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Outcome of advance renal failure patients not opting for renal replacement therapy and factors determining their survival

Chandan kumar, Amresh Krishna, Om kumar, Prit Pal Singh, Prajit Mazumdar
Indira Gandhi Institute of Medical Sciences

Email Id- chandan0254@yahoo.co.in

First name- Kumar

Last name- Chandan

Introduction

- According to 2017 Global burden of disease study Chronic kidney disease was the tenth leading cause of death in India having risen from 15th rank in 2005. [1]
- In a recent analysis of deaths in 1.1 million Indian households, renal failure was responsible for 2.9% of all deaths among 15– 69 year-olds in 2010–2013, an increase of 50% from 2001–2003. [2]
- Currently most patients with advanced kidney disease (eGFR <10 ml/min/1.73m²) in India die without receiving appropriate treatment. [3]
- Through this study we are going to assess the effect of various clinical comorbid condition, biochemical parameters, socio cultural and economical issue and survival of the patients who are not receiving dialysis.

Objectives of the study

- To evaluate the outcome (survival)
- To evaluate the prognostic factors influencing the survival of NDT (Non dialytic treatment) patients.
- To evaluate survival rates in NDT patients and the clinical risk factors for these.

MATERIALS AND METHODS

- Place of study -Department of Nephrology, Indira Gandhi Institute of Medical Sciences.
- Sample size- 51
- Controls: no control group
- Study design: Prospective Cohort type study
- Duration of the study- June 2020 – December 2021

- **Study population:**

- Patients eligible for study presenting to Nephrology OPD and Emergency facility of IGIMS from June 2020 to June 2021 and followed up for minimum of 6 months.

- **Inclusion criteria:**

- Patient above 18 year old with newly diagnosed Advanced Chronic Kidney disease (eGFR < 10ml / min / 1.73m²) attending outpatient Nephrology department and emergency services of IGIMS not opting for dialysis.

Exclusion criteria:

- A) Patient below 18 years of age
- B) Patient with acute reversible kidney failure
- C) Patient with rapidly progressive renal failure
- D) Patient who died before the chronic nature of kidney disease could be established
- E) Transplant recipients

METHOD-

- It was a prospective cohort study done on 51 patients presenting with end stage renal disease in Department of Nephrology of IGIMS who opted not to undergo dialysis.
- Study population was divided in groups based on age band and defined group intervals and follow up was done for minimum of 6 months.
- The factors determining survival of patients in different group who did not opt for dialysis were evaluated.
- The collected data will be analysed using SPSS version 20.0 for windows/ Excel sheet (Microsoft office for students version 2019) .

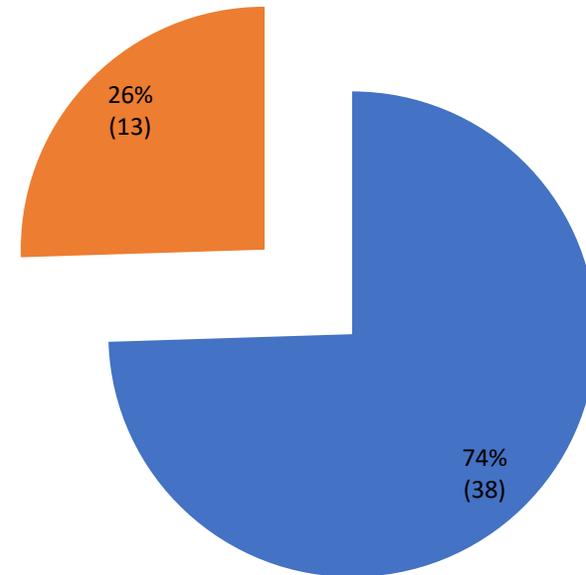
RESULTS

DEMOGRAPHICS

- Sample size- 51 (Male -38, female-13)
- The mean age of study population was 46.16 ± 16.9 years.

