The Cambodian Journal of Nephrology

Meeting Issue
The Second Annual Meeting of
Cambodian Association of Nephrology 2017
Lim Vadhana, Congress President
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Where a manuscript is posted in the Journal in multiple languages and where there is any discrepancy between the versions in different languages, the English language version will prevail over the others.
Welcome Letter

Dear Excellencies, distinguished guests, dear colleagues, friends, ladies and gentlemen. On behalf of the Cambodian Association of Nephrology, it is my great pleasure to host this event and welcome you to the annual conference of nephrology. I am very grateful to you for taking time off from your busy schedule to attend this important conference.

I’d like to begin by giving a brief introduction to CAN and describe what it is that we do here. Cambodian Association of Nephrology, being legally permitted by Ministry of Interior of Cambodia in April 2016, is created by our Cambodian nephrologists with a strong support of Professor TORO HYODO. The main task of our association is to promote health and welfare of our people in any condition. As you can see the number of cases of kidney diseases is increasing non-stop worldwide as well as in Cambodia, they become a burden to the family and the society. In order to solve this problem, our members of CAN are trying very hard to publicize to our people about the prevention and treatment of kidney diseases. CAN also trains doctors and medical officers to be able to understand and treat kidney diseases efficiently.

Today, with the participation of our national and international guests from Vietnam and Japan, we are very delighted to welcome you to the second annual conference of nephrology of Cambodia. I am very honored to announce that the conference starts now. Last, I would like to wish you a very successful conference and a wonderful day. Thank you.

LIM VADHANA

President of the Cambodian Association of Nephrology,
At the 2nd Annual Conference of the Cambodian Association of Nephrology
18 November 2017, Phnom Penh, Cambodia

The second annual conference of
Cambodian Association of Nephrology
“All about CKD and AKI”
2017 Preliminary Program

Date : November 18, 2017   Venu : Hotel Cambodiana

8:00   Arrival of National and International participants and speakers(Register)
8:30-8:35  National Anthem
8:35-8:45   Welcoming and Opening Speech by Prof.Lim Vadhana, director of CAN

Session 1   Chairman:Prof.LIM Vadhana, Prof.Toru Hyodo
8:45-9:05 Standard procedure for arteriovenous fistula, superficialization and percutaneous transluminal angioplasty
Presented by : Dr.Toshihide Naganuma, Osaka, Japan
9:05-9:25 Calcium Management in CKD patients
Presented by : Dr. Lim Sochun, general secretary of CAN, Calmette Hospital, Cambodia
9:25-9:45 Calcium Channel Blockers and the Cardio-renal System
Presented by : Prof. Pham Van Bui, Vietnam
9:45-9:55 Roche presentation
9:55-10:10 Question & Answer
10:10-10:30 Coffee Break

Session 2   Chairman:Dr.LIM Sochun, Prof.Pham Van Bui, Vietnam
10:30-10:50 Contrast Induced Nephropathy(CIN), how to minimize the risk?
Presented by : Dr. NIV Rathvirak, executive member of CAN, Calmette Hospital, Cambodia
10:50-11:10 “Kidney transplantation; Principles and Methods” AND “Passenger Lymphocyte Syndrome in the ABO-Incompatible Kidney Transplant Recipient Receiving Rituximab.”
Presented by : Dr. Shunji Nishide, Osaka, Japan
11:10-11:30 The management of acute hyponatremia in adult
Presented by : Prof. HY Chaneil, executive member of CAN, Calmette Hospital, Cambodiaseil, executive member of CAN, Calmette Hospital, Cambodia
11:30-11:40 Roche presentation
11:40-11:50 La Renon presentation
11:50-12:10 Question & Answer
12:10 Closing Ceremony, photo and lunch
Abstracts

Standard procedure for arteriovenous fistula, superficialization and percutaneous transluminal angioplasty.

Toshihide Naganuma1,2, Ayumi Takizawa2,3, Haruki Wakai2, Toru Hyodo2

1) The Department of Urology, Osaka City University Graduate School of Medicine, Osaka, Japan
2) NGO Ubiquitous Blood Purification International, Yokohama, Japan
3) Japanese Society for Technology of Blood purification, Tokyo, Japan

Arteriovenous fistula

1) Today I will show you a video of the typical arteriovenous fistula (AVF) creation procedure we perform in the distal forearm at our hospital.

