A survey Report on Prevalence of Chronic kidney diseases and Their treatment pattern in Dhaka City

A Research Report submitted to the Department of Pharmacy, East West University in partial fulfillment for the requirements of the degree of Master of Pharmacy

Submitted To
Department Of Pharmacy
East West University

Submitted by
Abdullah al jabur
ID # 2013- 3-79 - 037

East West University
Aftabnagar, Dhaka

Declaration by the Research Candidate

I, **Abdullah al jabur (ID # 2013 – 3 – 79 – 037)** , hereby declare that the Research entitled **"A survey report on prevalence chronic kidney disease and their treatment pattern in Dhaka city**" submitted by me to the Department of Pharmacy, East West University, Aftabnagar, Dhaka, Bangladesh in the partial fulfillment of the requirement for the award of the degree of Master of Pharmacy is a bonafide record of original Project work carried out by me during 2015 under the supervision and guidance of **Dr. Saquiba Yesmine**, Assistant Professor, Department of Pharmacy, East West University, Aftabnagar, Dhaka,

Signature of the Candidate

Date:

Abdullah al jabur
ID# 2013 – 3 – 79 – 037

Certificate

This is to certify that the Research entitled "**A Survey Report on Prevalence of chronic kidney diseases and their treatment pattern in Dhaka City**" submitted to the Department of Pharmacy, East West University, Aftabnagar, Dhaka in partial fulfillment of the requirements of the Degree of Master of Pharmacy was carried out by **Abdullah al jabur** (ID # 2013 – 3 – 79 – 037). We further endorse that all the sources of information and facilities availed of in this connection duly acknowledged.

Signature
_____

Dr. Shamsun Nahar
Chairperson
Department of Pharmacy
East West University
Aftabnagar, Dhaka, Bangladesh

Certificate

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Signature of Research Supervisor

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Dr. Saquiba Yesmine

Assistant Professor

Department of Pharmacy

Jahangirnagar University

Savar, Dhaka, Bangladesh

Acknowledgement

First, all praise and glory are to **God** for all the bounties granted to me and only with His guidance and help this achievement has become possible.

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Abstract

Chronic kidney disease is rapidly growing disease in Bangladesh. It is recognized as a major public health problem in Bangladesh. There are various types of kidney diseases occurring in the world. The aim of this study was to find out the prevalence of chronic kidney diseases;

different types of medicines used in these diseases and level of self care practices among the kidney patients. This study was conducted in Dhaka medical college and Sir Salimullah Medical College and Hospital- outdoor and indoor patients were included in the study. A self designed standard questionnaire was developed and was used to directly interview 100 qualified doctors from different hospitals and clinics. A total of 100 eligible cases of kidney patients were considered for this study and a structured questionnaire were used to collect the data. From this study we observed that male populations were affected more (51.21%) than the female population (48.75) by chronic kidney disease. The study also showed the age distribution among the patients where majority was in between 46 years to 55 years old. Results of this study also demonstrated that most of the CKD patients had type 1 diabetes (39.02%) and type 2 diabetes (41.46%) mellitus . Only 5% of the CKD patients had undergone nephro -surgery. Around 24.30% of the CKD patients had hypertension. Glomerular Filtration Rate of maximum patients was 60ml/min/1.73m2-89ml/min/1.73m2. The result of this study is expected to improve the awareness and consciousness to the people regarding the causes and consequences of CKD, which ultimately will help to progress the consciousness and awareness among the mass people Bangladesh.

Literature review

Chronic kidney disease

1.1 **Introduction:**

Chronic kidney disease (CKD), also known as chronic renal disease, is a progressive loss in renal function over a period of months or years. The symptoms of worsening kidney function are not specific, and might include feeling generally unwell and experiencing a reduced appetite. Often, chronic kidney disease is diagnosed as a result of screening of people known to be at risk of kidney problems, such as those with high blood pressure or diabetes and those with a blood relative with CKD. This disease may also be identified when it leads to one of its recognized complications, such as cardiovascular disease, anemia, or pericarditis. It is differentiated from acute kidney disease in that the reduction in kidney function must be present for over 3 months.

Chronic kidney disease is identified by a blood test for creatinine, which is a breakdown product of muscle metabolism. Higher levels of creatinine indicate a lower glomerular filtration rate and as a result a decreased capability of the kidneys to excrete waste products. Creatinine levels may be normal in the early stages of CKD, and the condition is discovered if urinalysis (testing of a urine sample) shows the kidney is allowing the loss of protein or red blood cells into the urine. To fully investigate the underlying cause of kidney damage, various forms of medical imaging, blood tests, and sometimes a renal biopsy (removing a small sample of kidney tissue) are employed to find out if a reversible cause for the kidney malfunction is present.

Recent professional guidelines classify the severity of CKD in five stages, with stage 1 being the mildest and usually causing few symptoms and stage 5 being a severe illness with poor life expectancy if untreated. Stage 5 CKD is often called end-stage kidney disease, end-stage renal disease, or end-stage kidney failure, and is largely synonymous with the now outdated terms chronic renal failure or chronic kidney failure; and usually means the patient requires renal replacement therapy, which may involve a form of dialysis, but ideally constitutes a kidney transplant.

Screening of at-risk people is important because treatments exist that delay the progression of CKD. If an underlying cause of CKD, such as vasculitis, or obstructive nephropathy (blockage to the drainage system of the kidneys) is found, it may be treated directly to slow the damage. In more advanced stages, treatments may be required for anemia and renal bone disease (also called renal osteodystrophy, secondary hyperparathyroidism or chronic kidney disease -

mineral bone disorder (CKD-MBD)). Chronic kidney disease resulted in 956,000 deaths in 2013 up from 409,000 deaths in 1990.

1 .2.Signs and symptoms

CKD is initially without specific symptoms and is generally only detected as an increase in serum creatinine or protein in the urine. As the kidney function decreases:

1.Blood pressure is increased due to fluid overload and production of vasoactive hormones created by the kidney via the renin-angiotensin system, increasing one's risk of developing hypertension and/or suffering from congestive heart failure.

2.Urea accumulates, leading to azotemia and ultimately uremia (symptoms ranging from lethargy to pericarditis and encephalopathy). Due to its high systemic circulation, urea is excreted in eccrine sweat at high concentrations and crystallizes on skin as the sweat evaporates ("uremic frost").

3.Potassium accumulates in the blood (hyperkalemia with a range of symptoms including malaise and potentially fatal cardiac arrhythmias). Hyperkalemia usually does not develop until the glomerular filtration rate falls to less than 20-25 ml/min/1.73 m^2, at which point the kidneys have decreased ability to excrete potassium. Hyperkalemia in CKD can be exacerbated by acidemia (which leads to extracellular shift of potassium) and from lack of insulin.

