorations in GFR to Stage 3 Chronic Kidney Disease (CKD) (GFR range 40.62 – 59.84 ml/min/1.73m<sup>2</sup>). Other co-morbidities included: hyperlipidaemia 16/136 (11.8%), DM 6/136 (4.4%), cardiovascular event 1/136 (0.7%), stroke 1/136 (0.7%) and cancer 5/136 (3.7%). Apart from the donor who died of multiple myeloma, 2 donors had carcinoma of the rectum, one had carcinoma of the colon and one had carcinoma of the breast (Table 1).

Table 1: Donor characteristics.

Male to Female Ratio	1.00 : 1.52
Age at Donation (yrs)	33.94 +/- 9.66 (range 17 – 57)
Follow-up Duration (months)	160.39 +/- 87.96 (range 0 – 341)
Co-morbidities:	
Hyperlipidaemia	16/136 (11.8%)
DM	6/136 (4.4%)
Cardiovascular event	2/136 (1.4%)
Cancer	5/136 (3.7%)
HT	27/136 (19.9%)
Stage 3 CKD	22/136 (17.3%)
Death	1 (multiple myeloma 17 yrs after donation)

Using Cox's regression model, older age at the time of donation was associated with HT (hazard ratio 1.089, 95% C.I. = 1.048-1.133, p<0.001) in univariate analysis. HT was not associated with sex or GFRs over time. In

multivariate analysis, older age at the time of donation was again associated with HT (hazard ratio: 1.100, 95%CI = 1.044-1.158, p<0.001). Using binary logistic regression, older age at the time of donation was associated with the development of stage 3 CKD (Odds ratio: 1.096, 95%CI = 1.041-1.154, p<0.001) and higher GFR before donation was associated with lower CKD risk. Sex was not related to the development of stage 3 CKD. In the multivariate analysis, only older age at the time of donation was associated with the development of stage 3 CKD (Odds ratio: 1.077, 95%CI = 1.012-1.146, p=0.019). GFR at donation and sex were not associated with the development of stage 3 CKD.

Hypertension is a well-known risk factor for both chronic kidney disease and cardiovascular disease. The effect of uni-nephrectomy on blood pressure in healthy kidney donors has been controversial. Many studies have found increase in blood pressure<sup>7-11</sup>. Others did not find increased incidence of hypertension using sex- and age-matched normal population<sup>12,13</sup>. In particular, Williams et al, using siblings as control, found no significant difference in blood pressure in kidney donors and their siblings<sup>14</sup>. In our study, hypertension was subsequently diagnosed in 19.9% of our cohort with regular monitoring. Since the incidence of hypertension increases with age, it is not surprising to see donors developing high blood pressure with extended follow-ups. On the contrary, the pick-up rates of high blood pressure may be higher in centres with vigilant follow-ups. Gossmann et al reported an increase in the percentage of hypertension from 7% before donation to 30% at study evaluation in their study with high follow-up rates (93%)<sup>15</sup>. When compared with the blood pressure of the normal German population, both before donation and at evaluation, blood pressures were found to be lower than in the normal population. The prevalence of hypertension appeared to be quite variable in Asia, ranging from 5 – 35%<sup>16</sup>. In one epidemiological study of cardiovascular risk factors, hypertension was present in one in five of Hong Kong adults<sup>17</sup>.

Another concern is the development of chronic kidney disease with time. Seyahi reported eGFR less than 60 ml/min/1.73m<sup>2</sup> in 25% of kidney donors at last follow-up<sup>18</sup>. In another more recent paper by Ibrahim et al, 24.5% had a GFR of less than 60 ml/min/1.73m<sup>2</sup><sup>19</sup>. Albeit less prevalent in our cohort, Stage 3 CKD was found in 17.3%. It has been shown beyond doubt that minor elevations in serum creatinine levels are associated with poor outcomes<sup>20</sup>. This, however, occurred in the context of diseased states. It is well known that the remaining healthy kidney compensates and hypertrophies. Using the UNOS data, Segev et al found no increased long-term risk of death between kidney donors and matched healthy individuals<sup>21</sup>. Whether these adverse effects still hold true for healthy individuals after unilateral nephrectomies remain to be seen.