2) First of all, after applying a tourniquet, we visually examine whether there is a suitable vein in the forearm and whether this vein continues to the elbow. Continuity of the vein can be confirmed by placing your right index finger on the cubital vein and feeling the pulsation of the peripheral blood vessels with your left index finger. If pulsation cannot be felt, the vein may be too thin or blocked in mid-forearm, upon which AVF creation is attempted somewhere else.

3) Next, we remove the tourniquet and confirm whether there is enough pulsation in the artery by palpation.

4) A line is marked on both the artery and the vein, between which the incision will be made.

5) After sterilizing the site, a local anesthetic of 1% Xylocaine is injected. A 30 G needle is used at our hospital to minimize pain. The tissue is plumped up to prevent cutting the blood vessels underneath by mistake when making the incision.

6) We then make the incision. The scalpel is inserted at a shallow angle to avoid damaging the blood vessels, but the incision needs to be made into the dermis.

7) The incision is opened using a retractor, but if there is a thick layer of tissue left on the blood vessels, it is isolated using mosquito forceps and cauterized using bipolar cautery, which is then incised with Metzenbaum scissors. Bleeding is stopped using bipolar cautery.

8) Next, the vein is isolated using mosquito forceps and secured with surgical tape. In this image, the upper left is the peripheral side and the lower right is the central side.

9) The vein branches are ligated using 3-0 silk suture threads.

10) The sheath around the vein is detached in the running direction of the vein, so that the vein is sufficiently visible.

11) Next, the artery is isolated after confirming pulsation.

12) The artery is isolated using mosquito forceps and secured with surgical tape, and the artery branches are ligated after cauterization using bipolar cautery.

13) We then line up the isolated vein and artery and measure the distance between them to form a mental image of anastomosis.

14) Next the vein are dissected.

15) Holding a tweezer with narrow tips and using the outer tube of an 18 G butterfly needle, we dilate the vein with saline solution. If the pressure is high or the vein is thin, a 3Fr Fogarty catheter is used.

16) The site of anastomosis is dilated with saline solution.

17) Bulldog clamps are placed on the artery.

18) We then confirm the anastomosis site of the vein and artery.

19) The lateral aspect of the vein is incised using a scalpel, and the incision is opened with ophthalmic scissors to approximately 7 mm.

20) Next the artery is dissected.

21) We use one 7-0 Prolene for anastomosis.

Instead of using two strands of thread to tie the two ends, with this method, the ends are clearly visible and anastomosis is close to a loop and smooth, but you will need some practice. The person on the right is the surgeon and the person on the left is the assistant.

22) The suture is threaded from the peripheral side, and anastomosis is performed by continuous suture from the back. Please look at the video. There is about a 1 mm gap between suture points.

23) After the back is sutured from the peripheral side to the central side, the front is sutured from the peripheral side to the central side.

24) At this time, you must be careful not to suture the back. When we reach the end, we make a knot by tying at least 5 times.

25) We next remove the bulldog clamp on the vein, the one on the peripheral artery and the one in the center and confirm if there is good thrill and no leaks.

26) The incision is closed by mattress suture using 4-0 nylon thread, and 3 stitches are usually enough for this site. Lastly, we affix the dressing tape.

Superficialization

1) First, the skin incision must be designed to allow for the puncture site to be adequately made.

There are several designs for this incision, but we make a crestal incision.

2) Dissection should be done quite boldly, and if there is connective tissue around the blood vessels, it is isolated using mosquito forceps.

3) The incision is closed by mattress suture using 4-0 nylon thread, and 3 stitches are usually enough for this site. Lastly, we affix the dressing tape.

Percutaneous Transluminal Angioplasty

1) In Japan the shunt is rarely surgically created after stenosis or obstruction, and PTA is usually performed, elevating the patency rate of vascular access.

2) A sheath is inserted into the vein and a PTA balloon is inserted expanding the stenosis. There are balloons that can increase the pressure to up to 30 ATM.

3) In this case, X-ray examination using contrast medium is performed, but ultrasound is also used.

