

A Clinical study of Chronic Renal Failure with special reference to its Causative Factors

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Abstract- Chronic renal failure is a disease arising from various causative factors like Diabetes Mellitus, Hypertension, Renal artery stenosis etc. In every patient the causative factor leads with its own pathogenesis and which makes the treatment difficult. The study entitled “A clinical study of chronic renal failure with special reference to its causative factors” assesses the most likely causes of chronic renal failure.

Keywords- Kidney, Hypertension, Diabetes mellitus, Congenital, Renal Failure, CRF.

I. INTRODUCTION

Chronic renal failure is a kidney damaging disease often presents as multi-systemic disorders. As per current data, about 5-10% world population is affected by chronic renal failure. The disease has not the same origin in various patients. Not knowing the exact cause makes it more difficult to start the treatment. Current status of treatment is symptomatic and has no fixed regimen or protocol.

Various causes are claimed to develop the renal failure most important and commonly seen are- diabetes mellitus, renal hypertension, poisoning by heavy metals, renal hypoplasia and renal tumors. Disease arises from any of the above causative from any of the causative factors and progress as Glomerular and tubular renal failure.

The study undertaken to assess the major causes of Chronic Renal Failure with the help of clinically evaluating the data of diagnosed patients of CRF. An effort is made to reach the maximum affecting cause of chronic renal failure.

II. REVIEW OF LITERATURE

Anatomy of Kidney-

External features- each kidney is bean shaped it have upper and lower poles, medial and lateral borders and anterior and posterior surface. [1]

- a) Poles- 2. Upper and lower.
- b) Surface -2. Anterior and posterior.
- c) Border-2. Medial and lateral.
- d) Shape and size- each kidney is about 11 cm long, 6cm broad and 3 cm thick.
- e) Weight- 150gm in males and 135gm in females.
- f) Arterial supply- renal artery.
- g) Nerve supply- renal plexus.

Function of Kidney-

- a) Role of homeostasis-
 1. Excretion of waste products
 2. Maintenance of water balance
 3. Maintenance of electrolyte balance
 4. Maintenance of acid base balance
- b) Hemopoetic Function- stimulate production of erythrocytes
- c) Regulation of blood pressure.
- d) Regulation of blood calcium level.
- e) It plays an important role in vitamin D metabolism
- f) It helps to maintain water balance of the body and thereby plasma volume.
- g) It helps to maintain the optimum concentration of certain constituents of blood. [1,2]

Chronic Renal Failure-

Chronic renal failure refers an irreversible deterioration in renal function which classically develops over a period of years. Initially it is manifest only as a biochemical abnormality, eventually loss of the excretory metabolic and endocrine functions of the kidney leads to the development of the clinical symptoms and signs of renal failure, which is referred to as uremia. When death is likely without renal replacement therapy it is called end stage renal failure [ESRF] [4]

Etiology-

CRF may be caused by any condition which destroys the normal structure and function of the kidney. Common causes are shown in the following box. A precise diagnosis is not always established patients often have bilateral small kidneys at

presentation and in such a situation renal biopsy is usually invisible because of the difficulty in making a histological diagnosis in severely damaged kidneys and the fact that treatment is unlikely to improve renal function significantly. [3, 4]

Common causes of chronic renal failure-

Sr. No	Cause
1	Congenital and inherited
2	Renal Artery Stenosis
3	Hypertension
4	Glomerular disease
5	Systemic inflammatory disease
6	Diabetes Mellitus
7	Unknown

Table 1: Common causes of chronic renal failure

Pathogenesis-

Disturbances in water, electrolyte and acid base balance contribute to the clinical picture in patient with CRF but the exact pathogenesis of the clinical syndrome of uremia is unknown. Many substances present in abnormal concentration in the plasma have been suspected as being uremic toxins and uremia is probably caused by the accumulation of various intermediary products of metabolism. [5]

III. AIMS AND OBJECTIVES

Aim-

To study the concept of Chronic Renal Failure with reference to causative factors.

Objective-

1. Literary study to understand Chronic Renal Failure and its causative factors
2. Clinical assessment of the patients of CRF with reference to history and clinical futures.
3. Evaluation of data regarding clinical assessment of patients of C.R.F.
4. Data analysis of clinical futures of patients of CRF with reference to causative factor.