In our study, older age was found to be a significant factor for the development of hypertension and Stage 3 CKD. In another study using various methods to measure GFR, stage 3 CKD was specifically observed in older donors<sup>22</sup>. Although this was a 3-month study, stage 3 CKD was found post-nephrectomy in 27% by radioisotope measured GFR and 38% by eGFR. This study also highlighted the inaccuracy of eGFR in non-



validated population like donors with uni-lateral nephrectomy. On the other hand, it echoed our study that significant degree of chronic renal impairment was present in a significant proportion of kidney donors, especially those older donors.

No end-stage renal disease (ESRD) was reported in this study with limited donor number. In the paper by Ibrahim et al, 11/3698 donors developed ESRD in 22.5 +/- 10.4 years after donation<sup>19</sup>. The rates were not increased when compared with the risks for ESRD in the general population.

In conclusion, living kidney donors develop hypertension as they get old, as normal population does. The incidence of hypertension in kidney donors appears not to be higher than that of the general population. Older donors are more susceptible to the development of high blood pressure. In addition, older donors have greater deteriorations in GFR post donation. Whether hypertension and CKD have adverse effects on this special cohort of kidney donors are unknown. The incidence of ESRD was not elevated in this cohort as well as in various epidemiological and observational studies. In fact, most donors in our study enjoyed stable GFR for up to 25 years. Living kidney donation should therefore be encouraged and long-term follow-up should be provided for kidney donors.

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## Certificate Course on Development and Disorders of Speech and Language in Children 兒童語言及語音的發展和障礙證書課程

Jointly organised by



The Federation of Medical  
Societies of Hong Kong  
香港醫學組織聯會



The Hong Kong Association of  
Speech Therapists  
香港言語治療師協會

### Objectives 課程目的:

After the course, participants will have a basic understanding towards the development of speech and language in children, common speech and language disorders, as well as basic components in assessing and treating speech and language disorders. With the above knowledge, participants will be able to develop greater awareness in identifying children with suspected speech and language disorders at their clinical practice or even in their own family.

本課程將涵蓋兒童的語言及語音發展和有關的障礙，亦包括基本評估及治療語言障礙的概念。期望參與者能藉此提昇對語言及語音發展的認識，以及早發現有關的問題並提供適切的幫助。

7月6日

課題：Language Development (0-3 years old)  
0至3歲的語言發展

講者：Dr. Carol TO 杜潔森博士

7月27日

課題：Speech Development and Disorders  
語音發展及障礙

講者：Ms. Pamela CHEUNG 張秀萍小姐

7月13日

課題：Language Development (4 and beyond)  
4歲以上的語言發展

講者：Ms. Rachel WONG 王凱華小姐

8月3日

課題：Assessment and Treatment of Speech  
and Language Disorders  
語言及語音障礙的評估及治療

講者：Ms. Jess CHAN 陳嘉霖小姐

7月20日

課題：Communication in Children and  
Adolescents with Pervasive Developmental  
Disorders (including Autism and Asperger)  
廣泛性發展障礙兒童及青少年的溝通  
(包括自閉症及亞士保加症)

講者：Ms. Penita CHEUNG 張美嬌小姐

8月10日

課題：Dyslexia  
讀寫障礙

講者：Dr. Dustin LAU 劉啟欣博士

日期：2012年7月6日 - 2012年8月10日

時間：晚上7:00 - 8:30

地點：香港灣仔軒尼詩道15號溫莎公爵社會服務大廈4樓演講廳

授課語言：粵語及輔以英語詞彙

費用：港幣750元，整個課程共6節，每節為1.5小時

查詢：香港醫學組織聯會

電話：2527 8898

傳真：2865 0345

電郵：info@fmshk.org

凡學員出席率達七成或以上，均可獲頒發證書

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## My Sharing on Bird Watching

### Dr. Tze-hoi KWAN

MB,BS(HKU), MRCP(UK), FRCP(Edin & London), FHKCP, FHKAM.