4) The procedure is simple but the device can be expensive at about 300 dollars.
Arteriovenous Fistula

1) Introduction

2) Materials and Methods

3) Results

4) Discussion

Abstracts

1) Arteriovenous fistula (AVF)

2) Methods

3) Results

4) Conclusion
Calcium Management in CKD patients

LIM Sochun, MD

General secretary of Cambodian Association of Nephrology internist and nephrologist at Calmette hospital and University of Health and Sciences

Chronic renal failure (CKD) can give several complications through following their stages. One of them is phosphorus and calcium disorder. Aging is associated with decreases in bone quality and in glomerular filtration. Consequently, renal osteodystrophy and CKD are common comorbid conditions in the elderly. Biochemical abnormalities in the homeostasis of calcium and phosphorus begin early in CKD, leading to an increase in fracture risk and cardiovascular complications since early stages of the disease.

The management of the disease is also controversial: calcium and vitamin D, although recommended, must be prescribed with caution, considering vascular calcification risk and the development of adynamic bone disease.
Calcium Channel Blockers and the Cardio-renal System

Prof. Pham Van Bui, Viet Nam

The most important property of Calcium Channel Blockers (CCBs) is to selectively inhibit the entrance of calcium ions into the cell when the calcium channel becomes permeable. There are at least two types of calcium channel, the L and the T/N. The movement of calcium ions through L channel, which is blocked by CCBs and increased in activity by catecholamines, would result in vascular constriction whereas the T/N channels are found predominantly in nerve endings, which secrete norepinephrine once stimulated and resulting in increase in heart rate and vaso-constriction. All old CCB generations (1st, 2nd, 3rd generations) only block L channel but have no effect on T type. Consequently, they cause vasodilation and lowering blood pressure with the risk of increase in heart rate due to calcium ions keeping entering T/N channels.

In renal glomeruli, L channels locate predominantly in the afferent arterioles whereas T/N channels are in both afferent and efferent arterioles. Therefore, the 1st, 2nd, 3rd generation CCBs, by only acting on L channels, can cause untraglomerular hypertension in the conditions such as uncontrolled arterial hypertension, hyperglycemia, albuminuria/proteinuria..., and injure glomeruli in the long run.

Recently, Cilnidipine, considered as the 4th generation CCB, acts on both L and T/N channels. Therefore, in the cardiovascular system, Cilnidipine helps to low blood pressure without tachycardia reflex secondary to norepinephrine released from nerve endings and lowering blood pressure. Also, in the kidney, there is no risk of intraglomerular hypertension as both afferent and efferent are dilated due to both L and T/N channels are blocked by Cilnidipine. Consequently, they cause no risk of intraglomerular hypertension as both afferent and efferent are dilated due to both L and T/N channels are blocked by Cilnidipine.
Contrast Induced Nephropathy (CIN), how to minimize the risk?

NIV Rathvirak, M.D

Nephrologist, Department of general medicine A4 and hemodialysis CHEA SIM, CALMETTE hospital.

Contrast induced nephropathy (CIN) defined as a rise in serum creatinine of >0.5 mg/dl (>44 mmol/l) or a 25% increase from baseline value, assessed at 48 hours after a radiological procedure. Because of the increased use of contrast media (for diagnosis or therapeutic purpose) and the increased of the prevalence of diabetic and cardiovascular patients, the potential risk of CIN has also been increased. In US, it represents the 3rd cause of hospital acquired AKI with the incidence about 2% in patients without risk factors, and up to 9% in patients with risk factors. CIN is a phenomenon that has been studied throughout the years. Many studies show the benefits of using I.V isotonic sodium chloride or/and N-Acetylcysteine (NAC) to reduce the incident of CIN. But there are others strategies that can also minimize the risk. The aim of this presentation is to find out the suitable CIN's prevention for Cambodian patient.
In patients with end-stage renal disease, successful renal transplantation improves the quality of life and increases survival, as compared with long-term dialysis treatment. So, it is clear that kidney transplantation is superior to dialysis over the long term. But, during the first 3 months after transplantation, the risk of death among the transplant recipients is increased. This is related to risks associated with the surgery itself and to the use of high-dose immunosuppressive therapy.