IV. MATERIALS AND METHODS

a) Material-

1. Available classical textbooks, digital media, Google search, indexed journal etc. were reviewed for the conceptual understanding of Chronic Renal Failure and its causative factors.
2. 50 diagnosed patients of C.R.F. were assessed for their causative factors with the help of following Performa of case format.
3. Data was collected and analysed with the help of concerned textbooks and digital media.

b) Method-

1. 50 diagnosed patients of C.R.F. were randomly assessed for the cause of C.R.F. with specially prepared Performa for it.
2. Data collected was analysed to assess the correlation between a specific cause and occurrence of the CRF.
3. Inclusion and Exclusion criteria-

Inclusion Criteria-

1. Age – Age between 30 to 70 years
2. Sex- Both Sexes.
3. Well diagnosed case of Chronic Renal Failure

Exclusion Criteria-

1. Volunteer having below 30 year age and above 70 year age
2. Not diagnosed case of CRF

PERFORMA FOR C.R.F CAUSE ASSESSMENT-

Name of Patient-

Age-

Sex-

Address-

OPD No-

IPD No-

- a) Chief Complaints-
- b) History of previous Illness/ Major disease-
- c) Investigations-
- d) Diagnosis-
- e) Cause and Disease Assessment

Sr. No	Causative Factor
1	Congenital and inherited
2	Renal artery stenosis
3	Hypertension
4	Glomerular disease
5	Systemic inflammatory disease
6	Diabetes Mellitus
7	Unknown

V. OBSERVATIONS AND RESULTS

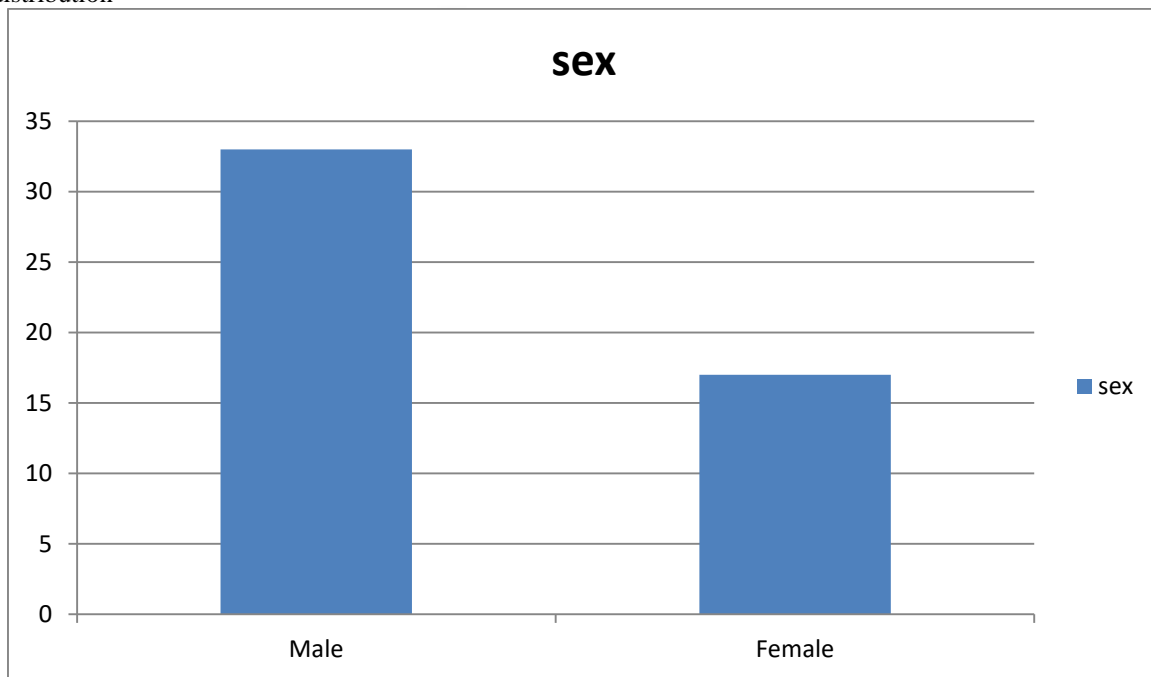
1) Sex wise distribution of volunteer (Chronic kidney failure volunteer) -

Observation no. 1

Table no-1

Sr. No	Total volunteer	NO. OF MALE	%	NO. OF FEMALE	%
1	50	33	66	17	34

Graph no-1.
Sex wise distribution



Observation no. 1 and graph no. 1 shows-
Sex Wise Distribution

There are total 50 volunteer observed for chronic kidney failure. Sex wise distribution of chronic kidney failure volunteers are as follows:

- 1) Male: there are 33 male (66 %) volunteer of total volunteer.
- 2) Female: there are 17 Female (34 %) volunteer of total volunteer