4.Erythropoietin synthesis is decreased causing anemia.

5.Fluid volume overload symptoms may range from mild edema to life-threatening pulmonary edema.

6.Hyperphosphatemia, due to reduced phosphate excretion, follows the decrease in glomerular filtration. Hyperphosphatemia is associated with increased cardiovascular risk, being a direct stimulus to vascular calcification.

7.Hypocalcemia, due to 1,25 dihydroxyvitamin D_3 deficiency, is caused by stimulation of fibroblast growth factor-23. Osteocytes are responsible for the increased production of FGF23, which is a potent inhibitor of the enzyme 1-alpha-hydroxylase (responsible for the conversion of 25-hydroxycholecalciferol into 1,25 dihydroxyvitamin D_3). Later, this progresses to secondary hyperparathyroidism, renal osteodystrophy, and vascular calcification that further impairs cardiac function.

8.Metabolic acidosis (due to accumulation of sulfates, phosphates, uric acid etc.) may cause altered enzyme activity by excess acid acting on enzymes; and also increased excitability of cardiac and neuronal membranes by the promotion of hyperkalemia due to excess acid (acidemia). Acidosis is also due to decreased capacity to generate enough ammonia from the cells of the proximal tubule.

9.Iron deficiency anemia, which increases in prevalence as kidney function decreases, is especially prevalent in those requiring haemodialysis. It is multifactoral in cause, but includes increased inflammation, reduction in erythropoietin, and hyperuricemia leading to bone marrow suppression.

People with CKD suffer from accelerated atherosclerosis and are more likely to develop cardiovascular disease than the general population. Patients afflicted with CKD and cardiovascular disease tend to have significantly worse prognoses than those suffering only from the latter.

Sexual dysfunction is very common in both men and women with CKD. A majority of men have a reduced sex drive, difficulty obtaining an erection, and reaching orgasm, and the problems get worse with age. A majority of women have trouble with sexual arousal, and painful menstruation and problems with performing and enjoying sex are common.

1.3.Causes

The most common recognised cause of CKD is diabetes mellitus. Others include idiopathic (ie unknown cause, often associated with small kidneys on renal ultrasound), hypertension, and glomerulonephritis. Together, these cause about 75% of all adult cases.

Historically, kidney disease has been classified according to the part of the renal anatomy involved.

1.Vascular disease includes large vessel disease such as bilateral renal artery stenosis and small vessel disease such as ischemic nephropathy, hemolytic-uremic syndrome, and vasculitis.

2.Glomerular disease comprises a diverse group and is classified into:

- Primary glomerular disease such as focal segmental glomerulosclerosis and IgA nephropathy (or nephritis)
- Secondary glomerular disease such as diabetic nephropathy and lupus nephritis

3.Congenital disease such as polycystic kidney disease.

4.Tubulointerstitial disease includes drug- and toxin-induced chronic tubulointerstitial nephritis, and reflux nephropathy.

5.Obstructive nephropathy is exemplified by bilateral kidney stones and diseases of the prostate.

6.On rare cases, pinworms infecting the kidney can also cause nephropathy.

7.Nontraditional causes of CKD (CKDu) are denoted if the common causes of CKD are not present:

- CKD of unknown etiology is the subject of a major study by the Sri Lanka Ministry of Health and the World Health Organization 2009–2012.
- Mesoamerican nephropathy, a form of CKDu, is "a new form of kidney disease that could be called agricultural nephropathy".

1.4.Diagnosis

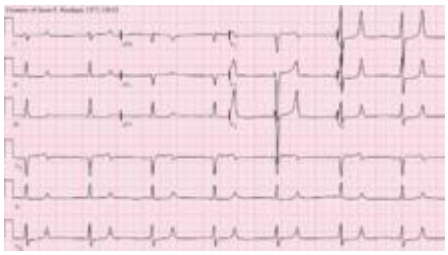

Figure 1: An image of ECG of a patient with CKD

A 12-lead ECG of a person with CKD and a severe electrolyte imbalance: hyperkalemia (7.4 mmol/l) with hypocalcemia (1.6 mmol/l). The T-waves are peaked and the QT interval is prolonged.

Diagnosis of CKD is largely based on the clinical picture combined with the measurement of the serum creatinine level (see above).

Etiology

In many CKD patients, previous renal disease or other underlying diseases are already known. A significant number present with CKD of unknown cause. In these patients, a cause is occasionally identified retrospectively.

Differential diagnosis

It is important to differentiate CKD from acute kidney injury (AKI) because AKI can be reversible. Abdominal ultrasound, in which the size of the kidneys is measured, is commonly performed. Kidneys with CKD are usually smaller (≤ 9 cm) than normal kidneys, with notable exceptions such as in early diabetic nephropathy and polycystic kidney disease. Another diagnostic clue that helps differentiate CKD from AKI is a gradual rise in serum creatinine (over several months or years) as opposed to a sudden increase in the serum creatinine (several days to weeks). If these levels are unavailable (because the patient has been well and has had no blood tests), it is occasionally necessary to treat a patient briefly as having AKI until the renal impairment has been established to be irreversible.

Work-up

Additional tests may include nuclear medicine MAG3 scan to confirm blood flow and establish the differential function between the two kidneys. Dimercaptosuccinic acid (DMSA) scans are also used in renal imaging; with both MAG3 and DMSA being used chelated with the radioactive element technetium-99.

Toxins

In CKD numerous uremic toxins accumulate in the blood. Even when ESKD (largely synonymous with CKD5) is treated with dialysis, the toxin levels do not go back to normal as dialysis is not that efficient. Similarly, after a renal transplant, the levels may not go back to normal as the transplanted kidney may not work 100%. If it does, the creatinine level is often normal. The toxins show various cytotoxic activities in the serum and have different molecular weights, and some of them are bound to other proteins, primarily to albumin. Such toxic protein-bound substances are receiving the attention of scientists who are interested in improving the standard chronic dialysis procedures used today.

Screening

Screening those who have neither symptoms nor risk factors for CKD is not recommended. Those who should be screened include: those with hypertension or history of cardiovascular disease, those with diabetes or marked obesity, those aged > 60 years, subjects with indigenous racial origin, those with a

history of renal disease in the past, and subjects who have relatives who had kidney disease requiring dialysis. Screening should include calculation of estimated GFR from the serum creatinine level, and measurement of urine albumin-to-creatinine ratio (ACR) in a first-morning urine specimen (this reflects the amount of a protein called albumin in the urine), as well as a urine dipstick screen for hematuria. The GFR (glomerular filtration rate) is derived from the serum creatinine and is proportional to 1/creatinine, ie it is a reciprocal relationship (the higher the creatinine, the lower the GFR). It reflects one aspect of kidney function: how efficiently the glomeruli (filtering units) work. But as they make up <5% of the mass of the kidney, the GFR does not tell you about all aspects of kidney health and function. This can be done by combining the GFR level with the clinical assessment of the patient (especially fluid state) and measuring the levels of hemoglobin, potassium, phosphate and parathyroid hormone (PTH). Normal GFR is 90-120 mls/min. The units of creatinine vary from country to country.