In this presentation, surgical procedure of kidney transplantation, the risk of death among the transplant recipients is increased. To remove the anti-A antibodies, the patient underwent standard antibody removal consisting of 1 session of double-filtration plasmapheresis and 1 session of plasma exchange. Postoperative immunosuppression with basiliximab (20 mg) was given at day 0 and at day 4 with cyclosporine, which was given to maintain a blood trough level of 250 to 300 ng/mL during the first month after the transplant procedure. The MMF dose after transplant was maintained at the pretransplant dose level 4 mg/day, which was given to maintain a blood trough level of 250 to 300 ng/mL during the first month after the transplant procedure.

The recipient received a desensitization protocol without splenectomy consisting of only a single dose of rituximab (150 mg/m²) at 2 weeks before transplant. Pretransplant immunosuppression included B-lymphocyte suppression for 4 weeks of mycophenolate mofetil (MMF) at 0.5 g/day to avoid overimmunosuppression. To remove the anti-A antibodies, the patient underwent standard antibody removal consisting of 1 session of double-filtration plasmapheresis and 1 session of plasma exchange. Postoperative immunosuppression with basiliximab (20 mg) was given at day 0 and at day 4 with cyclosporine, which was given to maintain a blood trough level of 250 to 300 ng/mL during the first month after the transplant procedure. The MMF dose after transplant was maintained at the pretransplant dose level 4 mg/day, which was given to maintain a blood trough level of 250 to 300 ng/mL during the first month after the transplant procedure.
The management of acute hyponatremia in adult

Dr. HY Chanseila, nephrologist, college of CHEA Sim hemodialysis center and department of general medicine A, Calmette hospital.

Sodium is an electrolyte, and it helps regulate the amount of water that’s in and around the cells. Hyponatremia is an important and common electrolyte abnormality that can be seen in clinical practice at the hospital. Many medical illnesses, such as congestive heart failure, liver failure, renal failure, or pneumonia, may be associated with hyponatremia.

The severity of neurologic symptoms correlates well with the rate and degree of the drop in serum sodium. A gradual drop in serum sodium, even to very low levels, may be tolerated well if it occurs over several days or weeks, because of neuronal adaptation. On the contrary in acute hyponatremia, symptoms range from mild anorexia, headache, and muscle cramps, to significant alteration in mental status including confusion, coma, or seizure. This neurologic symptom complex can lead to tentorial herniation with subsequent brain stem compression and respiratory arrest, resulting in death in the most severe cases.

The treatment is quite complex and depending on the cause of hyponatremia (sodium lost or sodium diluted). The information on the drugs the patient has been using is important because many medications may precipitate hyponatremia (for example: diuretics). The goal of treatment acute hyponatremia is to return the sodium levels to normal to prevent cerebral edema and brain death. The recommendations for treatment of acute hyponatremia rely on the current understanding of the central nervous system (CNS) adaptation to an alteration in serum osmolality. Therefore, correction of hyponatremia should take into account the limited capacity of this adaptation mechanism to respond to acute alteration in the serum tonicity, because the degree of brain edema and consequent neurologic symptoms depend as much on the rate and duration of hypotonicity as they do on its magnitude. Keys words: acute hyponatremia, neurological symptom, goal of treatment.
Basic Carbohydrate Counting for Glycemic Control in Diabetic Hemodialysis Patients.

Toru Hyodo, M.D., Ph.D 1), 2) , Yukie Kitajima, R.D., Ph.D 1), 2), 3)
1) NGO Ubiquitous Blood Purification International, Yokohama, Japan
2) Cambodia-Japan Friendship Blood Purification Center, Sen Sok International University Hospital, Phnom Penh, Cambodia
3) Tokyo Healthcare University, Tokyo, Japan

Key words : Basic carbohydrate counting, Diabetic dialysis patients, glycemic control

[History of carbohydrate counting and the effect for diabetic dialysis patients]
Carbohydrate counting used in dietary therapy for diabetes, is based on the concept that the postprandial rise in blood glucose levels is primarily affected by ingested carbohydrates [1-4]. This method has been widely accepted and used since 1993, when its usefulness was demonstrated in the United States, owing to the advantage of ease of understanding by patients [5]. Life with Diabetes, a guidance book for patients that was published by American Diabetes Association in the United States in 2004, states that the dietary carbohydrate level, not fat or protein levels, is the determinant of postprandial blood glucose levels (Table 1) [6]. In terms of renal failure, the US National Kidney Foundation provides information about carbohydrate counting on their website under the title of “Carbohydrate counting with chronic kidney disease” and recommends it as a common dietary therapy for patients with chronic diabetic nephropathy and end-stage renal failure [7]. However, there is a common misunderstanding that energy intake determines postprandial blood glucose levels in Japan [8]. It seems to lead to the increase of dialysis patients due to diabetic nephropathy. This situation seems to be same in Cambodia.