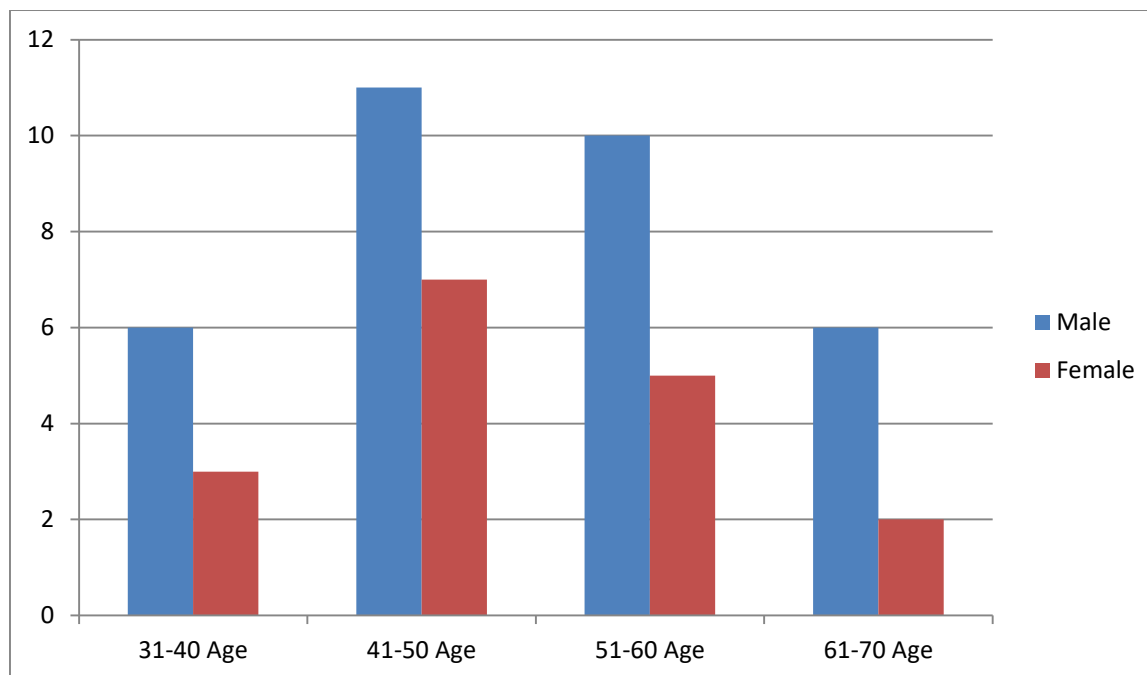
2) Age wise distribution-

Observation no -2.

Table no- 2

Age wise group	Male	%	Female	%
31-40	06	12 %	03	06%
41-50	11	22%	07	14%
51-60	10	20%	05	10%
61-70	06	12%	02	04%

Graph no-2.
Age wise distribution



Observation no. 2 and graph no. 2 shows-
Age Wise Distribution

There are total 50 volunteer observed for chronic kidney failure. Age wise distribution of chronic kidney failure volunteers are as follows.

- 3) Age between 31 to 40 year: there are 06 male (12 %) and 03 female volunteer (06%).
- 4) Age between 41 to 50 year: there are 11male (22 %) and 07 female volunteer (14 %).
- 5) Age between 51 to 60 year: there are 10 male (20 %) and 05 female volunteer (10 %).
- 6) Age between 61 to 70 year: there are 06 male (12 %) and 02 female volunteer (04 %).