Referral to nephrologist

Guidelines for referral to a nephrologist vary between countries. Though most would agree that nephrology referral is required by Stage 4 CKD (when eGFR/1.73m^2 is less than 30 ml/min; or decreasing by more than 3 ml/min/year); and may be useful at an earlier stage (eg CKD3) when urine albumin-to-creatinine ratio is more than 30 mg/mmol, when blood pressure is difficult to control, or when hematuria or other findings suggest either a primarily glomerular disorder or secondary disease amenable to specific treatment. Other benefits of early nephrology referral include proper patient education regarding options for renal replacement therapy as well as pre-emptive transplantation, and timely workup and placement of an arteriovenous fistula in those patients opting for future hemodialysis

Severity-based stages

CKD Stage	GFR level (mL/min/1.73 m^2)
Stage 1	≥ 90
Stage 2	60 – 89

Stage 3	30 – 59
Stage 4	15 – 29
Stage 5	< 15

All individuals with a glomerular filtration rate (GFR) <60 ml/min/1.73 m^2 for 3 months are classified as having chronic kidney disease, irrespective of the presence or absence of kidney damage. The rationale for including these individuals is that reduction in kidney function to this level or lower represents loss of half or more of the adult level of normal kidney function, which may be associated with a number of complications such as the development of cardiovascular disease.

The loss of protein in the urine is regarded as an independent marker for worsening of renal function and cardiovascular disease. Hence, British guidelines append the letter "P" to the stage of chronic kidney disease if protein loss is significant.

Stage 1

Slightly diminished function; kidney damage with normal or relatively high GFR (≥90 ml/min/1.73 m^2). Kidney damage is defined as pathological abnormalities or markers of damage, including abnormalities in blood or urine tests or imaging studies.

Stage 2

Mild reduction in GFR (60–89 ml/min/1.73 m^2) with kidney damage. Kidney damage is defined as pathological abnormalities or markers of damage, including abnormalities in blood or urine tests or imaging studies.

Stage 3

Moderate reduction in GFR (30–59 ml/min/1.73 m^2): British guidelines distinguish between stage 3A (GFR 45–59) and stage 3B (GFR 30–44) for purposes of screening and referral.

Stage 4

Severe reduction in GFR (15–29 ml/min/1.73 m^2) Preparation for renal replacement therapy.

Stage 5

Established kidney failure (GFR <15 ml/min/1.73 m^2), permanent renal replacement therapy, or end-stage kidney disease.

NDD-CKD vs. ESRD

The term "non-dialysis dependent chronic kidney disease" (NDD-CKD) is a designation used to encompass the status of those persons with an established CKD who do not yet require the life-supporting treatments for renal failure known as renal replacement therapy (RRT, including maintenance dialysis or renal transplantation). The condition of individuals with CKD, who require either of the two types of renal replacement therapy (dialysis or transplant), is referred to as the end-stage renal disease (ESRD). Hence, the start of the ESRD is practically the irreversible conclusion of the NDD-CKD. Even though the NDD-CKD status refers to the status of persons with earlier stages of CKD (stages 1 to 4), patients with advanced stage of CKD (stage 5), who have not yet started renal replacement therapy, are also referred to as NDD-CKD.

1.5Treatment

The presence of CKD confers a markedly increased risk of cardiovascular disease, and people with CKD often have other risk factors for heart disease, such as high blood lipids. The most common cause of death in people with CKD is cardiovascular disease rather than renal failure. Aggressive treatment of hyperlipidemia is warranted.

Apart from controlling other risk factors, the goal of therapy is to slow down or halt the progression of CKD to stage 5. Control of blood pressure and treatment of the original disease, whenever feasible, are the broad principles of management. Generally, angiotensin converting enzyme inhibitors (ACEIs) or angiotensin II receptor antagonists (ARBs) are used, as they have been found to slow the progression of CKD in forms of the disease with increased levels of protein in the urine. Although the use of ACE inhibitors and ARBs represents the current standard of care for people with CKD, people progressively lose kidney function while on these medications, as seen in the IDNT and RENAL. studies, which reported a decrease over time in estimated GFR (an accurate measure of CKD progression, as detailed in the K/DOQI guidelines in people treated by these conventional methods.

Replacement of erythropoietin and calcitriol, two hormones processed by the kidney, is often necessary in people with advanced disease. Guidelines

recommend treatment with parenteral iron prior to treatment with erythropoietin. A target hemoglobin level of 9–12 g/dl is recommended. The normalization of hemoglobin has not been found to be of benefit. It is unclear if androgens help with anemia. Phosphate binders are also used to control the serum phosphate levels, which are usually elevated in advanced chronic kidney disease. Although the evidence for them is limited, phosphodiesterase-5 inhibitors and zinc show potential for helping men with sexual dysfunction.

At stage 5 CKD, renal replacement therapy is usually required, in the form of either dialysis or a transplant.

Prognosis

The prognosis of patients with chronic kidney disease is guarded as epidemiological data have shown that all cause mortality (the overall death rate) increases as kidney function decreases. The leading cause of death in patients with chronic kidney disease is cardiovascular disease, regardless of whether there is progression to stage 5.

While renal replacement therapies can maintain patients indefinitely and prolong life, the quality of life is severely affected. Renal transplantation increases the survival of patients with stage 5 CKD significantly when compared to other therapeutic options; however, it is associated with an increased short-term mortality due to complications of the surgery. Transplantation aside, high-intensity home hemodialysis appears to be associated with improved survival and a greater quality of life, when compared to the conventional three-times-a-week hemodialysis and peritoneal dialysis.

Cancer risk

Patients with ESKD are at increased overall risk for cancer. This risk is particularly high in younger patients and gradually diminishes with age.[34] Medical specialty professional organizations recommend that physicians do not perform routine cancer screening in patients with limited life expectancies due to ESKD because evidence does not show that such tests lead to improved patient outcomes.

Causes

Chronic kidney disease (CKD) slowly gets worse over months or years. you may not notice any symptoms for some time. The loss of function may be so slow that you do not have symptoms until your kidneys have almost stopped working.

The final stage of chronic kidney disease is called end-stage renal disease (ESRD). At this stage, the kidneys are no longer able to remove enough wastes and excess fluids from the body. At this point, you would need dialysis or a kidney transplant.

Diabetes and high blood pressure are the two most common causes and account for most cases.

