# BANGLADESH RENAL JOURNAL

(A Journal of continuing education in kidney diseases)

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# BANGLADESH RENAL JOURNAL

**(A Journal of continuing education in kidney diseases)**

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Only scientific papers written in English will be accepted. Restriction to the essential is recommended. Original papers should normally not exceed 16 type- written pages including tables, illustration and references. The arrangement of the paper should include summary, introduction materials and methods, results and discussion. Each section being clearly marked. The manuscripts must be type-written on a white paper, on one side of the sheet only and double spaced on consecutively numbered pages. Figures and illustrations, tables. captions, references, summary (15-20) lines and acknowledgement are to be submitted on separate paper. The caption should be brief and should not represent a duplication of information provided in the text.

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Grindley MF: Manual of histologic and special staining Nephrologic, Elammarion, Paris, 1965.

## ABBREVIATIONS

| | |
|---|---|
| Angstrom | A |
| body surface area | BSA |
| body weight | body wt. |
| centimeter | cm |
| celius | C |
| complement components | C1,C2,C3 |
| Correlation coefficient | r |
| creatinine clearance | Ccr. |
| curie (s) | Ci |
| Equivalents | Eq |
| Fahrenheit | F |

| | |
|---|---|
| Glomerular fitration rate | GFR |
| gram (s) | g |
| Grams per cent | g/100mi |
| half-time | tf1/2 |
| hour (s) | hr |
| inch | inch |
| International Unit (s) | IU |
| Intramuscular | im. |
| intraperioneal | i.p. |
| intravenous | i.v. |
| inulin clearance | Cln |
| Kilogram (s) | Kg |
| liter (s) | L |
| meter (s) or milli | m |
| microns (s) or micro | µ |
| milligram (s) per cent | mg/100ml |
| minute (s) | min |
| molar | M |
| mole (s) | mole (s) |
| Molecular weight | molwt |
| nanogram (s) (millimicrogram) | ng |
| nanoliter (s) (millimicroliter) | nl |
| normal (concentration) | N |
| not significant | NS |
| optical density | OD |
| osmole (s) | Osm |
| probability | P |
| second (s) | sec |
| standard deviation | SD |
| standard error | SE |
| standard error of the mean | SEM |
| ultraviolet | UV |
| unit (s) | U |
| volt | V |

**MANUSCRIPTS SHOULD BE SUBMITTED**

To

Prof. Harun-Ur-Rashid Ph. D, FCPS, FRCP
Editor in Chief

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## CONTENTS

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# *Original Article*

# Economic Burden of Medical Intervention in Diabetic Patients with Nephropathy: An Observation from a Tertiary Diabetes Care Hospital in Bangladesh

**Samira Humaira Habib[1], Salima Akter[2], Soma Saha[1], Fahmida Binte Mesbah[1], Mosaraf Hossain[2], Liaquat Ali[1]**

**Abstract:**

***The economic burden resulting from diabetes and its complication as nephropathy consumes a major portion of resources allocated for health-care services. Cost -effectiveness of various interventions on diabetes and its complications have been well explored in developed countries, but these are almost absent in developing countries. The present study was undertaken to assess the cost comparison of medical intervention in diabetic patients with and with out nephropathy. Two hundred diabetic patients, were purposively selected from BIRDEM (tertiary diabetes care hospital), Bangladesh. Of them 100 were diabetic subjects with nephropathy (NDM) and 100 were patients with diabetes (DM). Comparison was made between these groups. Cost included drugs, hospitalizations, diagnostics and visits. The mean±SD of fasting plasma glucose, total cholesterol, $HbA_{1c}$ and serum creatinine of the two groups were observed. The most frequent complication was cardiopathy and then followed by peripheral neuropathy, retinopathy and vasculopathy. US$ 2179 of costs were attributable to drugs for both groups of which US$ 1955 (90%) was for NDM and US$ 224 (10%) for DM, US$ 2550 to hospitalizations of which US$ 1825 (72%) for NDM and 725 (28%) for DM. In case of diagnostics and visits the corresponding values were US$ 2305 (73%) and 863 (27%) and US$ 935 (67%) and 465 (33%) for NDM and DM respectively. The regression equation showed that medical cost is significantly related to complications tested in both univariate (P<0.0001) and multiple linear regression analyses ($R^2$=0.52; F=82.3, P<0.0001). Patients with early detected nephropathy could save the huge expenditure incurred by the complication if can be controlled properly.***

***Key Words: Cost-comparison; Diabetic Nephropathy; Complications***

***(Bang. Renal J. 2008; 27(1): 4-7)***

**Introduction:**

The number of people with diabetes is increasing worldwide mainly because of an increase in type 2 diabetes. Diabetes is now the leading cause of end stage renal disease. Diabetic kidney disease (nephropathy) has been reported to occur in 25 –40% of people of type I or type 2 diabetes[1]. In the UK, diabetic nephropathy is the single most common cause of chronic kidney disease with 24% of new patients having diabetes as co-morbidity[2]. Overall, new cases of diabetic nephropathy, Reno vascular disease and hypertension almost doubled between 1990 and 1999[3]. Between 1993 and 1999 there was an annual increase of 5% in the prevalence of diabetic nephropathy in France, where the median survival time of patients receiving renal replacement therapy is ~2.7 years[4-6]. Evidence from Spain supports these figures, with recent evidence indicating that type 2 diabetes is associated with substantial increases in the incidence of nephropathy and is the major underlying cause of diabetic nephropathy, which has a 5-year survival rate of only 54%[7]. The huge impact that diabetic nephropathy has on health and healthcare system budgets are of major concern to healthcare decision makers. Diabetic nephropathy is associated with a substantial clinical and economic burden that impacts significantly on health-care systems. In the US, more than 300 000 people had diabetic nephropathy in 1998, resulting in total medical expenditures of USD 18 billion[8]. The diabetic nephropathy population increases by 6% per year and for the year 2010 Medicare diabetic nephropathy expenditures are projected to be USD 28 billion[8]. In Australia, renal disease currently consumes 5.7% of the health care budget, not including money spent in providing renal replacement therapy for those with ESRD[9]. The incidence of ESRD is increasing, with a doubling in the number of patients treated for ESRD seen in Europe, the United States, and Australia over the past decade[9-11]. The burden of renal disease is likely to escalate as both the age of the population and the prevalence of diabetes are

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projected to increase dramatically[12]. The economic burden resulting from Diabetic Nephropathy (DN) consumes a major portion of resources allocated for health-care services. Cost-effectiveness of various interventions on DN and its complications has relatively been well explored in developed countries, but not much in developing countries. The present study was undertaken to assess the cost comparison of medical intervention in patients with and without diabetic nephropathy.

Aims and Objectives:

The aim of the study was to compare the cost burden of the diabetic patients with and without nephropathy.