SEX

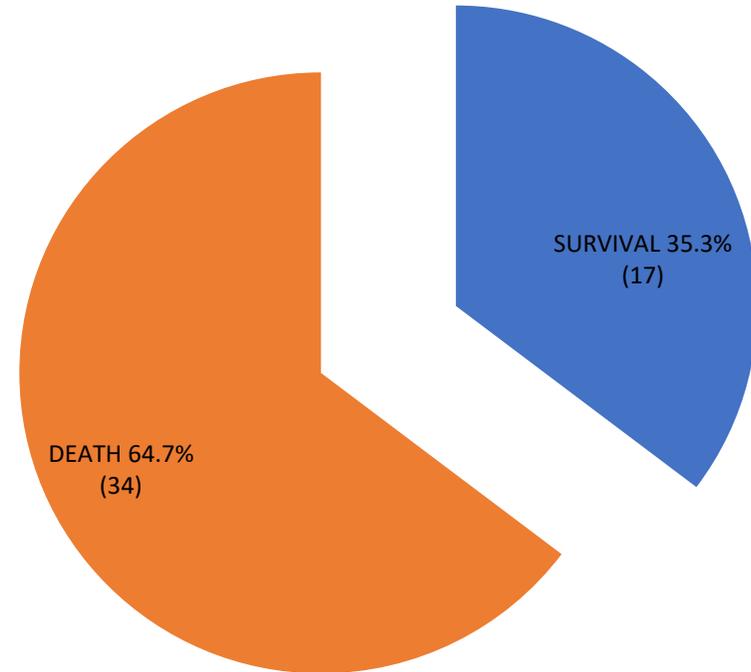
■ male ■ female



Survival

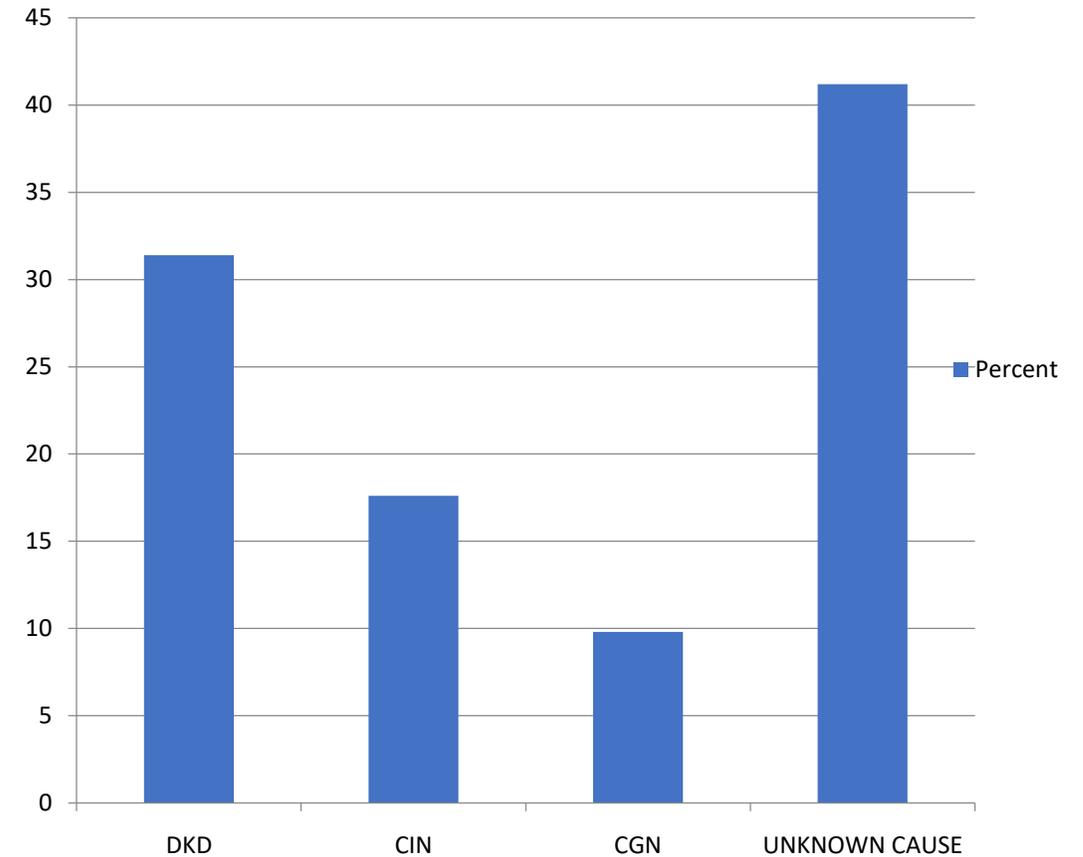
- 34 out of the 51 patients died at the end of study (minimum follow up 6 months).