Many other diseases and conditions can damage the kidneys, including:

- Autoimmune disorders (such as systemic lupus erythematosus and scleroderma)
- Birth defects of the kidneys (such as polycystic kidney disease)
- Some toxic chemicals
- Injury to the kidney
- Kidney stones and infection
- Problems with the arteries feeding the kidneys
- Some medicines, such as pain and cancer drugs
- Backward flow of urine into the kidneys (reflux nephropathy)
- Other kidney diseases

Chronic kidney disease leads to a buildup of fluid and waste products in the body. This condition affects most body systems and functions, including:

- High blood pressure
- Low blood cell count
- Vitamin D and bone health

Symptoms

The early symptoms of chronic kidney disease are the same as for many other illnesses. These symptoms may be the only sign of a problem in the early stages.

Symptoms may include:

- Appetite loss
- General ill feeling and fatigue
- Headaches
- Itching (pruritus) and dry skin
- Nausea
- Weight loss without trying to lose weight

Symptoms that may occur when kidney function has gotten worse include:

- Abnormally dark or light skin
- Bone pain
- Drowsiness or problems concentrating or thinking
- Numbness or swelling in the hands and feet
- Muscle twitching or cramps
- Breath odor
- Easy bruising, or blood in the stool
- Excessive thirst
- Frequent hiccups
- Problems with sexual function
- Menstrual periods stop (amenorrhea)
- Shortness of breath
- Sleep problems
- Vomiting, often in the morning

1.6Exams and Tests

Most people will have high blood pressure at all stages of chronic kidney disease. During an exam, your health care provider may also hear abnormal heart or lung sounds in your chest. You may have signs of nerve damage during a nervous system exam.

A urinalysis may show protein or other changes in your urine. These changes may appear 6 months to 10 or more years before symptoms appear.

Tests that check how well the kidneys are working include:

- Creatinine clearance
- Creatinine levels
- BUN

Chronic kidney disease changes the results of several other tests. You will need to have the following tests as often as every 2 - 3 months when kidney disease gets worse:

- Albumin
- Calcium
- Cholesterol
- Complete blood count (CBC)
- Electrolytes

- Magnesium
- Phosphorous
- Potassium
- Sodium

Other tests that may be done to look for the cause or type of kidney disease include:

- CT scan of the abdomen
- MRI of the abdomen
- Ultrasound of the abdomen
- Kidney biopsy
- Kidney scan
- Kidney ultrasound

This disease may also change the results of the following tests:

- Erythropoietin
- PTH
- Bone density test
- Vitamin D level

Treatment

Controlling blood pressure will slow further kidney damage.

- Angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) are used most often.
- The goal is to keep blood pressure at or below 130/80 mmHg.

Making lifestyle changes can help protect the kidneys, and prevent heart disease and stroke, such as:

- Do not smoke.
- Eat meals that are low in fat and cholesterol.
- Get regular exercise (talk to your doctor or nurse before starting to exercise).
- Take drugs to lower your cholesterol, if needed.
- Keep your blood sugar under control.
- Avoid eating too much salt or potassium.

Always talk to your kidney doctor before taking any over-the-counter medicine. This includes vitamins, herbs and supplements. Make sure all of the doctors you visit know you have chronic kidney disease.

Other treatments may include:

- Medicines called phosphate binders, to help prevent high phosphorous levels
- Extra iron in the diet, iron pills, iron given through a vein (intravenous iron) special shots of a medicine called erythropoietin, and blood transfusions to treat anemia
- Extra calcium and vitamin D (always talk to your doctor before taking)

Your doctor may have you follow a special diet for chronic kidney disease.

- Limiting fluids
- Eating less protein
- Restricting salt, potassium, phosphorous, and other electrolytes
- Getting enough calories to prevent weight loss

All people with chronic kidney disease should be up-to-date on the following vaccinations:

- Hepatitis A vaccine
- Hepatitis B vaccine
- Flu vaccine
- Pneumonia vaccine (PPV)

Support Groups

Some people benefit from taking part in a kidney disease support group.

Outlook (Prognosis)

Many people are not diagnosed with chronic kidney disease until they have lost most of their kidney function.

There is no cure for chronic kidney disease. If it worsens to end-stage renal disease, and how quickly, depends on:

- The cause of kidney damage
- How well you take care of yourself

Kidney failure is the last stage of chronic kidney disease. This is when your kidneys can no longer support our body's needs.

Your health care provider will discuss dialysis with you before you need it. Dialysis removes waste from your blood when your kidneys can no longer do their job.

Usually, you will go to dialysis when you have only 10 - 15% of your kidney function left.

Even people who are waiting for a kidney transplant may need dialysis while waiting.

Possible Complications

- Anemia
- Bleeding from the stomach or intestines
- Bone, joint, and muscle pain
- Changes in blood sugar
- Damage to nerves of the legs and arms (peripheral neuropathy)
- Dementia
- Fluid buildup around the lungs (pleural effusion)
- Heart and blood vessel complications
    - Congestive heart failure
    - Coronary artery disease
    - High blood pressure
    - Pericarditis
    - Stroke
- High phosphorous levels
- High potassium levels
- Hyperparathyroidism
- Increased risk of infections
- Liver damage or failure
- Malnutrition
- Miscarriages and infertility
- Seizures
- Swelling (edema)
- Weakening of the bones and increased risk of fractures

Prevention

Treating the condition that is causing the problem may help prevent or delay chronic kidney disease. People who have diabetes should control their blood sugar and blood pressure levels and should not smoke.

Alternative Names

Kidney failure - chronic; Renal failure - chronic; Chronic renal insufficiency; Chronic kidney failure; Chronic renal failure

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Epidemiology

Chronic kidney disease resulted in 956,000 deaths in 2013 up from 409,000 deaths in 1990.

In Canada, 1.9 to 2.3 million people have CKD. The U.S. Centers for Disease Control and Prevention found that CKD affected an estimated 16.8% of U.S. adults aged 20 years and older, during 1999 to 2004. UK estimates suggest that 8.8% of the population of Great Britain and Northern Ireland have symptomatic CKD.

CKD is a major concern in African Americans, mostly due to increased prevalence of hypertension. As an example, 37% of ESKD cases in African Americans can be attributed to high blood pressure, compared with 19% among Caucasians. Treatment efficacy also differs between racial groups. Administration of antihypertensive drugs generally halts disease progression in white populations, but has little effect in slowing renal disease among blacks, and additional treatment such as bicarbonate therapy is often required. While lower socioeconomic status contributes to prevalence of CKD, significant differences in CKD prevalence are still evident between African Americans and Whites when controlling for environmental factors.