**Materials and Methods:**

It was a observational study and retrospective in nature. Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders (BIRDEM), tertiary diabetes care hospital, have a largest out patients department which provides diabetes care to 3000-4000 patients daily. Primary data was taken through a self administrated pre-set questionnaire. Two hundred patients with diabetes, with at least 1 year of follow-up, were purposively selected (those who have visited at least 4 times in a year, which is the standard and regular follow up) from OPD. Of them 100 were diabetic subjects with nephropathy (NDM) and 100 were patients of diabetes without nephropathy (DM). Patients with serious illness, pregnant women and person with mental disorders were excluded. The variables were the degree and extent of complications like cardiovascular, peripheral neuropathy, retinopathy and vasculopathy, treatment outcome, clinical effectiveness of interventions and direct (Medical advice, Specialized Care, Investigations, Drugs, Medical and other treatment, Food cost, Hospitalization, Medical Stuff salary/ hrs, Nursing Stuff salary /hrs), indirect (Travel cost, Cost of productivity loss, Cost of accompanying person(s), Children deprivation cost, Housewife services cost, Waiting time loss cost) cost and incremental cost of management of complications. Comparison was made between the groups. Cost was calculated in US $ and according to the standard cost calculation method suggested by Drummond. A detailed history of the clinical and cost data was taken from the patient's diabetic book which was used to keep the clinical and follow up visit record. Relevant associated medical conditions were recorded carefully. Treatment findings and peri-intervention complications was recorded and noted. All these information were recorded from follow-up visits. Data were analyzed by SPSS software and appropriate statistical methods were used where necessary.

**Results:**

A total of 200 patients were considered for an average of 365 days follow-up, amounting to 651 person-years (counting the visit events of total patients) of observation in total.

The body mass index among the NDM groups was significantly higher but there was no significant difference among the groups in terms of Waist Hip Ratio.

The result showed that fasting serum glucose, total cholesterol, $HbA_{1c,}$ TG, serum creatinine, HDL, LDL, SBP and DBP were significantly higher among the NDM groups.

About 19% patients in NDM and 36% in DM were free of diabetic complications other than DN. In NDM group, 32% had one complication, 29% had two and 20% had more than two complications. On the other hand, in DM the corresponding values were 48%, 10% and 6% respectively ($p<0.001$). The most frequent complication was cardiopathy, which affected 33% patients in NDM and 27% in DM, followed by peripheral neuropathy 21% and 18%, retinopathy 17% and 13%, and vasculopathy 10 % and 6% respectively. ($p<.0001$)

**Table-I**

*Complications other than Diabetic Nephropathy*

| | NDM (N=100) | DM (N=100) |
|---|---|---|
| No Complication | 19% | 36% |
| One Complication | 32% | 48% |
| Two Complication | 29% | 10% |
| More Than Two Complication | 20% | 6% |

The average annual cost of care of the study population was US$ 27954 (direct US$ 17966 and indirect US$ 9988) where the direct cost of care was 64% and the indirect cost was 36% of the total cost of care.

The cost of care was an average US$ 140 per patient. Among the average annual cost NDM consumed US$ 18703 (US$ 187 per patient) and DM US$ 9251 (US$ 92 per patient).

**Table-II**

*Cost Distribution (All Patients)*

| Cost | DM (n=100) | | NDM (n=100) | | |
|---|---|---|---|---|---|
| Direct cost | Amount in US$ | % | Amount in US$ | % | P Value |
| Medical advice | 461 | 33 | 935 | 67 | 0.001 |
| Specialized Care | 489 | 32 | 1024 | 68 | 0.001 |
| Investigations | 863 | 27 | 2305 | 73 | 0.001 |
| Drugs | 224 | 10 | 1955 | 90 | 0.001 |
| Medical and other treatment | 730 | 24 | 2342 | 76 | 0.001 |
| Food cost | 366 | 30 | 856 | 70 | 0.001 |
| Hospitalization | 725 | 28 | 1825 | 72 | 0.001 |
| Medical Stuff/hrs | 440 | 28 | 1104 | 72 | 0.001 |
| Nursing Stuff/hrs | 360 | 27 | 963 | 73 | 0.001 |
| Direct cost | 4658 | 26 | 13308 | 74 | 0.001 |
| Indirect cost | US$ | % | US$ | % | P Value |
| Travel cost | 1423 | 46 | 1688 | 54 | 0.001 |
| Cost of productivity loss | 1137 | 48 | 1218 | 52 | 0.001 |
| Cost of accompanying person(s) | 914 | 47 | 1028 | 53 | 0.001 |
| Children deprivation cost | 623 | 44 | 795 | 56 | 0.001 |
| Housewife services cost | 245 | 41 | 350 | 59 | 0.941 |
| Waiting time loss cost | 251 | 44 | 316 | 56 | 0.001 |
| Indirect cost | 4593 | 46 | 5395 | 54 | 0.001 |
| Grand Total | 9251 | 36 | 18703 | 64 | |

Cost distribution showed in case of direct and indirect cost, all costs were significantly higher in case of NDM patients than that of DM patients.

It has been shown that the Medical Staff and Nurse's working hours has been calculated as per hours involved in duties in the hospital indoors and outdoors. Salary was used to calculate the opportunity cost.

**Table-III**

*Cost and Complications (Univariate analysis)*

| Complications | Standardized Coefficients | Signature |
|---|---|---|
| | Beta | |
| (Constant) | | 0.000 |
| Cardiopathy | 0.69 | 0.004 |
| Retinopathy | 0.39 | 0.001 |
| Neuropathy | 0.72 | 0.004 |
| Vasculopathy | 0.29 | 0.001 |

a Dependent Variable: COST

*b. Beta showed the degree of correlation of the significant value*

Table-III showed that there is a significant positive correlation between the complications and the cost ($p<0.000$, $p.<0.004$, $p< 0.001$, $p<0.001$ respectively). The parameters like age, sex, weight which was not associated with increasing costs.

The annual medical costs increased with the number of complications from US$ 1320 to 2296 and to 3989 in NDM with one, two and more than two complications (other than DN) and US$ 917 to 1556 and to 2372 in DM respectively. The regression equation showed that medical cost has significant positive correlation with complications tested in both univariate ($P<0.0001$) and multiple linear regression analyses ($R^2=0.52$; $F=82.3$, $P<0.0001$).

**Discussion:**

In our study we have found that presence of nephropathy in a diabetic patient significantly increases the direct cost and non-economic burden. The implications of these data for the Bangladeshi adult population and, by inference,

for communities throughout the developing world are significant.

The effect of intervention for those with indicators of kidney disease remains incompletely understood. However, from literature it is clear that some forms of intervention are effective in either slowing or preventing progression toward ESRD. Thus, individuals with one or more indicators of kidney damage may be benefited from intervention. Effective interventions are widely available in most developed countries but quite absent in developing countries. The major barrier to appropriate management appears to be scarcity of facilities and fund.

The cost of diabetes in patients without nephropathy is lower than that of patients with nephropathy. This finding suggests that a strategy of using early detection of nephropathy in patients with type 2 diabetes can drastically reduce the cost of medical care by retardation of progression. The currently recommended strategy of screening for early detection is the least expensive and the most effective one.

In one study it has been shown that in type 1 diabetic patient the costs of treating end-stage renal failure is high. By the use of less expensive screening, intervention, and treatment programs, the benefits exceed the costs. In our study we have found that timely management of patients with diabetes is both clinically astute and cost effective which can increase survival and the interval without complications. The cost effectiveness ratio will be able to compare favorably with many accepted healthcare programs. [13]

The incidence of ESRD from diabetic nephropathy increased in the United States from 10 percent in 1973 to 30 percent in 1987. Also in the U.S., Medicare costs in 1982 for ESRD among persons with diabetes were $330 million. These costs appear to be increasing at a rate exceeding $800,000 per year. ESRD therapy is more costly for patients with diabetes than for other causes because of a higher hospitalization rate and poorer treatment outcomes. Our study may be a pilot and pioneer study in that regards in a developing country like ours.