Specialist in Nephrology, Consultant physician and renal team head, Department of M&G, Tuen Mun Hospital, Council member, Hong Kong Society of Nephrology



Dr. Tze-hoi KWAN

Bird watching first caught my eyes when I read about a "Bird Watching Competition" from the newspaper years ago. I then wondered how come watching wild birds per se, which was supposed to be a rather passive experience to me at that time, could be a game for competition.



Bird watching outing with children and friends.

Everything started when my daughter was attending a swimming lesson on a Sunday morning in Kowloon Park when she was in primary school back in 1996. My wife and my son who was then 6 year old would wait outside till my daughter finished her swimming lesson. While waiting outside the swimming pool, we wandered around Kowloon Park and discovered that there were many wild birds flying around the trees and in the bushes. The first wild bird that caught our eyes was a Red Whiskered Bulbul which is extremely common in Hong Kong. However, if observed at close distance, that bird has got a beautiful red cheek, a smart looking crest over the head plus a gorgeous red patch over the vent. The discovery of this beautiful yet common wild bird has triggered us to learn more about birds. We soon found ourselves a birding guide book published by the Hong Kong Government which comprised most wild bird species that could be found in Hong Kong and South China. With the aid of this birding guide, we started to explore various wild bird species in the Kowloon Park. How we cherished the day when each discovery of a new species was an excitement to us. Be it the Magpie Robin which sang beautifully but was often blamed as carrier of the H5N1 virus from time to time, be it the Crested Myna which looked like an all dark little crow while perching but got

two prominent white wing patches when flying. We got no teacher but we simply discovered new species one by one. I was fascinated by the ability of my little son who was able to spot new species extremely rapidly. He once cried out the term 褐翅鴉鵂 meaning a crow-like coucal with brown wings when he spotted a beautiful yet big bird flying across the pasture into the bushes, his little hands then flipped rapidly through the pages of the guide book and showed me the page illustrating all sorts of description about this bird with perfect match. We simply rejoiced over each and every new discovery.

Gradually, we learnt of the existence of the Hong Kong Bird Watching Society and started to join some of their outings. Through these outings we saw more species of birds, we got to know more friends in the bird watching community and we started to appreciate more and more natural habitats in Hong Kong which harboured different species and categories of birds.

In a special occasion when we took a local ferry to Tap Mun, a remote island to the north eastern corner of New Territories for watching sea birds, we ran into the then Vice Chairman of the Hong Kong Bird Watching Society, Dr Cheung. Through his networking, we managed to sit in the Big Bird Race in year 2000 as an observer. We then formed our own team the following year onward and we called ourselves the Sparrow Team. Dr. Wing-man KO and myself have been team members in the past few years and so were my son, his son plus several talented team members which we knew for over 10 years.



Dr Kwan in a Mai Po bird watching trip for renal patients co-organized by the World Wide Fund HK and Hong Kong Society of Nephrology.

The Big Bird Race is a fund raising event organised annually by the World Wide Fund Hong Kong to