Studies have shown a true association between history of chronic kidney disease in first- or second-degree relatives, and risk of disease. In addition, African Americans may have higher serum levels of human leukocyte antigens (HLA). High HLA concentrations can contribute to increased systemic inflammation, which indirectly may lead to heightened susceptibility for developing kidney disease. Lack of nocturnal reduction in blood pressure among groups of African Americans is also offered as an explanation, which lends further credence to a genetic etiology of CKD racial disparities.

A high and so-far unexplained incidence of CKD, referred to as the Mesoamerican nephropathy, has been noted among male workers in Central America, mainly in sugar cane fields in the lowlands of El Salvador and Nicaragua. Heat stress from long hours of piece-rate work at high average temperatures (in the range of 96°F) is suspected, as are agricultural chemicals and other factors. In Sri Lanka, another epidemic of CKD of unknown etiology has become a serious public health concern.

Society and culture

In the USA, the National Kidney Foundation is a national organization representing patients and professionals who treat kidney diseases. The American Kidney Fund is a national nonprofit organization providing treatment-related financial assistance to one of every five dialysis patients each year. The Renal Support Network is a nonprofit, patient-focused, patient-run

organization that provides nonmedical services to those affected by CKD. The American Association of Kidney Patients is a nonprofit, patient-centric group focused on improving the health and well-being of CKD and dialysis patients. The Renal Physicians Association is an association representing nephrology professionals.In the United Kingdom, the UK National Kidney Federation and British Kidney Patient Association (BKPA) represents patients, and the Renal Association represents renal physicians and works closely with the National Service Framework for kidney disease.

The International Society of Nephrology is an international body representing specialists in kidney diseases.

Research

Currently, several compounds are in development for the treatment of CKD. These include the angiotensin receptor blocker (ARB) olmesartan medoxomil [citation needed]; and sulodexide, a mixture of low molecular weight heparin and dermatan sulfate .

2.1 Materials & Method

The present study was performed on a cross sectional observation. This study involves the analysis of the data collected from the chronic kidney diseases patients and intended to find out the prescribed drugs by the doctors in different disorder.

Two types of survey generated in this study

- One is face to face conversation with patient about their diseases and medication management. 100 patient health problem and management has been include in this study.
- Another is physician survey (80 questionnaires) which have been done in the four different division in the Bangladesh (Including Chittagong, Sylhet, Bogra, Barisal), attempted to find out the medication pattern of doctors in different chronic kidney disease.

2.2Place of study:

This study has been placed in two renowned medical college and hospital in the Bangladesh one is Dhaka Medical College (DMC) and another is Sir Salimullah Medical College.

2.3Dhaka Medical College and Hospital (DMCH), established in 1946 during the British colonial rule. Since its establishment, Dhaka Medical College is continuously playing a pioneering role in dispersing medical education among young pupils. The hospital attached with the college provides affordable health care to a huge number of patients through its outdoor, indoor and emergency facilities.

Fig: **Dhaka Medical College and Hospital (DMCH**)

in Bangladesh. It is located in the old part of the capital, Dhaka. It is affiliated with the University of Dhaka. Before 1854 it was a Dutch "kuthi" which was used **Sir Salimullah Medical College (SSMC)** is a government medical college for business purpose. It became a medical college in 1962. The medical college consists of following departments: preclinical (anatomy, physiology, biochemistry, pharmacology), paraclinical (pathology, microbiology, forensic medicine, community medicine, pharmacology), clinical medicine (general medicine, psychiatry, neuromedicine, nephrology, cadiology, sexual-skin-and-venereal diseases), pediatrics, surgery (general surgery, orthopedic surgery, pediatric surgery, neurosurgery, plastic surgery, Urology, cardiothoracic surgery), gynaecology and obstetrics, ophthalmology, otolaryngorhinology, anesthesiology and diagnostic (clinical laboratory, radiology and imaging).

Fig: **Sir Salimullah Medical College (SSMC)**

2.4Data collection and statistical analysis

After explaining the purpose of the study to the patients and obtaining their verbal consent, all the patients by asking questions in Bangla and check their prescriptions consisting of list of drugs prescribed by the physician.

All the data were checked after collection. Then data were entered into computer and results were calculated with Microsoft® Excel 2013.Data are presented as actual numbers, percentages and proportions. Outputs were presented in both graphs and tables. The results were shown in Horizontal bar and pie chart and Histogram.

2.5Aims and objective:

a) To determine the principle aims to prevalence study of chronic kidney disease and its treatment pattern in Dhaka city.

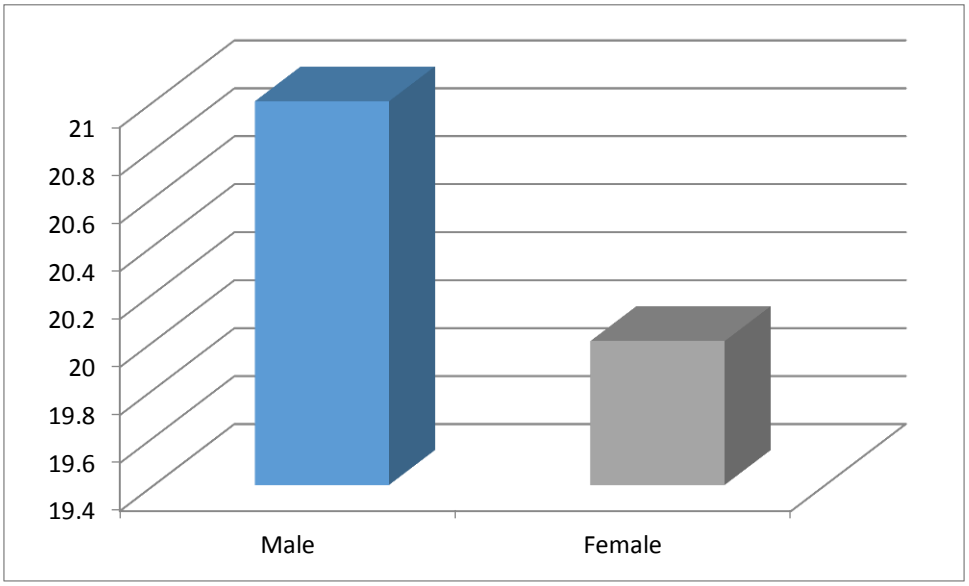
b) To determine the types of primary diseases leading to End Stage Renal Disease.

c) To determine the association of co morbidities with End Stage Renal Disease.

d) To determine the socio demographic information of the End Stage Renal Disease patients