**Conclusion:**

The clinical parameters, total cost (both direct and indirect cost) and complications are higher in the case of NDM than that of DM. Timely management of nephropathy patients with diabetes is both clinically simple and least costly. This indicates that use of interventions to delay the development of diabetic nephropathy is much more cost saving. A comprehensive care can reduce the burden of diabetic end stage kidney disease population and reduce the health care expense drastically. Since there is no clinical and cost effective analysis of the management of diabetic patients with nephropathy this will be a pilot and pioneer study in a poor country like Bangladesh where out of pocket expense of patients and resource constraint of providers can be addressed.

**Acknowledgement:**

We highly acknowledged the continuous support of the Diabetic Association of Bangladesh for providing us a friendly research environment.

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# Mode of Renal Replacement Therapy in a Single Center of Bangladesh

**S Islam, HU Rashid, MH Rahman, MR Alam**

**Abstract:**

***There are various modes of Renal Replacement Therapy (RRT), like Kidney Transplantation (Tx), Maintenance Haemodialysis (MHD), Continuous Ambulatory Peritoneal Dialysis (CAPD). Mode of renal replacement therapy differs from: country to country, primary causes of renal failure, availability of the facilities and over all economic condition of the state as well as the patient. We have studies 264 end stage renal failure patients who attended the department of Nephrology, BSMMU, for a period of one year (Jan. 06 to Dec. 06) to evaluate their initial and subsequent mode of renal replacement therapy. Among the primary causes of ESRF Glomerulonephritis (GN) 123(46.5%) was the highest followed by diabetic nephropathy (DN) 69 (26.2%), obstructive uropathy 29 (10.9%), hypertension including polycystic kidney diseases 19(7.2%), chronic pyelonephritis 13 (4.9%) and 13(4.9%) cases cause was undetermined. Intermittent Peritoneal Dialysis (IPD) was the initial mode of renal replacement therapy in 98(79.7%) patients of GN, followed by 45(65.2%), 17(58%), 14(74.7%), 9(69.2%) of DN, obstructive uropathy, hypertension and CPN respectively. Maintenance haemodialysis (MHD) was the initial mode of renal replacement therapy in 20(16.3%) and 15(21.7%) patients of GN and DN respectively. Subsequent RRT were kidney transplantation in 13 (4.9%) patients, MHD in 25(9.4%) and CAPD in 4(1.5%) patients. About 85% of ESRF patients were dropped out from subsequent RRT. In conclusion majority of our patients failed to continue RRT in long run. Attention should be given to increase the facilities and availability of different modes of RRT all over the country at a reduced and affordable cost.***

***(Bang. Renal J. 2008; 27(1): 8-10)***

**Introduction:**

End stage renal disease (ESRD) is one of the important cause of morbidity & mortality globaly. About 100-120 patients per million of population undergo ESRD per year nationally and globally [1.2.3]. There are various modes of Renal Replacement Therapy (RRT), like kidney transplantation, Haemodialysis & CAPD. The mode of RRT differ from country to country, according to the primary causes of ESRD, availability of facilities and economic condition of the patients.[4,5] In these context we studied modes of RRT used by the patients attending the department of Nephrology, BSMMU. This study aimed to evaluate initial & subsequent modes of RRT of ESRD patients in this center.

**Materials & Methods:**

In this prospective study all adult patients of ESRD attending Department of Nephrology , BSSMU, Dhaka for a period of one year (Jan. 06 to Dec. 06) were included. Informed consent was taken from the participants. Those who did not give consent were not included.

**Results:**

Among 264 patients of ESRD included in the study 155(58.7%) were male and 155(41.3%) were female. The mean age of the participants were 39 ± 17 years ranging from 18-61years. In the majority of patients 123(46.5%) glomerulonephritis was the cause of ESRD (Table-1). Other causes of ESRD include diabetic nephropathy 69(26.2%), Obstructive uropathy 29(10.9%), Hypertension with polycystic kidney disease 19(7.2%), Chronic pyelonephritis 13(4.9%) and 11(4.1%) patients without any definite diagnosis. Besides the primary cause of ESRD other co morbid illness present were Hypertension in 248(94%), Ischemic heart disease 121(46.4%), Cerebrovascular accident 45(17.4%), tuberculosis 21(7.4%) and pericardial and pleural effusion in 11(3.5%) patients ( Fig -1).

Initial renal replacements therapy varies from patient to patient depending upon primary causes of ESRD, availability of the facilities of RRT and over all financial ability of the patients. As initial mode of Renal replacement therapy (RRT) 188 (71.2%) patient were given peritoneal dialysis and 54(20.4%) of the patients received hemodialysis. About 7% patients did not take any form of RRT even though they came to this center for treatment of ESRD (Table-II).

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**Table-I**
*Causes of ESRD*

| Causes of ESRD | No ( %) |
|---|---|
| Glomerulonephritis | 123(46.5%) |
| Diabetic Nephropathy | 69(26.2%) |
| Obstructive Uropathy | 29(10.9%) |
| Hypertension with PKD | 19(7.2%) |
| Chronic Pyelonephritis | 13(4.9% |
| Undetermined | 11(4.1%) |

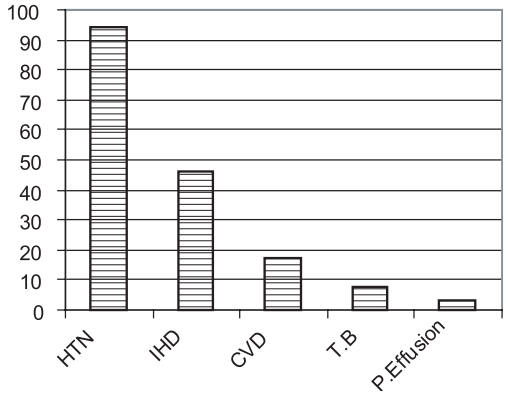


**Fig-1 :** *Comorbid illness of ESRD Patients*

**Table-II**
*Initial Mode of Renal Replacement therapy:*

| Total 264 | IPD | HD | CAPD | Avoid RRT |
|---|---|---|---|---|
| | 188 (71.2%) | 54 (20.4%) | 4 (1.5%) | 18(6.8%) |
| Primary Causes of ESRD | | | | |
| GN (123) | 98 (79.7%) | 20 (16.3%) | - | 5 (4.5%) |
| DN (69) | 45 (65.2%) | 15 (21.7%) | 3(4.3%) | 6(8.7) |
| Obst. Uropathy (29) | 17 (58.6%) | 10 (34.5%) | - | 2 (6.9%) |
| HTN (19) | 14 (73.7%) | 3 (15.8%) | - | 2(10.5%) |
| CPN (13) | 9 (69.2%) | 3 (23.1%) | 1 (7.7%) | - |
| Undetermined | 5(45.4%) | 3(27.4%) | | 3(27.2%) |

**Subsequent permanent Renal Replacement Therapy**
After the initial session of RRT only 42 (15.9%) patients could continue subsequent permanent RRT of any mode. About 84% patients discontinued RRT after the initial session. Subsequent RRT also depend on various factors like age, primary cause of ESRD, donor availability, economic condition and facilities available, location of the patient etc. In our study, renal transplantation were done in 13(4.9%) of ESRD patients. The cause of ESRD were glomerulonephritis in all transplant patients, no diabetic patient was transplanted. Maintenance haemodialysis was given to 19(15.4%) glomerulonephritis and 6(8.7%) diabetic nephropathy patients. CAPD were done in 4(4.8%) patients, among them 3 were diabetic & 1 was CPN (Chronic Pyelonephritis).