support conservation of the Mai Po Nature Reserve and its various environmental projects in Hong Kong. The participants will join in groups which comprise a team captain, team members, a driver and a recorder. The team will go around various habitats in Hong Kong within 24 hours, for instance from 5pm Friday to 5pm Saturday. All species of birds positively identified by all team members, either seen or heard together are counted. The team which spotted the highest number of bird species will win the race. The organiser would not require one to produce a photo for proving the sighting of a bird, instead this race would run on the basis of an honour system and there are also adjudicators to determine the acceptability of rarities to the final record. The race is such a big fun to us since we need to hurry through various places in Hong Kong within a day. A typical schedule would be to visit Tsim Bei Tsui near Deep Bay in late afternoon on the first day to spot the shore birds first, followed by visiting Chau Tau near Lok Ma Chau at night to spot the various species of owls. These are nocturnal species of high interest to the beginners. Then we went for a sleep and woke up early the next day and started the race in a forest such as the Tai Po Kau to see the forest birds. We then went to places such as the Long Valley near Sheung Shui, or the wilderness near Kam Tin to see the typical farmland birds. We then go for Mai Po to finish the race. We would go straight out to the Deep Bay through the floating bridge, when the tide is around 2.2m. The waterfront would then be very near to most of the birding hides next to Deep Bay where thousands of waders such as sandpipers, godwits, ducks and seagulls are feeding in the mud flat. One can get a magnificent view of a large number of birds at close distance. We then retreat back to the ponds within Mai Po to watch some other waders which prefer a pond habitat. We then rush back to the check point before the finishing time to complete the race. A typical number of species that can be spotted by a good team would be around 145 per day. To a novice bird watcher, just by participating in a Big Bird Race, one can easily watch over 100 species within a day. It was the excitement of joining a Big Bird Race that kept me going for over 10 years and the Big Bird Race has become one of my annual routine with our team members

To me, bird watching is a relaxing hobby with your family or friends. You can simply take along your binoculars and enjoy a few hours of bird watching in the Long Valleys, to spot a few rarities especially during the migration season would be an additional bonus but it is equally good just seeing usual birds in their usual habitats as if visiting old friends. Through bird watching, I can connect better with my family. I sincerely treasure our common interest in nature and we can give each other more time for mutual sharing. Sometimes, we would lead a small group to show little children in our church how wonderful nature is. We hope to convince them nature appreciation is far more meaningful than going to shopping centres or playing on-line computer games.

Of course, some may even start exploring outside Hong Kong when one has accumulated enough local bird watching experience. Common places to explore would be Mainland China, Taiwan, Malaysia, Europe, Australia or America. These places all harbour good

birding habitats with different species of birds for you to discover and enjoy. Some would also develop the related hobby of bird photography which by itself is even more demanding in terms of the need for investing on expensive gears but it surely would offer another exciting field for exploration and development. Some may choose to enjoy literature related to bird watching. A good example would be the famous book from Rev John Stott: "Birds, our teachers" which is an excellent book to enrich our soul through the perspective of bird watching.

Should you be interested in taking up bird watching as your hobby, you can visit the website of the Hong Kong Bird Watching Society on [www.hkbws.org.hk](http://www.hkbws.org.hk). May you also experience the wonderful blessings from nature.



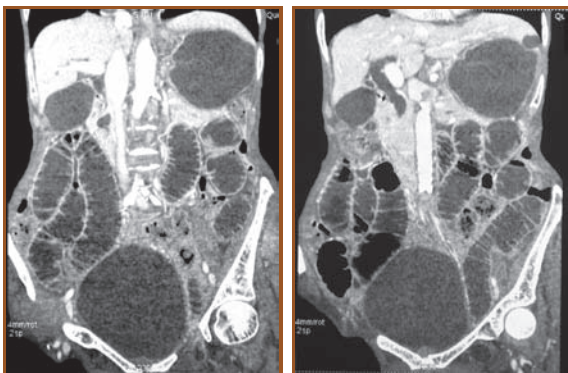
*Asian Barred Owlet perching on a tree in Kam Tin near the "Tree House"*



# Radiology Quiz

**Dr. Benjamin FANG**

Department of Radiology, Queen Mary Hospital



## Medical History:

78 year-old female, admitted for abdominal distension and vomiting

## Question:

What are the findings and the diagnosis?