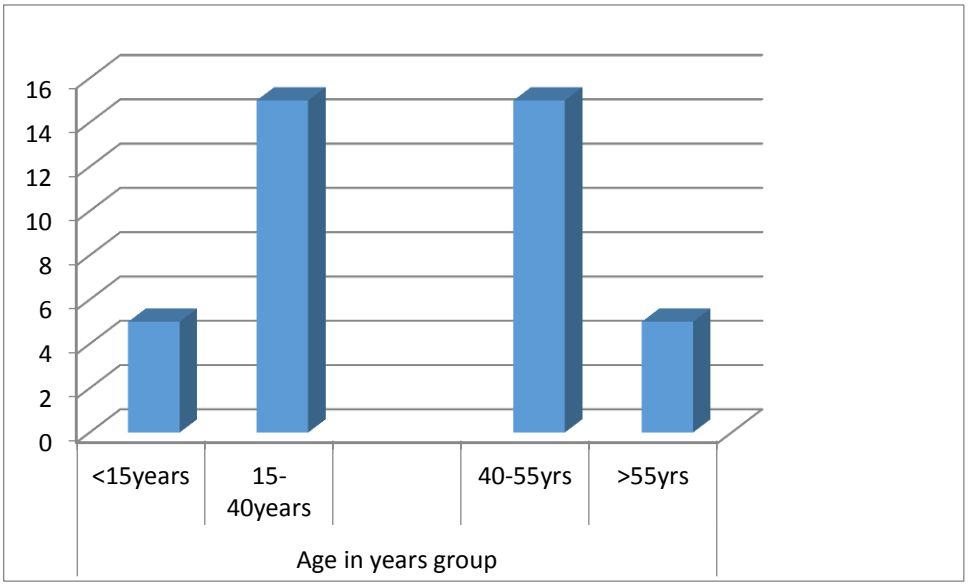
3.1Result and discussion.

1.



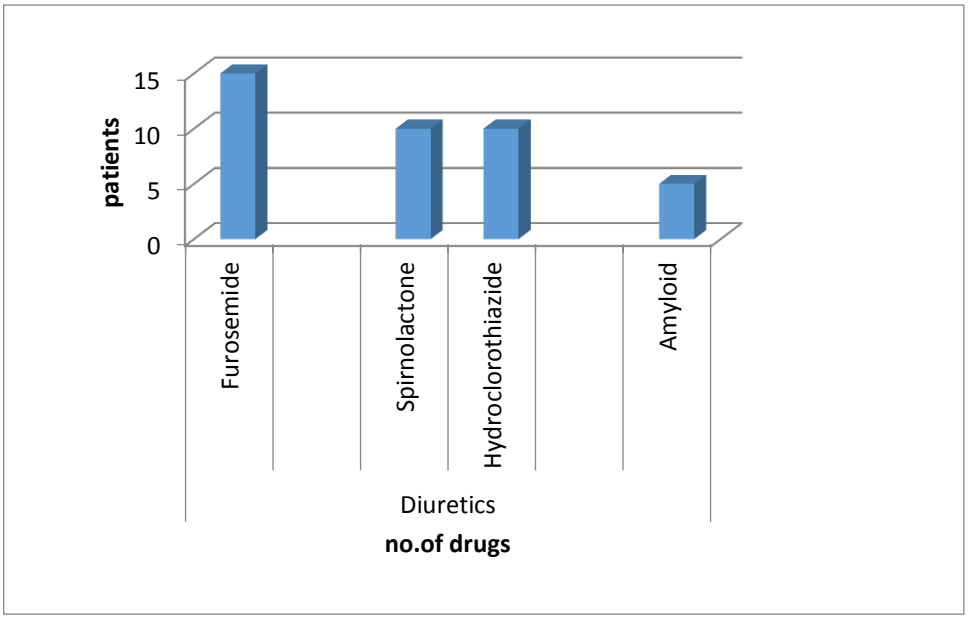
Above diagram show that 51.21% male and 48.78%female were affected.

2.



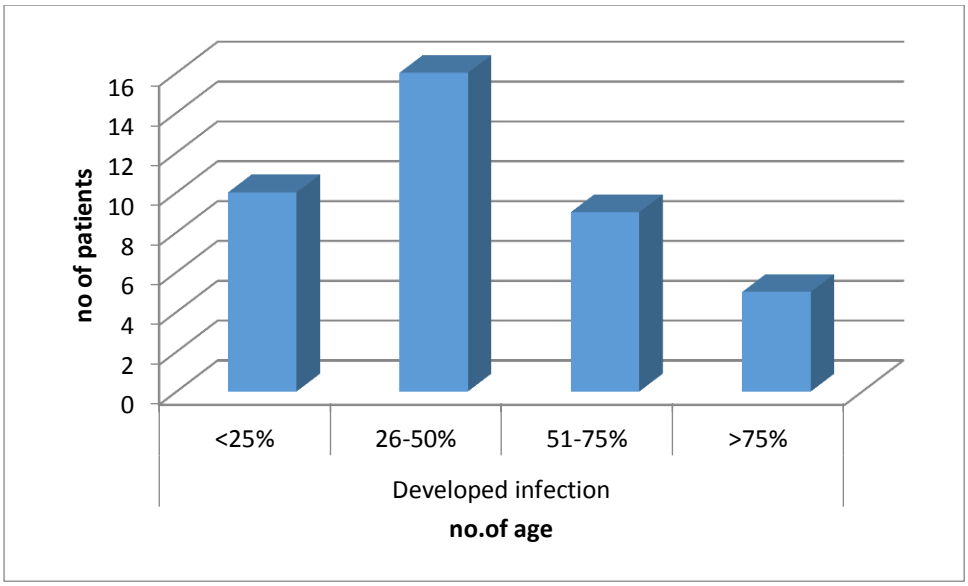
3.It is clear that kidney disease occur mostly in patients with 46-55years(36.58%)

4.



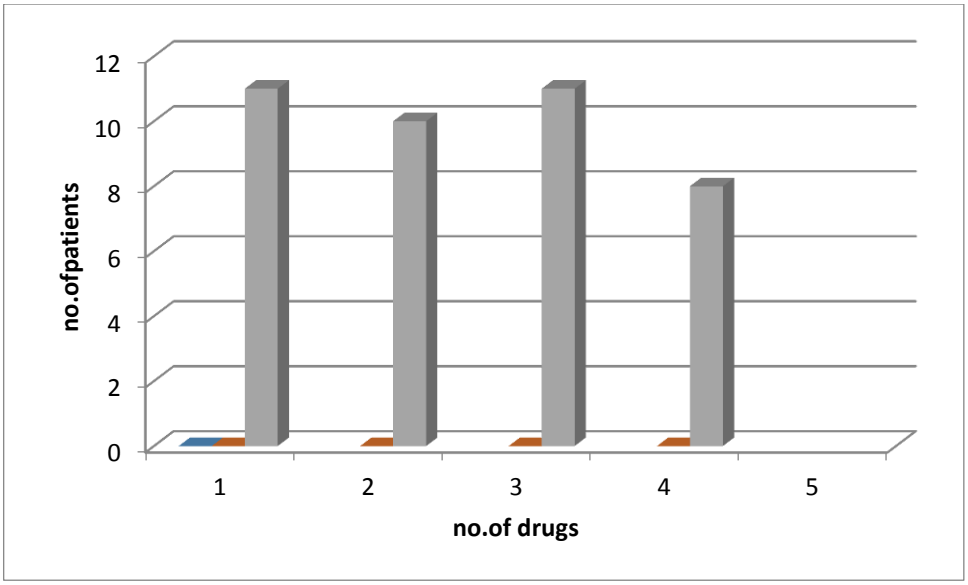
It can observed that furosemide35.58%spirolatone 24.39%.hydroclorthiazide 24.39% Amyloid 12.19.5

5.