**Discussion:**
Advanced chronic kidney disease with glomerular filtration rate (GFR) <10 ml/min/1.73 $m^2$ body surface area needed RRT (dialysis or Tx.)[6] The mode of RRT depends on national health policy, economic condition & availability of the facility for RRT. In developed countries more than 70% of ESRD patients got opportunity for RRT from national health service.[7] But in developing countries like Bangladesh only about 15% of ESRD patients got opportunity for RRT as there is no national health service facilities existing at present situation.

**Conclusion:**
Majority of our patients failed to continue RRT in long run. Attention should be given to increase the facilities and different modes of RRT should be made available all over the country at a reduced and affordable cost.

**Acknowledgement:**
Department of Nephrology, Banagabandhu Sheikh Mujib Medical University, Dhaka.

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# *Case Report*

## Utero-Vesical Fistula – A Case Report

**Md. Nasir Uddin, AKM Zamanul Islam Bhuiyan, Kazi Rafiqul Abedin, Kazi Zikrur Razzaque**

***(Bang. Renal J. 2008; 27(1): 11-12)***

**Introduction:**

Utero-vesical fistula is a rare disease and belongs to the least common types of urogenital fistula. They are most frequently caused by repeated caesarean sections or difficult labor.

**Case report:**

A 38 years old woman presented with passing of cyclical red colored urine for last 24 months following a second caesarean section. In her first pregnancy she underwent caesarean sections 5 years back. After birth of 2nd child she was ammenoric for 14 months then she noticed cyclical haematuria for 3-4 days in every month. She complained of occasional dysuria without fever, chill and rigor. There was no urinary incontinence .Clinical examination and laboratory investigations were unremarkable. After multiple examinations without establishing a diagnosis, an utero-vesical fistula was confirmed by micturating cystography and cystoscopy. On 14th January 2009 she underwent

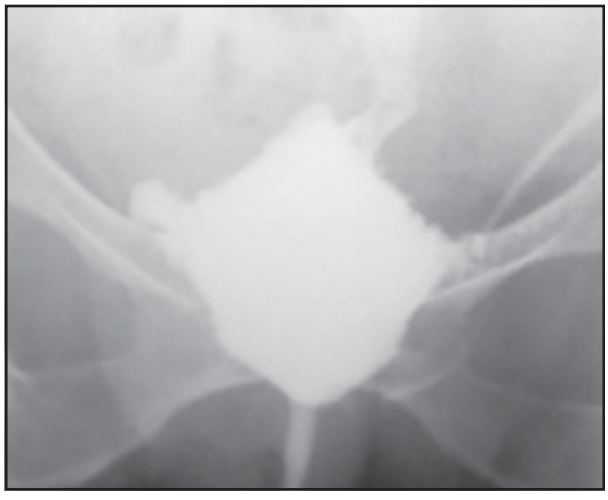

**Fig.-1:** *MCU showed, Utero-vesical fistula*

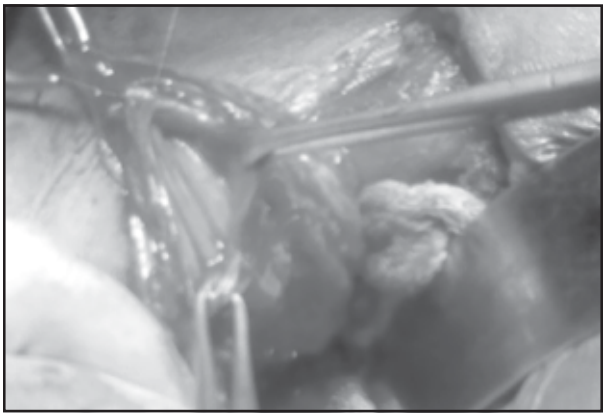

**Fig.-2:** *Fistulas opening at bladder*

repair of fistula through transperitoneal approach. The fistula was 1 cm in size and was situated in the supratrigonal region of bladder and just above the cervix of uterus. Ureteric orifice was intact. The bladder was adherent to the lower uterine segment and was released by sharp dissection. A fistulous opening in the posterior bladder wall was closed in two layers by 2/0 vicryl and opening in the uterus was closed in single layer with 2/0 vicryl. Omentum was interposed between the bladder and uterus. Histopathological report showed fistulous tract. Foley's catheter was removed on 21st POD. She had normal menses in February 09. There was no cyclical haematuria. She is having regular cycles since then.

**Discussion:**

Utero-vesical fistula is rare; representing about 1%-4% of urogenital fistula[1]. It is known to be a complication after caesarean section and difficult vaginal delivery, very rarely these fistulas occurs due to instrumentation or malignancy. When there is inadequate mobilization of the bladder

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inferiorly or laterally the bladder may be injured by accidentally included in the suture used to close the uterine incision. Fistula form when the sutures are absorbed[2].

A woman may experience cyclical haematuria and ammenorrhea. She may complain of involuntary loss of urine or she may remain continent. This symptom is called menuria of Youssef. Vaginal examination fails to reveal a fistula though occasionally trickling of urine may be seen through cervical os[3]. Cystogram and cystoscopy are useful in diagnosis. The opening in the bladder is always in the supratrigonal area when viewed through the cystoscope[4]. Although few small fistula have been reported to close either spontaneously; but most of the patient required surgery for their management[2]. Hysterectomy is not usually required for its treatment. But it may be done if indicated for other reasons including the presence of large uterine defect. But repair can preserve the organ and chanch of future pregnancy.

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# *Article of Special Interest*

## The Third World Kidney Day: Looking Back and Thinking Forward

*(Bang. Renal J. 2008; 27(1): 1-3)*

**Sudhir V. Shah & John Feehally**

*"Never doubt that a small group of thoughtful, committed citizens can change the world: indeed, it's the only thing that ever has."*

*– Margaret Mead*

March 13, 2008, heralds the third annual World Kidney Day—an event that will be celebrated in more than 60 countries. We take this opportunity to recount how this concept has gained worldwide a traction and momentum and to reflect on the challenges faced by its creators and supporters.

**The Beginnings of World Kidney Day**

There have probably been many individuals who conceived of marking one calendar day in which to call attention to the seriousness of kidney disease globally; many may even have shared their thoughts with others. But there is one individual who not only conceived the idea but was persistent in persuading many in leadership positions to bring this notion of a World Kidney Day to fruition. This individual is also the founder of the International Federation of Kidney Foundations (IFKF): Joel Kopple. He first conceived the idea of World Kidney Day in the spring of 2003, recognizing that chronic kidney disease (CKD) is a global public health threat but is typically low on government health agendas; that it can be detected with simple and inexpensive tests yet national detection programs are rare; and that whereas it can be treated with existing, effective therapies, few people with CKD receive appropriate health care.