*(See P.29 for answers)*

Enhancing the practice of primary care physicians as our goal to serve the medical profession and the Society

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**ORGANIZER**  
Department of Medicine  
The University of Hong Kong  
Queen Mary Hospital, Hong Kong

**THE UNIVERSITY OF HONG KONG**  
**LI KA SHING FACULTY OF MEDICINE**  
香港大學李嘉誠醫學院



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
	★ Pitfalls of Renal Scintigraphy	★ HKMA Tai Po Community Network - PATH & Nutrition Therapy Update ★ Council Meeting	★ Hong Kong Neurosurgical Society Monthly Academic Meeting - Central cord syndrome: review of evidence based management	★ HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2012 - Robotic surgery in ENT, head & neck surgery	★ HKMA Shatin Doctors Network - Update on Bisphosphonates and Osteoporosis Management	★ Refresher Course for Health Care Providers 2011/2012
<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>
★ Joint Professional Basketball Tournament 2012		★ FMSHK Officers' Meeting	★ HKMA CW&S Community Network - Osteoporosis: Current Controversies and Novel Treatment Target	★ FMSHK Executive Committee Meeting	★ Certificate Course on Management of Drug Abuse Patients for Family Doctors	★ Medical History Interest Group - 6th Meeting: "Starting from 1893 - Highlights in the History of Nursing in Hong Kong" ★ HKMA CME - Health Personnel 2012
<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>
★ HKMA Football Day 2012			★ Certificate Course on Management of Drug Abuse Patients for Family Doctors	★ FMSHK Foundation Meeting ★ HKMA Kln East Community Network- Alternative Management of Vaginal Infection and Recurrent Vaginitis		★ HKMA Youth Committee - Trip to Wuhan
<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>
★ HKMA Youth Committee - Trip to Wuhan ★ HKMA Bridge Tournament 2012 ★ HKMA Snooker Tournament 2012 (Preliminary Round)	★ HKMA Youth Committee - Trip to Wuhan					
<b>29</b>	<b>30</b>					