We examined the effectiveness of use of the basic carbohydrate counting in Japanese diabetic dialysis patients. In the basic carbohydrate counting method, compared with pre-instruction values, pre-dialysis blood glucose and HbA1c levels were significantly decreased at term of follow-up (Fig. 1, 2). There were no significant changes in other parameters (Fig. 3). The carbohydrate counting could be applied independently of, but concurrently with, the control of potassium and phosphorus intake, which is the basis of dietary therapy for dialysis patients [9].

[Basic Carbohydrate Counting Procedure]
The basic carbohydrate counting (BCC), targets all diabetic patients, places emphasis on learning to understand the amount of carbohydrates in food items, and encourages them to eat a consistent amount of carbohydrates at each meal to minimize fluctuations in blood glucose levels (Fig. 4).

1) Determining of energy requirements
Total daily energy requirements were determined in accordance with physical activity levels, using the following formula developed by the Japan Diabetes Society [10]

\[
\text{Required energy intake} = \text{ideal body weight (IBW)} \times \text{physical activity level} \\
\text{IBW (kg)} = \text{height (m)} \times \text{height (m)} \times 22
\]

[Table 1]

<table>
<thead>
<tr>
<th>Nutrients in Food Groups by American Diabetes Association in 2004</th>
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<tr>
<td>Food Group</td>
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<td>------------</td>
</tr>
<tr>
<td>Meat</td>
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<tr>
<td>Fish</td>
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<tr>
<td>Milk</td>
</tr>
<tr>
<td>Vegetable</td>
</tr>
<tr>
<td>Meat</td>
</tr>
<tr>
<td>Fish</td>
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<tr>
<td>Milk</td>
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</table>

[Figure 1, 2, and 3]
The changes of pre-dialysis blood glucose, HbA1c, Hb, Alb, potassium, and phosphorous by the basic carbohydrate counting (BCC). All of the blood glucose and HbA1c values were significantly decreased when they were compared with the value just before the basic carbohydrate counting (BCC) was introduced. On the other hand, Hb, Alb, potassium, and phosphorous did not show any significant changes.

D: just before BCC

[Fig. 4]
The image of blood glucose changes after breakfast, lunch, and dinner by the basic carbohydrate counting induction. If for example, the amount of carbohydrates per a day is that of 4 pieces of rice balls, it is possible to minimize fluctuations in blood glucose levels by eating a consistent amount of rice balls at each meal.
Energy requirements (kcal/kg; IBW) depend on physical activity levels, and the reference values are set as follows: low (such as individuals mainly engaged in desk work and housewives): 20-30 kcal/kg; medium (such as those mostly working while standing): 30-35 kcal/kg; and high (such as those mainly engaged in heavy work): 35 kcal/kg or higher.

Basically, carbohydrates, proteins, and lipids should account for 60, 20, and 20%, respectively, of the total energy intake. As it is particularly important to consider the nutritional balance, the target proportion of carbohydrates was set at 50-60%. Furthermore, as it examined patients undergoing maintenance dialysis, the protein/energy ratio was appropriately managed by monitoring the serum phosphorus level. When the energy intake was insufficient, patients were advised to complement it with lipids, mainly unsaturated and medium chain fatty acids.

2) BCC instructions
To facilitate patients’ understanding, we focused on providing practical and clear information about which foods would affect blood glucose levels. At the first instruction session in BCC, we took time to explain about foods that raise (and do not affect) postprandial blood glucose levels using a handout containing a list and illustrations of these foods, as well as about the carbohydrate content of vegetable side dishes (Fig. 5).