In September 2003, Kopple wrote to Warwick Prime, then President of the IFKF, and proposed an annual World Kidney Day. To make it truly an international collaborative effort, representatives of IFKF and the International Society of Nephrology (ISN) met in November 2003, and at that meeting, Kopple presented a précis titled, "Proposal for the Establishment of a World Kidney Day." A World Kidney Day ISN-IFKF liaison committee was established, with the initial membership consisting of Bill Couser, John Dirks, Joel Kopple, Warwick Prime, and Jan Weening. In 2004, both the IFKF Executive Committee and the ISN Council endorsed the World Kidney Day program, and ISN agreed in 2005 to commit sufficient resources to enable a first World Kidney Day to be held on March 7, 2006. An editorial about World Kidney Day was published that month in eight scientific journals. Despite being planned with short notice and few resources, kidney organizations in 45 countries enthusiastically embraced the first World Kidney Day and organized health screening events, road shows, walkathons, public lectures and press conferences. It was clear that World Kidney Day was responding to an urgent need and tapping the tremendous energy and motivation of kidney health professionals, patients, and their friends and relatives across the globe.

That success was recognized by those from ISN and IFKF who met in April 2006 and agreed on a formal organizational structure for World Kidney Day. A memorandum of understanding between IFKF and ISN for the planning and implementation of an annual World Kidney Day was signed in June 2006 by the two presidents, Bill Couser (ISN) and Sudhir Shah (IFKF). The document stated:

"Based on a proposal and invitation by IFKF, IFKF and ISN jointly agree to declare an annual World Kidney Day to increase awareness, detection, prevention, and treatment of kidney and related diseases." The "World Kidney Day" name and logo were trademarked and are now jointly owned by IFKF and ISN.

A World Kidney Day steering committee was established with eight members—four members nominated by each organization—and a scientific advisory committee. ISN agreed to provide the initial funding necessary for the central operational management of a World Kidney Day project team.

The continued leadership of the ISN/IFKF Steering Committee in 2007 helped secure funding from global sponsors; create a World Kidney Day logo, slogan,

**On behalf of the World Kidney Day Steering Committee:** William G. Couser (ISN), John Davis (IFKF), Joel Kopple (IFKF), Thomas Reiser (ISN), Miguel Riella (ISN), Anne Wilson (IFKF)

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website and "brand"; widely disseminate designs for posters, banners, T-shirts, and other promotional materials that could be adapted for local use; gain the moral support of celebrities ranging from Tom Hanks to Jacques Rogge; and enlist the participation of 66 countries.

The remarkable initiative and ingenuity exhibited of kidney organizations on March 8, 2007, can be viewed on www.worldkidneyday.org. The World Kidney Day website will feature planned activities for March 13, 2008, which promises to be an even greater event, with continued emphasis on the message that "kidney disease is common, harmful and treatable."

**The Main Challenges and Aims of World Kidney Day**

*Public Awareness*

World Kidney Day offers a crucial, visible opportunity to inform and educate health policy-makers, people who are at highest risk of CKD, and the general public. One of our greatest challenges is general ignorance about the kidneys. Surveys made before the advent of World Kidney Day have shown that less than 5% of the general population knows where the kidneys are located and what they do. Therefore, the World Kidney Day 2008 international campaign theme - Amazing Kidneys! - stresses the positive message that kidneys are truly "amazing." A focus for the general public is on simple facts about what kidneys do for us on a daily basis. For example, "Every day our kidneys filter and clean 200 liters of blood." Amazing kidney stories can also be used—stories about kidney patients, kidney organ donors, and health professionals who are exceptional in some way. World Kidney Day offers an increasingly visible opportunity to tailor public awareness messages to the media for widespread impact.

**The Importance of CKD**

Whereas each country and region may adopt different priorities for World Kidney Day from year to year—choosing, for example, to promote living donor kidney transplantation or to push for improvements in dialysis facilities - in many countries it is the detection and management of CKD that will be the dominant kidney health issue. On World Kidney Day we must aim to raise awareness about the heavy burden of CKD on human lives and health care budgets and put CKD on the agenda of governments and other institutions around the world that shape and reform health policy. It is an opportunity to launch high-profile, new initiatives that will impact on CKD and to seek the endorsement of agencies that can help ensure such initiatives become embedded into routine health care.

Since the time the term CKD came into usage and its staging was defined[1], there has been a flurry of investigative activities and publications on its importance[2-6]. Recently published studies have confirmed that CKD is a common disorder globally, with as many as 90% of those who have CKD remaining unidentified[7,8]. The fact that CKD is a major public health issue is now beyond dispute[9], and it is obvious that an issue of this magnitude cannot be addressed by volunteer organizations alone.

Two simple and inexpensive tests are available to detect CKD: urine for protein and blood for serum creatinine and hence estimated glomerular filtration rate (GFR). Despite this, the task of developing widespread detection and management programs for CKD that produce improved outcomes at a reasonable cost is formidable. It is unlikely that even developed countries have adequate financial and human resources for whole-population screening programs for CKD, and in any case, there is so far no evidence that these are cost-effective.

**CKD Detection Programs**

Based on current information, we recommend that all countries have targeted screening programs.

*Steps to establishing an effective program include:*

- Report of estimated GFR (eGFR) by all laboratories measuring serum creatinine
- Measurement of eGFR and proteinuria in people at highest risk of CKD, including all those with diabetes, hypertension, coronary heart disease and cerebrovascular disease who constitute the majority of patients with CKD and with end-stage renal disease (ESRD)
- Regular measurement of blood pressure, eGFR, and proteinuria in people identified with CKD
- Establishment of targets for blood pressure control in people with CKD, and appropriate use of drugs blocking the renin-angiotensin system
- Agreement on guidelines for identifying the minority of people with CKD who benefit from the specialist advice of a nephrologist as well as the routine care of a family physician.

In the UK, for example, there has been encouraging progress over the last few years toward the establishment of such a program. The reporting of eGFR is now mandated in all UK clinical laboratories, and guidelines for detection and management of CKD have been widely accepted (10). This progress has been made more straightforward by a government-directed and governmentfunded healthcare

system, which allows several aspects of the program to be linked to reimbursement for family physicians, who are already obliged to maintain computerized listings of all those with diabetes, hypertension and coronary heart disease. There will be much greater challenges in countries where healthcare is provided by multiple independent agencies or in the developing world where resources available for healthcare are much less.

In advocating for these programs which are now proving successful and cost-effective, we favor small but sure-footed steps[5,11]; we must be careful that screening tests identify people with true disease, for whom intervention will make a critical difference by delaying or avoiding ESRD, or by modifying risk factors for cardiovascular disease which is so closely linked with CKD. This may be particularly true in the elderly, the age group with the highest prevalence of CKD and for whom preventive therapy is less likely to improve survival or quality of life[5, 12].

In parallel, we must press for research programs to address the many unanswered questions about CKD, not least to understand better the factors that predict the minority of those with stage 3 CKD who progress to ESRD, and to test the efficacy of our new healthcare strategies for CKD.