Date / Time	Function	Enquiry / Remarks
<b>2 MON</b> 7:30 pm	<b>Pitfalls of Renal Scintigraphy</b> Organiser: Hong Kong Urological Association Chairman: Dr. Po-chor TANG, Speaker: Dr. Terence LAI, Venue: Multi-disciplinary Simulation and Skills Centre, 4/F, Block F, QEH	Dr. Hing-hoi HUNG / Ms Tammy HUNG Tel: 2958 6006 1 CME point
<b>3 TUE</b> 1:00 pm 8:00 pm	<b>HKMA Tai Po Community Network – PATH &amp; Nutrition Therapy Update</b> Organiser: HKMA Tai Po Community Network, Speaker: Dr. Jeffrey MECHANICK, Venue: Tai Po <b>Council Meeting</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. CHOI Kin, Venue: HKMA Head Office (5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong)	Ms. Connie NG Tel: 2806 4287 1.5 CME points Ms. Christine WONG Tel: 2527 8285
<b>10 TUE</b> 8:00 pm	<b>FMSHK Officers' Meeting</b> Organiser: The Federation of Medical Societies of Hong Kong, Venue: Gallop, 2/F., Hong Kong Jockey Club Club House, Shan Kwong Road, Happy Valley, Hong Kong	Ms. Erica HUNG Tel: 2527 8898
<b>11 WED</b> 7:30 pm	<b>Hong Kong Neurosurgical Society Monthly Academic Meeting –Central cord syndrome: review of evidence based management</b> Organiser: Hong Kong Neurosurgical Society, Chairman: Dr. Kai-yuen PANG, Speaker: Dr. Samuel LAM, Venue: Seminar Room, Ground Floor, Block A, Queen Elizabeth Hospital	Dr. Gilberto LEUNG Tel: 2527 8898 1.5 CME points
<b>12 THU</b> 2:00 pm	<b>HKMA Structured CME Programme with Hong Kong Sanatorium &amp; Hospital Year 2012 – Robotic surgery in ENT, head &amp; neck surgery</b> Organiser: The Hong Kong Medical Association, Speaker: Dr. William I. WEI, Venue: The Hong Kong Medical Association Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F., Chinese Club Building, 21-22 Connaught Road Central	HKMA CME Department Tel: 2527 8452 1 CME point
<b>13 FRI</b> 1:00 pm	<b>HKMA Shatin Doctors Network – Update on Bisphosphonates and Osteoporosis Management</b> Organiser: HKMA Shatin Doctors Network, Chairman: Dr. Wing-kin MAK, Speaker: Dr. Dicky TK CHOY, Venue: Jasmine Room, Level 2, Royal Park Hotel, Shatin	Miss Candice TONG Tel: 2527 8285 1 CME point
<b>14 SAT</b> 2:30 pm	<b>Refresher Course for Health Care Providers 2011/2012</b> Organiser: The Hong Kong Medical Association, Speaker: Dr. Hon-cheung FAN, Venue: Training Room II, 1/F, OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin, Kowloon	Ms. Clara TSANG Tel: 2354 2440 2 CME points
<b>15 SUN</b> 2:00 pm	<b>Joint Professional Basketball Tournament 2012</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. David YK BUT, Venue: To be confirmed	Ms. Dorothy KWOK Tel: 2527 8285
<b>18 WED</b> 1:00 pm	<b>HKMA CW&amp;S Community Network - Osteoporosis: Current Controversies and Novel Treatment Target</b> Organiser: HKMA CW&S Community Network, Chairman: Dr. Ping-yin YIK, Speaker: Dr. Tak-cheong CHEUNG, Venue: The Hong Kong Medical Association Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F., Chinese Club Building, 21-22 Connaught Road Central	Mr. Alan LAW Tel: 2527 8285 1 CME point
<b>19 THU</b> 8:00 pm	<b>FMSHK Executive Committee Meeting</b> Organiser: The Federation of Medical Societies of Hong Kong, Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Erica HUNG Tel: 2527 8898
<b>20 FRI</b> 1:00 pm	<b>Certificate Course on Management of Drug Abuse Patients for Family Doctors</b> Organiser: The Hong Kong Medical Association, Venue: Kwun Tong Lei's Garden	Miss Nadia HO Tel: 2527 8285
<b>21 SAT</b> 1:30 pm 3:30 pm	<b>HKMA CME – Health Personnel 2012</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. Man-wo TSANG, Speaker: Dr. Cheuk-wan YIM, Venue: Lecture Theatre, G/F, Block F, UCH <b>Medical History Interest Group – 6th Meeting: “Starting from 1893 – Highlights in the History of Nursing in Hong Kong”</b> Organisers: Hong Kong Museum of Medical Sciences Society and College of Nursing, Hong Kong, Venue: U/G Lecture Theatre, Ruttonjee Hospital, 266 Queen's Road East, Wan Chai, Hong Kong	Ms. Cathy HUNG Tel: 2549 5123 Ms. Gary WONG Tel: 3513 4821 1.5 CME points
<b>22 SUN</b> 12:00 noon	<b>HKMA Football Day 2012</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. Timmy CW CHAN, & Dr. Kingsley HN CHAN, Venue: Sir Philip Hadden-Cave Football Field, The Chinese University of Hong Kong, Shatin, NT	Ms. Dorothy KWOK Tel: 2527 8285
<b>25 WED</b> 1:00 pm	<b>Certificate Course on Management of Drug Abuse Patients for Family Doctors</b> Organiser: The Hong Kong Medical Association, Venue: Kwun Tong Lei's Garden	Miss Nadia HO Tel: 2527 8285
<b>26 THU</b> 1:00 pm 8:00 pm	<b>HKMA Kln East Community Network- Alternative Management of Vaginal Infection and Recurrent Vaginitis</b> Organiser: HKMA Kln East Community Network, Chairman: Dr. Ping-kwan MA, Speaker: Dr. Tan-mei YANG, Venue: East Ocean Seafood Restaurant, TKO <b>FMSHK Foundation Meeting</b> Organiser: The Federation of Medical Societies of Hong Kong, Venue: Council Chamber, 4/F, Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong	Ms. Erica HUNG Tel: 2527 8898 Mr. Alan LAW Tel: 2527 8285 1 CME point
<b>28 SAT</b> (29,30)	<b>HKMA Youth Committee - Trip to Wuhan</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. Jeffrey CF PONG, Venue: Wuhan	Miss Tracy GUO Tel: 2527 8285
<b>29 SUN</b> 2:00 pm 2:00 pm	<b>HKMA Bridge Tournament 2012</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. Hon-shing LAM, Venue: Conference Room, 3/F, Mariners' Club, Middle Road, Tsimshatsui, Kowloon <b>HKMA Snooker Tournament 2012 (Preliminary Round)</b> Organiser: The Hong Kong Medical Association, Chairman: Dr. Raymond WK CHEUNG Venue: Prat Billiard Club, 2/F, Austin Tower, 22-26 Austin Avenue, Kowloon	Ms. Dorothy KWOK Tel: 2527 8285 Ms. Dorothy KWOK Tel: 2527 8285