3. Cause wise distribution of volunteer (Chronic kidney failure volunteer)

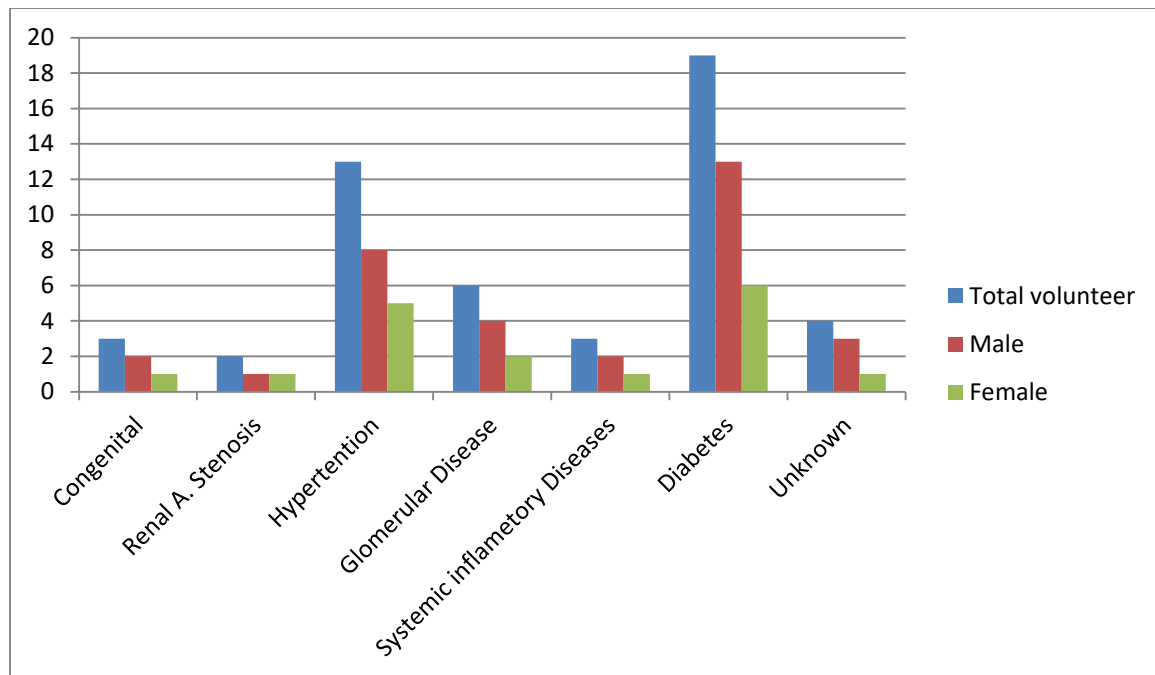
Observation no-3

Table no-3

Sr. No	Cause of chronic kidney failure	Total volunteer	%	Male	%	Female	%
1	Congenital and inherited	3	6	2	4	1	2
2	Renal artery stenosis	2	4	1	2	1	2
3	Hypertension	13	26	8	16	5	10
4	Glomerular disease	6	12	4	8	2	4
5	Systemic inflammatory disease	3	6	2	4	1	2
6	Diabetes mellitus	19	38	13	26	6	12
7	Unknown	4	8	3	6	1	2

Graph no-3.

Cause wise distribution



Observation no. 3 and graph no. 3 shows-

Cause wise distribution of volunteer (Chronic kidney failure volunteer)

There are total 50 volunteer observed for chronic kidney failure. Cause wise distribution of chronic kidney failure volunteers are as follows.

- 1) Congenital and inherited: There are total 03 volunteers (06%) having this cause. In this group there are 02 male (04%) and 01 female volunteer (02%).
- 2) Renal artery stenosis: There are total 02 volunteer (04%) having this cause. In this group there are 01 male (2%) and 01 female volunteer (02%).
- 3) Hypertension: There are total 13 volunteer (26%) having this cause. In this group there are 08 male (16%) and 05 female volunteer (10%).
- 4) Glomerular disease: there are total 06 volunteer (12%) having this cause. In this group there are 04 male (08%) and 02 female volunteer (04%).
- 5) Systemic inflammatory disease: there are total 03 volunteer (06%) having this cause. In this group there are 02 male (04%) and 01 female volunteer (02%).
- 6) Diabetes Mellitus: There are total 19 volunteer (38%) having this cause. In this group there are 13 male (26%) and 06 female volunteer (12%).
- 7) Unknown: There are total 04 volunteer (08%) having this cause. In this group there are 03 male (06%) and 01 female volunteer (02%).

VI. DISCUSSION

1. Chronic renal failure is a kidney disease which affects a considerable population in both sexes.
2. The disease often presents as the progression of one or more causative factors of renal failure. The disease presents itself with symptoms more correlating to the underlying cause of the disease.
3. The causative factors of CRF mainly include Glomerular causes such as diabetes mellitus, tubular causes like primary or essential hypertension. Some vascular causes also lead to CRF like Renal Artery Stenosis; congenital malformations e.g. renal hypoplasia also plays an important cause to develop CRF. Unknown causes are also found to cause CRF in some cases.
4. The causative factors which directly develop CRF are analysed with respect to history and presenting symptoms of the patients.

VII. CONCLUSION

In present study about chronic renal failure with special reference to its causative factors, from the observations and discussion, it can be concluded that,

1. The chronic renal failure develops as progression of one or more causative factors discussed above.
2. In the present study the percentage of male patients (66%) having CRF is more than percentage of female patients (34%) having CRF.
3. It can also be concluded from the observations that diabetes mellitus is a major cause to develop CRF than any other discussed causative factors. Hypertension is also considered as runner up cause to develop CRF.

4. The causative factors like congenital malformations of kidney, renal artery stenosis, systemic inflammatory diseases, and unknown causes are also causing CRF in some of the patients.
5. As the study is carried out on small number of population of CRF (n=50), it needs to be repeated on more number of patients to confirm the results.

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