**World Kidney Day is Here to Stay**

The momentum of World Kidney Day is assured and we anticipate that many more than the previous 66 countries will be reporting to us their initiatives and successes on March 13, 2008. The World Kidney Day Steering Committee and Project Team will continue to provide a toolkit of resources (available for downloading at www.worldkidney day.org) for each World Kidney Day including messages, logos, posters, and designs for other materials. The power of World Kidney Day is generated by local action, led by those who understand the specific kidney health issues in their countries and who use this day to showcase successful initiatives already taken, and launch positive changes in health care systems and practices. For meaningful progress to be made, activities related to kidney disease are needed throughout the year. Our vision is that World Kidney Day serves as an annual energizing and unifying event through which health care providers, the general public, and government bodies that make health care policy all unite to improve early detection programs and optimize medical care for those millions worldwide who can benefit from improved awareness of CKD as a global health issue.

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**Appendix**

*World Kidney Day 2007 Scientific Advisory Board*

Vittorio E. Andreucci, Italy
Rashad S. Barsoum, Egypt
Allan J. Collins, USA
David C.H. Harris, Australia
Bernardo Rodriguez Iturbe, Venezuela
Paul E. De Jong, The Netherlands
Robert W. Schrier, USA
Philip Kam Tao Li, China

# *National News*

**Events for 13 March, 2008-World Kidney day**

**Bangladesh Renal Association (BRA)**

World Kidney day 2008 is an initiative of the International Society of Nephrology (ISN) and the International Federation of Kidney Foundations (IFKF).The Bangladesh Renal Association (BRA) along with Kidney Foundation (KF), Kidney Awareness Monitoring and Prevention Society (KAMPS) and Pediatric Nephrology Society of Bangladesh (PNSB) organized on 13 March a walkathon, followed by seminar with the participation of health officials and the general public. Also from 10 March to 15 March 2008, Free Kidney Screening program was undertaken by the nephrology departments of BSM Medical University, National Institute of Kidney Diseases and Urology (NIKDU), Dhaka Medical College, Rajshahi Medical College, Sir Salimullah Medical College and Sylhet MAG Osmani Medical College in hospitals and outdoor camps. Around 1400 healthy subject's urine was tested for proteinuria and blood for sugar and creatinine.

**BIRDEM**

On 13 March 2008 BIRDEM conducted random screening among general population in Dhaka city in front of the National Press Club with an aim to detect asymptomatic chronic kidney disease, diabetes and hypertension. To create awareness among mass population, SMS on mobile phone was sent through out the country advising:

1. Get urine tested and be sure your kidneys are OK.
2. Please control your diabetes and blood pressure to prevent CKD.

**Kidney Awareness, Monitoring and Prevention Society (KAMPS)**

KAMPS on February 21, to remember the martyr of the country's glorious language movement, in occasion of the International Mother Language Day, organized free kidney screening program. For the fourth year KAMPS organized a free medical camp in Shakhipur.About 100 health professionals involved to screen large number of individuals. KAMPS also published a colorful brochure about kidney disease and its prevention and distributes it among patients. On 8 March 2008 KAMPS held a roundtable discussion on 'The role of mass media in awareness building about kidney failure' with the participation of people from electronic media, print media, intellectuals, writers, health specialists, artists etc.

**Kidney Foundation Bangladesh**

The Bangladesh Kidney Foundation organized a number of activities during the whole day including a convention for doctors and patients, a walkathon and rally and free kidney screenings. The screening took place in the Foundation Hospital in Saver, Dhaka.

# *Announcement*

***August 2008***

**ISN Endorsed The Brigham Renal Board**
04 August 2008
Boston, USA
Website: http://cme.med.harvard.edu/

**15th Budapest Nephrology School/CME Course Nephrology, Hypertension, Dialysis, Transplantation**
Under the Auspices of ISN, ERA-EDTA and ISP 26 August—31 August, 2008
For further information and application please look for at the website of BNS: http://www.bns-hungary.hu" www.bns-hungary.hu or write to:
László Rosivall, MD, PhD, DSc
Professor of Pathophysiology
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Nephrology Research and Training Center.
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Fax: +361-2100-100; Email: rosivall@net.sote.hu

***September 2008***

**ESAO 2008 XXXV Annual Meeting European Society of Artificial Organs**
03 September 2008
Geneva, Switzerland
Website: http://www.esao2008.medecine.unige.ch/

**31st Annual Postgraduate Medicine Course - Renal Biopsy in Medical Diseases of the Kidneys**
10 September 2008
New York, USA
Website: http://www.columbiacme.org

**ISN Endorsed The Origins of Renal Physiology**
13 September 2008
Maine, USA
Website: http://www.mdibl.org/courses

**ISN Endorsed the 7th Annual Conference on Prevention in Renal Disease**
19 September 2008
Toronto, Canada o, Canada
Website: www.nephroprevention.com

***October 2008***

**4th Slovenian Congress of Nephrology with International Participation**
22 October 2008
Bled, Slovenia
E-mail: rafael.ponikvar@kclj.si

**4th Slovenian Congress of Nephrology with International Participation October 22–25, 2008, Bled, Slovenia**
For further information, please contact:
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# *Abstract from Current Literature*

**Supportive Versus Immunosuppressive Therapy of Progressive IgA nephropathy (STOP) IgAN trial: rationale and study protocol.**

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Introduction: The best treatment of IgA nephropathy (IgAN) is currently not well defined. The Supportive Versus Immunosuppressive Therapy of Progressive IgA Nephropathy (STOP IgAN) trial aims to answer if, in IgAN patients, an immunosuppressive treatment is more effective than a supportive treatment. Methods: In a randomized prospective multicenter study (www.clinicaltrials.gov, NCT00554502), we will treat 148 patients at risk for progressive IgA nephropathy following a 6-month run-in phase, in 2 groups: (group a) supportive treatment: patients with a persistent proteinuria >0.75 g/day will receive a maximized therapy to reduce blood pressure and urinary protein loss using angiotensin-converting enzyme inhibitors and AT1 blockers, statins, dietary counseling for a low-sodium and low-protein diet and education/intervention programs to stop smoking. (group b) immunosuppressive treatment: in addition to the identical treatment of group a, patients will receive treatment with steroids (glomerular filtration rate [GFR] > or =60 ml/min) or steroids plus cyclophosphamide/azathioprine (GFR <60 ml/min). Study end points are the complete remission of the disease and the individual degree of renal functional loss. If the immunosuppressive therapy shows a superior efficacy with respect to prevention of renal failure, the potentially higher therapy cost and risk might be justified. Finally, our trial can serve as a model for various other types of glomerulonephritis, for which such trials are very difficult to perform, given their infrequency.

*J Nephrol. 2008 May Jun;21(3):284-9.*

**Contrasting clinical outcomes between different modes of peritoneal dialysis regimens: two center experiences in China.**

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In the present study, we compared the clinical outcomes between two different modes of peritoneal dialysis (PD) and explored the possible role of volume overload in continuous ambulatory peritoneal dialysis (CAPD) patients. A longitudinal and a cross-sectional study were included. Patients received either an 'adaptative ultrafiltration (UF)' PD regimen, which focused on gradually increasing peritoneal ultrafiltration (PDi group), or traditional PD treatment (PDt group). Patients' demographic characteristics, nutritional status, fluid removal as well as fluid status were recorded. In the cross-sectional study, all clinically stable patients who were treated with CAPD for at least three months were enrolled and grouped according to their time on dialysis: short term, medium term, and long term. Both studies showed that PDi and PDt patients had distinct fluid removal patterns. PDt patients had decreased total fluid removal with worsening fluid status and deteriorating nutritional status, whereas PDi patients remained rather stable in relation to fluid removal, fluid status, and improving nutritional status. Cox regression analysis confirmed that the PDi group had better patient survival than the PDt group. Our data suggest that traditional and 'adaptative UF' PD therapy may have distinct fluid removal patterns over time on dialysis, and this unique pattern might partly explain the still unacceptable high mortality of long-term CAPD patients.