## Upcoming Meeting

26-27/5/2012

### 13th Regional Osteoporosis Conference 2012

Organiser: Osteoporosis society of Hong Kong & Hong Kong Doctors Union, Venue: Hong Kong Convention and Exhibition Centre, Chairman: Dr Anita Sik-yau KAN, Enquiry: Ms Zita BAI Tel: (852) 2559 9973, Fax: (852) 2547 9528



Jointly organised by



The Federation of  
Medical Societies of  
Hong Kong



Hong Kong Institute of  
Occupational and  
Environmental Hygiene

## Certificate Course on Occupational Hygiene Practice 2012

### Objectives:

The training course is intended to promote the knowledge of occupational hygiene among people working in healthcare sectors. The basic working principles of occupational hygiene include recognition, identification, evaluation and control of hazards in the workplace environment. In a series of six topics, some common health and safety issues will be discussed, including OSH management for health care facilities. Through simple languages with illustrative examples, measures are recommended to raise the awareness and to enhance the understanding on safe work practices in order to protect their own health and well being at work.

Date	Topics	Speakers
10 July	1. Introduction of occupational hygiene practice 2. OSH management for health care facilities	Mr. Tai-wa TSIN <i>Honorary Research Associate, HKU; Adjunct Assistant Professor, CUHK</i>
17 July	3. Radiation hazards and control	Mr. Sung-tat YIP <i>Laboratory Safety Officer (Radiation) University Safety Office The Chinese University of Hong Kong</i>
24 July	4. Prevention of sharps injury	Mr. Ralph Kai-yip LEE <i>Occupational Hygienist Labour Department</i>
31 July	5. Isolation methods for infection control	Mr. Tai-wa TSIN <i>Honorary Research Associate, HKU; Adjunct Assistant Professor, CUHK</i>
7 August	6. Chemicals hazards and control	Mr. Mo-tsun TO <i>Health, Safety and Environment Manager The Hong Kong University of Science and Technology</i>
14 August	7. Respiratory Protection Program	Mr. Mo-tsun TO <i>Health, Safety and Environment Manager The Hong Kong University of Science and Technology</i>

**Date :** 10 July 2012 – 14 August 2012 (Every Tuesday)

**Time :** 7:00 p.m. – 8:30 p.m.

**Venue :** Lecture Hall, 4/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Wanchai, Hong Kong

**Language Media :** Cantonese (Supplemented with English)

**Course Fee :** HK\$750 (6 sessions)

**Certificate :** Awarded to participants with a minimum attendance of 70%

**Enquiry :** The Secretariat of The Federation of Medical Societies of Hong Kong

Tel.: 2527 8898

Fax: 2865 0345

Email: info@fmskhk.org

### CME / CPD Accreditation in application

A total of 9 CNE points for the whole course and the points will be awarded according to the number of hours attended. Application form can be downloaded from website: <http://www.fmskhk.org>