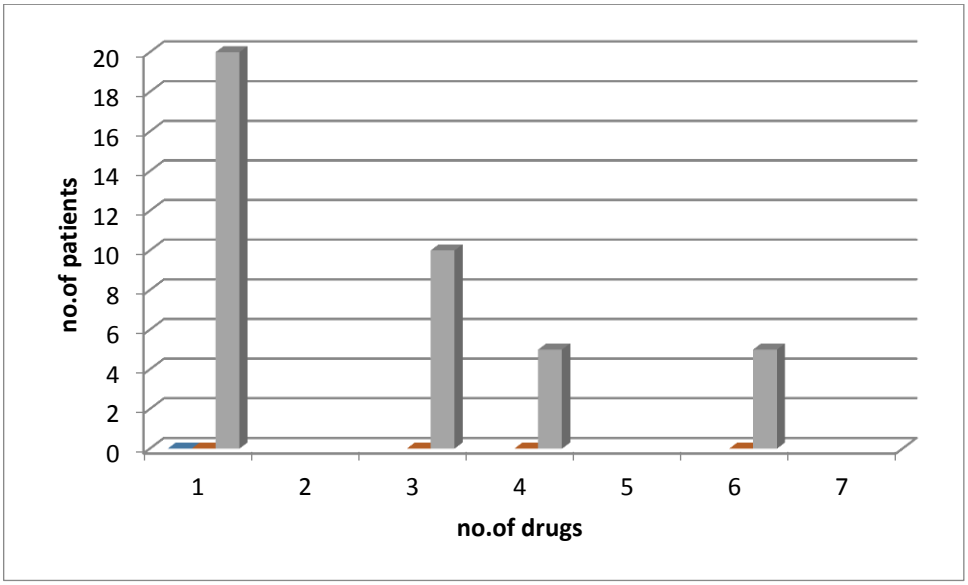
6.I t is observed that 26-50%(39.02%) were more common.

7.



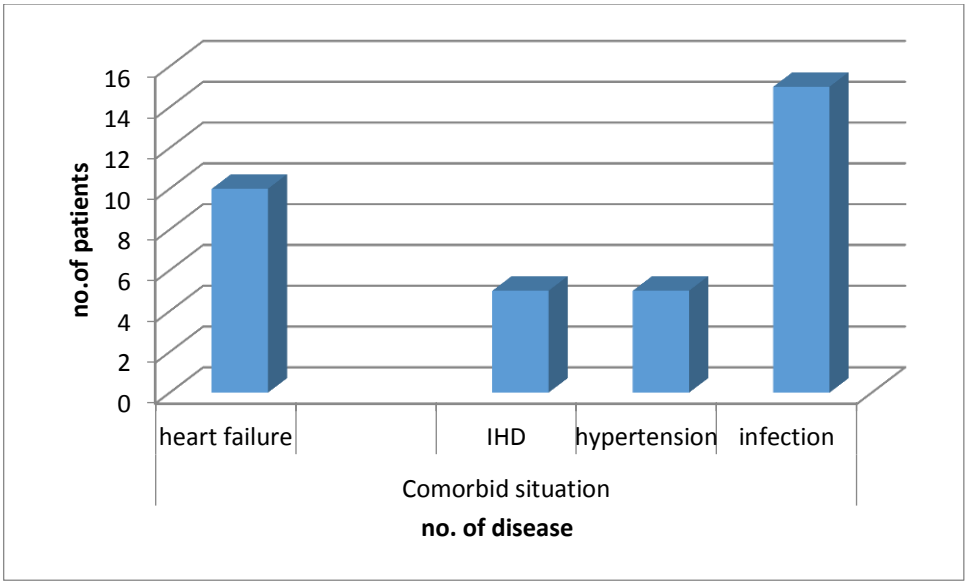
It is observe thatused in nephrotoxic were diuretics 26.82%,ACE inhibitor 24.39%,NSAIDS 26.82%and sodium bi carbonate 19.51%

8.



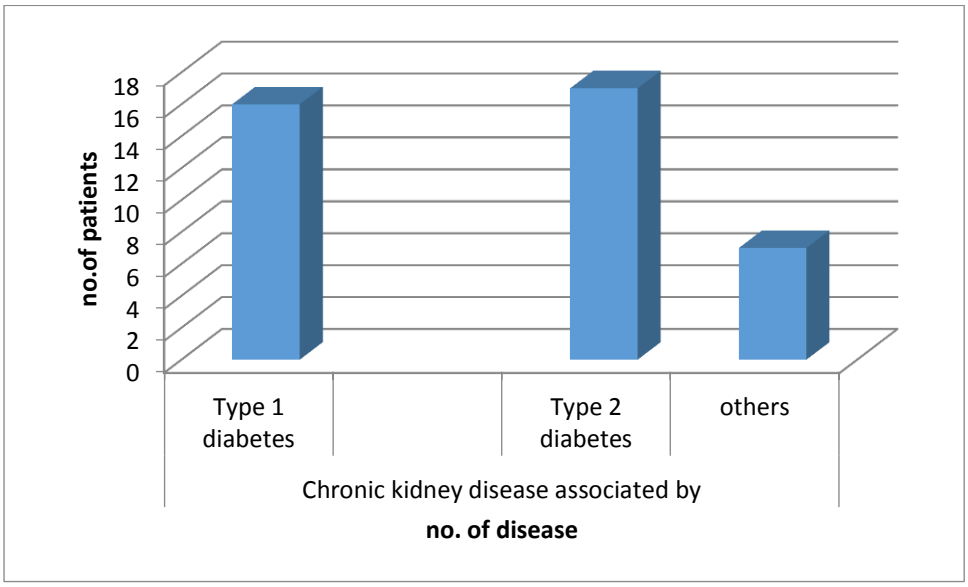
Most commonly prescribed antibiotics cephalosporin 48.78%,penicillin24.39%,aminoglycosides12.19%,quenolone 12.19%

9.