*Kidney Int Suppl. 2008 Apr;(108):S56-62*

**Dual blockade of the renin-angiotensin-aldosterone system with high-dose angiotensin-converting enzyme inhibitor for nephroprotection: an open, controlled, randomized study.**

TYLICKI L, RENKE M, RUTKOWSKI P, LARCZYÑSKI W, ALEKSANDROWICZ E, LYSIAK-SZYDLOWSKA W, RUTKOWSKI B.

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Objective: Despite the proven effectiveness of combination therapy with an angiotensin I-converting enzyme inhibitor (ACEI) and angiotensin II-receptor blockers (ARBs) for the prevention and treatment of kidney disease, it has not proved possible to inhibit the progress

of chronic nephropathies completely. To improve renal outcome one may consider using increased dosages of ACEI above those usually recommended for hypertension.

Material And Methods: A randomized, open, controlled study was conducted to evaluate the influence of two combination therapies on proteinuria, markers of tubular injury and renal fibrosis. A total of 18 patients with a creatinine level of 109+/-36 micromol/l and proteinuria of 0.97+/-0.76 g/24 h were enrolled in the study. In the 8-week run-in period, an ACEI (cilazapril 5 mg once-daily) and an ARB (telmisartan 80 mg once-daily) were administered to achieve the target blood pressure of < or = 130/80 mmHg. Next, the patients were randomly assigned to either an increased dose of cilazapril (10 mg) or the previous dose (5 mg) in two active-treatment periods, each lasting 8 weeks.

Results: A significant increase in renin activity was observed after administration of cilazapril 10 mg (6.46+/-1.12 vs 4.67+/-0.7 ng/ml/h; p=0.028). Proteinuria, urine excretion of N-acetyl-beta-D-glucosaminidase, and alpha1-microglobulin and amino-terminal propeptide of type III procollagen were unchanged.

Conclusion: An increased dosage of cilazapril (twice the maximum recommended dose) in addition to combination therapy with telmisartan was associated with increased blockade of the renin-angiotensin-aldosterone system, with no additional effect on proteinuria, markers of tubular injury or renal fibrosis

*Scand J Urol Nephrol. 2008;42(4):381-8.*

**[Preliminary results of the Spanish Society of Nephrology multicenter study of quality performance measures: hemodialysis outcomes can be improved]**

[ARTICLE IN SPANISH]

*Alcázar JM, Arenas MD, Alvarez-Ude F, Virto R, Rubio E, Maduell F, Fernández-Crespo P, Angoso de Guzmán M, Delgado R, Santamaría C, Alonso MA, Anaya S, Bordils A, Antolín A, González-Parra E, Pérez I, Molina Ordás A, Fernández M, Molina P, Sánchez P, Barbosa F, Palomares Solla L, Lacueva J, Barril G, Pastor JM, Gámez Matías C, Hernández PM, Nicolás MF, Ríos F.*

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Introduction: The Spanish Society of Nephrology "Quality in Nephrology Working Group" (QNWG) was created in 2002. The aims of this group are the identification, diffusion, implementation and consolidation of a systematic, objective and comprehensive set of quality performance measures (QPMs) to help along the improvement of patient care and outcomes on hemodialysis, by means of strategies of feedback and benchmarking, and the design of quality improvement projects. The objective of this study is to present the preliminary results of a set of quality performance measures obtained in a group of Spanish hemodialysis centers, as well as to evaluate the repercussion of the application of the aforementioned thecniques on the observed results.

Methods: During 2007 a total of 28 hemodialysis units participated in the study; 2516 patients were evaluated. A specific software was designed and used to facilitate the calculation of CPMs in each unit. The clinical indicators used refered to dialysis adequacy; anemia; mineral metabolisme; nutrition; viral infections; vascular access; mortality, morbidity (number and days of hospital admissions); and renal transplant. Every three months each center received its own data and its comparison with the rest of the group.

Results: Except for hemoglobin levels we observed a global improvement. The percentage of centers reaching the stablished standards defined by the QNWG passed from 65% to 90,9% for Kt/V Daugirdas II (> 1,3 in > that 80% of the patients); from 71,4 % to 77,2 % for PTH (> 30 % of patients with serum PTH between 150 and 300 pg/ml); and from 42,8 % to 63,5 % for phosphate (> 75 % of patients with a serum phsphate < 5,5 mg/dl). More than 50% of centers showed an improvement in their final results as compared with their own initial results in all analyzed CPMs. Those centers that did not obtained an improvement in their results started the study with better percentages of acomplishment than those that showed a significant improvement in QPMs. (80,6+/-15,4 versus 71,8+/-16,6 respectively; p<0,001)

Conclusions: We are starting to make progresses in our knowledge of clinical results in our hemodialysis units, although there is still a long way to go over. To monitor and share CPMs results within hemodialysis centers might help to improve their results as well as to reduce intecenters variability

*Nefrologia. 2008;28(6):597-606.*

**Phosphate binder impact on bone remodeling and coronary calcification-results from the BRiC study.**

BARRETO DV, BARRETO FDE C, DE CARVALHO AB, CUPPARI L, DRAIBE SA, DALBONI MA, MOYSES RM, NEVES KR, JORGETTI V, MINAME M, SANTOS RD, CANZIANI ME.

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Background and Aims: Calcium-containing phosphate binders have been shown to increase the progression of vascular calcification in hemodialysis patients. This is a prospective study that compares the effects of calcium acetate and sevelamer on coronary calcification (CAC) and bone histology.

Methods: 101 hemodialysis patients were randomized for each phosphate binder and submitted to multislice coronary tomographies and bone biopsies at entry and 12 months.

Results: The 71 patients who concluded the study had similar baseline characteristics. On follow-up, the sevelamer group had higher levels of intact parathyroid hormone (498 +/- 352 vs. 326 +/- 236 pg/ml, p = 0.017), bone alkaline phosphatase (38 +/- 24 vs. 28 +/- 15 U/l, p = 0.03) and deoxypyridinoline (135 +/- 107 vs. 89 +/- 71 nmol/l, p = 0.03) and lower LDL cholesterol (74 +/- 21 vs. 91 +/- 28 mg/dl, p = 0.015). Phosphorus (5.8 +/- 1.0 vs. 6 +/- 1.0 mg/dl, p = 0.47) and calcium (1.27 +/- 0.07 vs. 1.23 +/- 0.08 mmol/l, p = 0.68) levels did not differ between groups. CAC progression (35 vs. 24%, p = 0.94) and bone histological diagnosis at baseline and 12 months were similar in both groups. Patients of the sevelamer group with a high turnover at baseline had an increase in bone resorption (eroded surface, ES/BS = 9.0 +/- 5.9 vs. 13.1 +/ - 9.5%, p = 0.05), whereas patients of both groups with low turnover at baseline had an improvement in bone formation rate (BFR/BS = 0.015 +/- 0.016 vs. 0.062 +/- 0.078, p = 0.003 for calcium and 0.017 +/- 0.016 vs. 0.071 +/- 0.084 microm(3)/microm(2)/day, p = 0.010 for sevelamer).