## Answer to Radiology Quiz

### CT Findings:

- Grossly dilated small bowel; Collapsed large bowel;
- Dilated small bowel loop extending into L obturator foramen with collapsed loop coming back out.
- Bowel wall enhancement preserved. No evidence of bowel ischaemia. No free gas to suggest perforation.

### Diagnosis:

L obturator hernia with small bowel obstruction.

### Discussion:

Obturator hernia is nine times more common in females due to their wider pelvis, more triangular obturator canal opening and greater transverse diameter. It occurs most frequently in emaciated patients aged between 70 and 90 years, and hence its nickname, "little old lady's hernia". The loss of protective preperitoneal fat and lymphatic tissue (corpus adiposum) around the obturator vessels and nerves facilitates the formation of hernia.

The obturator foramen is occluded by the obturator membrane which is pierced anterosuperiorly by the obturator artery, vein, and nerve. This neurovascular bundle then travels along a 2- to 3-cm oblique tunnel formed by the internal and external obturator muscles, the so-called obturator canal. It is through this deficiency that a hernia occurs.

The layers the hernia neck passes through include the obturator membrane and fibres of the obturator internus/externus muscles. The hernia will then lie superficial to the obturator externus and deep and inferior to the pectineus muscle. The hernia may contain: Peritoneal fluid; small bowel (most common); colon; appendix; omentum; Meckel diverticulum; ovary / fallopian tube; uterus.

The clinical presentation is vague with symptoms of bowel obstruction which is present in more than 80% of patients. Obstruction is usually partial due to a high frequency (41%–100%) of Richter's herniation of the small bowel into the obturator canal. Obstruction can be acute or intermittent. An external hernia is uncommon.

Clinical signs are seldom thought of and hence seldom sought. Most of the signs are due to compression of the obturator nerve by the hernia sac and its contents. The common signs which can be elicited are obturator neuralgia which presents as either hyper- or hypoaesthesia from the inguinal crease to the anteromedial aspect of the thigh. The Howship-Romberg sign is a useful test. A positive result occurs when pain extends down the medial aspect of the thigh with abduction, extension, or internal rotation of the knee. Flexion of the thigh usually relieves this pain; This sign is present in 15%–50% of cases. It is often overlooked or misinterpreted due to associated disorders of the hip like arthritis. The Hannington-Kiff sign refers to an absent adductor reflex in the thigh. It is more specific than the Howship-Romberg sign but less known. Per rectal and per vaginal examinations can reveal a palpable mass and adds to the clinical suspicion of obturator hernia.

The diagnosis is readily made on cross sectional imaging, CT / MRI with either fluid or bowel is able to be traced along the forementioned course to lie in the medial upper thigh. Ultrasound is also useful in confirming the diagnosis. If seen with ultrasound however, it may be mistaken for a bursa or acetabular labral cyst. Complications to be looked for would include bowel obstruction, strangulation and perforation.

Treatment is by surgery.

### References:

1. *Obturator hernia: diagnosis and treatment in the modern era*  
Mantoo S K, Mak K, Tan T J  
*Singapore Med J* 2009; 50(9) : 866
2. *Radiopaedia.com – Obturator hernia*
3. *GPnotebook.com – Howship Romberg Sign*

**Dr. Benjamin FANG**  
Department of Radiology, Queen Mary Hospital

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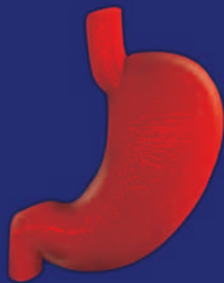
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