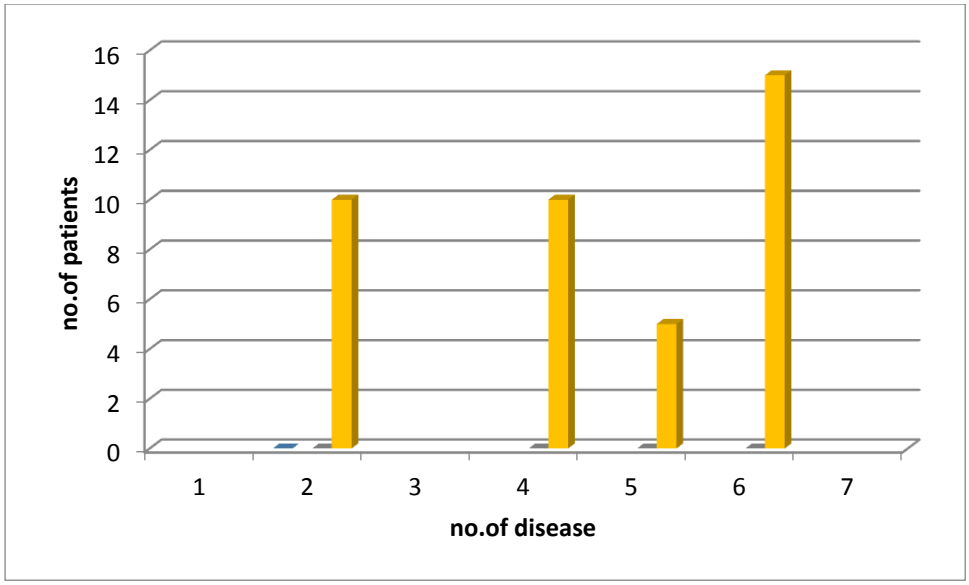
Comorbid situation heart failure 24.39%IHD.12.19%,hypertension12.19%infection35.58%.

10.



Chronic kidney disease associated by type 1 diabetes 39.02%,type 2 diabetes41.46%a 17.07% and others.

11.



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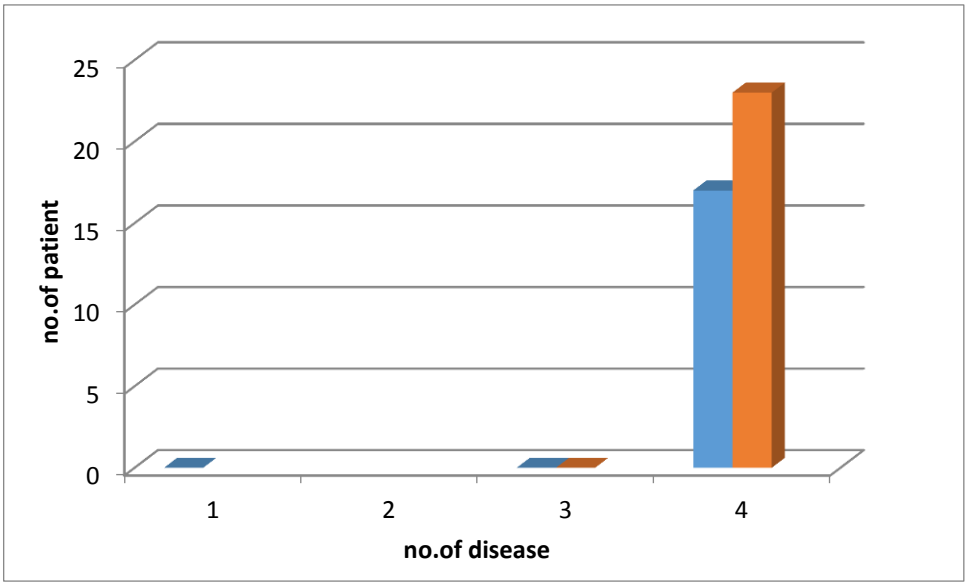
Risk factos involve in chronic kidney disease hypertension24.38%,diabetes24.39% gout 24.39,all of the above36.58%

12.



High blood pressure can affect glomeruli 41.46%,others 56.09%

4.1Discussion

CKD is a common disease among adults in the US. There are 10% of adults in the US – more than 20 million. The prevalence of chronic kidney disease was dramatic 11%among US adults surveyed in 1988 to 1994 (Travers *et al.,* 2013). In this study, the majority of CKD were between 46-55 years aged people.The awareness of the CKD patients in the U.S population is low in contrast to the increase in treated chronic kidney disease (Travers *et al.*, 2013). But in the present study, the awareness of the people was relatively high.Chronic kidney disease has become a major cause of global morbidity and mortality even indeveloping countries. About 800 per million populations were suffering from CKD approximately. ESRD is a significant problem in India which causes death (Agarwal andSrivastava, 2009). In the study, the rate of ESRD was at a lower rate.In UK, 4.7% people had chronic kidney disease. It was also estimated that the glomerularfiltration rate was below 60 ml/min/1.73m2. Diabetes mellitus, hypertension was occurring most in the people who are 55 years old or above 55 years. The end stage renaldisease wasrelatively low (Hallan *et al.*, 2006).The normal range of GFR is 90 ml/min/1.73m2 - 120 ml/min/1.73m2. In the study, most ofthe kidney patients had the GFR in between 60 ml/min/1.73m2 - 89 ml/min/1.73m2 which is mildly decreased GFR and it was a moderate result. Haemoglobin level below 12 gm/dl that means the majority of the CKD patients had anaemia.Only 5% had undergone nephro surgery. About 24.39%% of the patients had hypertension.

scussion:

Conclusion:

Now-a-days, kidney disease is one of the most common diseases. There are many of the drugs to treat kidney disease. Besides, dialysis and kidney transplant is occurring also in our country which is more effective to cure a kidney patient properly. It is a silent killer and so every people should be more conscious about their health as well as kidney. In this case, regular health check-up is a most important factor. And the specialist or doctor should have the capability to recognize the kidney disease otherwise severe problem will be create to that particular patient. To recognise this disease here many of the test are done. Physicians should prescribe the accurate drug or should prescribe the accurate way to treat the kidney disease. Here consulting with doctor is also an important factor. Patient should feel free with doctor that can help the doctor to recognise the problem. Awareness is another important factor. People should be aware about their health as well as kidney. People should not be careless. Most of the medicines of this disease is highly cost. And as we all know that Bangladesh is a developing country so many of the people cannot afford it. Here, campaign is a useful way to bring consciousness to the people and free service should be done by the Government. Government should take necessary steps to overcome from the disease and so our young generation as well as adult people will not be affected by kidney disease.

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