Carbohydrates and sugars in staple grain foods (such as rice, udon and soba noodles, bread, and pasta), cakes, and sweets are the primary dietary source of blood glucose, and proteins from meat and fish or fats and lipids have minimal effects on postprandial blood glucose levels. Therefore, at first, patients were simply instructed to eat a consistent amount of staple grain foods at each meal. Taking the advanced age of most patients into account, we kept the instructions as simple as possible.

[Reference]


ការប្រើប្រញេះការពារជំងឺត្រូវបានការពារ (BCC) បានបង្កើតការពារជំងឺត្រូវបានការពារ (Glycemic) នៅក្នុងសមាជិកដ៏មិនបានប្រើប្រញេះការពារជំងឺត្រូវបានការពារ។

ហេតុនេះយើងគួរយោបាយការប្រើប្រញេះការពារជំងឺត្រូវបានការពារ។ ឧទាហរណ៍ៈការពារជំងឺត្រូវបានការពារបន្ថែមបន្ថែមពីការទទួលទានដ៏មិនបានប្រើប្រញេះការពារជំងឺត្រូវបានការពារ។ ទើបប្រើប្រញេះការពារជំងឺត្រូវបានការពារដ៏មិនបានប្រើប្រញេះការពារជំងឺត្រូវបានការពារ។ ដ៏រីរាងការពារជំងឺត្រូវបានការពារដ៏មិនបានប្រើប្រញេះការពារជំងឺត្រូវបានការពារ។

![Image 1](https://example.com/image1.png)

(រូបភាពទើប 1)

![Image 2](https://example.com/image2.png)

(រូបភាពទើប 2)

![Image 3](https://example.com/image3.png)

(រូបភាពទើប 3)

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Cambodian Journal of Nephrology Vol.2, No.1, November 2017

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Cambodian Journal of Nephrology Vol.2, No.1, November 2017


Dialysis Column

1) Required energy intake = Ideal body weight (IBW) × Physical activity level

IBW (kg) = Height (m) × Height (m) × 22

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Required energy intake (Kcal/kg; IBW)</th>
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<tbody>
<tr>
<td>Thin</td>
<td>20-30 Kcal/kg</td>
</tr>
<tr>
<td>Medium</td>
<td>30-35 Kcal/kg</td>
</tr>
<tr>
<td>Fat</td>
<td>&gt;35 Kcal/kg</td>
</tr>
</tbody>
</table>

2) Recommended diet:

- Ensure a balanced diet that includes lean proteins, unsaturated fats, and complex carbohydrates. 
- Avoid processed foods and sweets.

[Image of dialysis column]

**Author Guidelines**

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Cambodian Journal of Nephrology Vol.2, No.1, November 2017
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បទប្បញ្ញត្តិជាស្រាវជ្រាវ

1. ទស្សនាវែ្តី The Cambodian Journal of Nephrology ត្ូវបានយធវើនេះក្នុងដំណើរការបោះពុម្ពផ្សាយជាភាសាកម្មសិទ្ិ្វ៓សាស្ និងការសមែមសារផ្្សងៗដែលមានបែ្ាសិទ្ិ្បាលេសក្នុងការបោះពុម្ពផ្សាយ។

2. មិនមានការបោះពុម្ពបែ្ាសិទ្ិ្បាលេសក្នុងការបោះពុម្ពផ្សាយដែលមានបែ្ាសិទ្ិ្បាលេសក្នុងការបោះពុម្ពផ្សាយ។

3. ការបោះពុម្ពរូបភាពណ៍មានបែ្ាសិទ្ិ្បាលេសក្នុងការបោះពុម្ពផ្សាយ និងការសមែមសារផ្្សងៗដែលមានបែ្ាសិទ្ិ្បាលេសក្នុងការបោះពុម្ពផ្សាយ។

4. មិនមានការប្រឈមការបោះពុម្ពផ្សាយដែលមានបែ្ាសិទ្ិ្បាលេសក្នុងការបោះពុម្ពផ្សាយ។

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Vol.2, No.1, November 2017
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Publisher: The Cambodian Journal of Nephrology is published by Reiseikai Media (Cambodia) Co., Ltd.

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Cambodian Journal of Nephrology
Vol.2, No.1, November 2017

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