Conclusions: There was no difference in CAC progression or changes in bone remodeling between the calcium and the sevelamer groups. (c) 2008 S. Karger AG, Basel.

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**Timing of renal replacement therapy and clinical outcomes in critically ill patients with severe acute kidney injury**

BAGSHAW SM, UCHINO S, BELLOMO R, MORIMATSU H, MORGERA S, SCHETZ M, TAN I, BOUMAN C, MACEDO E, GIBNEY N, TOLWANI A, OUDEMANS-VAN STRAATEN HM, RONCO C, KELLUM JA; BEGINNING AND ENDING SUPPORTIVE THERAPY FOR THE KIDNEY (BEST KIDNEY) INVESTIGATORS. COLLABORATORS (98)

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Purpose: The aim of this study is to evaluate the relationship between timing of renal replacement therapy (RRT) in severe acute kidney injury and clinical outcomes.

Methods: This was a prospective multicenter observational study conducted at 54 intensive care units (ICUs) in 23 countries enrolling 1238 patients.

Results: Timing of RRT was stratified into "early" and "late" by median urea and creatinine at the time RRT was started. Timing was also categorized temporally from ICU admission into early (<2 days), delayed (2-5 days), and late (>5 days). Renal replacement therapy timing by serum urea showed no significant difference in crude (63.4% for urea <or=24.2 mmol/ L vs 61.4% for urea >24.2 mmol/L; odds ratio [OR], 0.92; 95% confidence interval [CI], 0.73-1.15; P = .48) or covariate-adjusted mortality (OR, 1.25; 95% CI, 0.91-1.70; P = .16). When stratified by creatinine, late RRT was associated with lower crude (53.4% for creatinine >309 micromol/L vs 71.4% for creatinine <or=309 micromol/L; OR, 0.46; 95% CI, 0.36-0.58; P < .0001) and covariate-adjusted mortality (OR, 0.51; 95% CI, 0.37-0.69; P < .001). However, for timing relative to ICU admission, late RRT was associated with greater crude (72.8% vs 62.3% vs 59%, P < .001) and covariate-adjusted mortality (OR, 1.95; 95% CI, 1.30-2.92; P = .001). Overall, late RRT was associated with a longer duration of RRT and stay in hospital and greater dialysis dependence.

Conclusion: Timing of RRT, a potentially modifiable factor, might exert an important influence on patient survival. However, this largely depended on its definition. Late RRT (days from admission) was associated with a longer duration of RRT, longer hospital stay, and higher dialysis dependence

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**Conversion from cyclosporine to tacrolimus in patients at risk for chronic renal allograft failure: 60-month results of the CRAF Study**

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Background: This study compared the long-term effects of switching from cyclosporine to tacrolimus on the incidence, progression, and severity of chronic renal allograft failure in patients with elevated serum creatinine levels.

Methods: Patients were assigned randomly (2:1) to switch to tacrolimus or remain on cyclosporine. Tacrolimus was initiated at 1/50th of the cyclosporine dose or 0.15 mg/kg/day, whichever dose was lower, to maintain trough concentrations between 5 and 15 ng/mL. Cyclosporine doses were adjusted to achieve trough concentrations between 100 and 300 ng/mL.

Results: At 60 months, the median change from baseline in serum creatinine was -0.2 mg/dL in the tacrolimus group and 0.3 mg/dL in the cyclosporine group (P=0.003). Median change in estimated creatinine clearance was 1.2 mL/min in the tacrolimus group and -4.1 mL/min in the cyclosporine group (P=0.019). The incidence of new-onset diabetes, hyperglycemia, hypertension, lymphoma, and malignancies was generally low and comparable between groups. Fewer patients in the tacrolimus group than in the cyclosporine group developed new cardiac conditions (11% vs. 28%, P=0.004), had low-density lipoprotein (LDL) cholesterol values more than 130 mg/dL (29% vs. 57%, P=0.002), or developed hyperlipidemia (24% vs. 67%, P=0.046) during the 60-month follow-up period. Despite these changes, patient and graft survival were similar for both groups.

Conclusion: Switching from cyclosporine to tacrolimus resulted in improved renal function and a reduction in the occurrence of new-onset cardiac conditions and hyperlipidemia, with no increase in the incidence of new-onset diabetes or new-onset hyperglycemia. However, after 5 years there was no impact on patient or graft survival

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**Telmisartan is more effective than losartan in reducing proteinuria in patients with diabetic nephropathy.**

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In patients with diabetic nephropathy, lowering blood pressure and reducing proteinuria by over 30% correlates with a slower progression to kidney failure. We compared two different angiotensin receptor-blockers in a double blind, prospective trial of 860 patients with type 2 diabetes whose blood pressure levels was over 130/80 mmHg or who were receiving antihypertensive medication(s) and who had a morning spot urinary protein to creatinine ratio of 700 or more. Patients were randomized to telmisartan (a highly lipophilic agent with a long half-life) or losartan (with low lipophilicity and short half-life). The primary endpoint was the difference in the urinary albumin to creatinine ratio between the groups at 52 weeks. The geometric coefficient of variation and the mean of the urinary albumin to creatinine ratio fell in both groups at 52 weeks but both were significantly greater for the telmisartan compared to the losartan cohort. Mean systolic blood pressure reductions were not significantly different between groups at trial end. We conclude that telmisartan is superior to losartan in reducing proteinuria in hypertensive patients with diabetic nephropathy, despite a similar reduction in blood pressure.

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**Predicting hospital-acquired acute kidney injury—a case-controlled study.**

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Acute kidney injury is a major complication of hospitalization, occurring in 5-7 percent of hospitalized patients. The patient characteristics and prognostic variables that help predict acute kidney injury have not been studied in the general hospitalized population. The

objectives of this study are to derive and validate a predictive score for hospital-acquired acute kidney injury (HAKI). We conducted a case-controlled study of HAKI involving 180 cases and 360 controls. A multivariate logistic regression model was developed in two-thirds of the subjects and validated in the other third. Upon admission, cases in the developmental sample were older (67 vs. 63 yrs, p = .008) and more likely to have diabetes (51% vs. 35%; p = .003), hypertension (77% vs. 60%, p = .001), heart failure (34% vs. 20%, p = .004), blood urea nitrogen >or=25 mg/dL (38% vs. 20%, p = <.001), creatinine >or=1.1 mg/dL (65% vs. 39%; p <.001), albumin <or=4 g/dL (85% vs. 71%; p = .033), and bicarbonate <24 mEq/L or >30 mEq/L (42% vs. 29%; p = .05) compared to controls. The final risk score included pulse, bicarbonate, creatinine, and specific medications (NSAIDs, ACE inhibitors, ARBs, and/or diuretics). The c-statistic for the risk score in the developmental sample was 0.69. In the validation sample, an increasing number of risk factors was associated with increased risk of HAKI (16% and 62% in the low and high-risk groups, respectively). In conclusion, a simple model based on readily available data stratifies patients according to their risk of developing HAKI and may guide clinical decision making and provide a basis for further research into HAKI.

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*(Bang. Renal J. 2008; 27(1): 4-7)*

*(Bang. Renal J. 2008; 27(1): 8-10)*

*(Bang. Renal J. 2008; 27(1): 11-12)*