• Survival



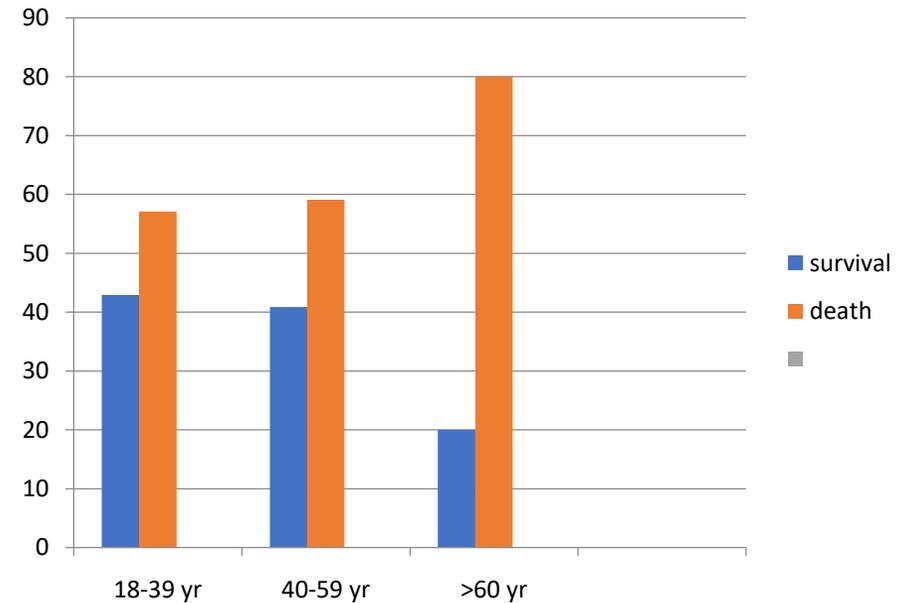
Basic Kidney disease

- The most common primary cause of kidney disease in the study population was unknown cause (45%), but the most common identifiable cause was diabetic kidney disease(31%).



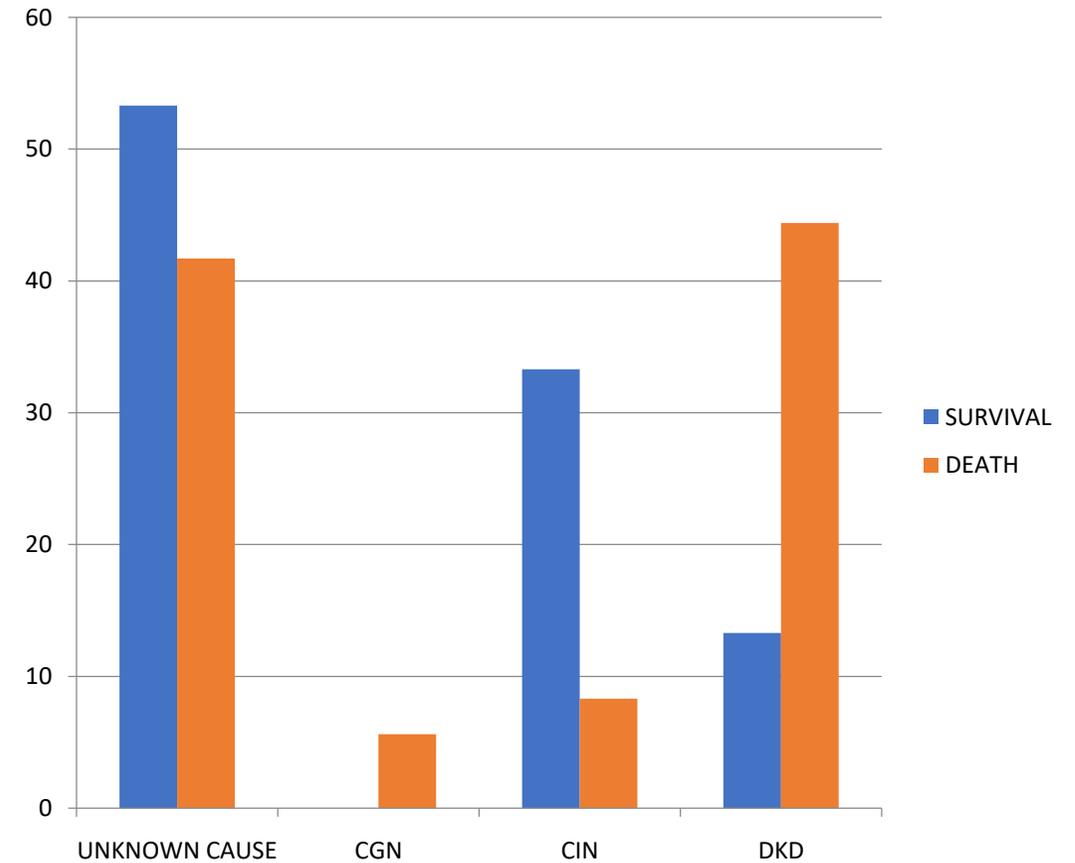
Outcome (Survival) according to age band

- In the 18-39 years age group 6 out of 14 survived.
- In the 40-59 years age group 9 out of 22 survived.
- In >60 years age group 3 out of 15 survived.
- In the older age (>60 years) group less number of patient survived than younger one. However, it was not statistically significant. (P-0.19)



Outcome (Survival) according to basic kidney disease.

- Out of 16 patients in diabetic kidney disease only 2 patient survived.
- DKD had worst outcome (P- 0.04)



Factors affecting survival –Serum creatinine, hemoglobin on follow up at 3 months, hyperphosphatemia follow up were the factors which affected survival of patients.

| | Univariate analysis | | | Multivariate analysis | |
|--------------------------------|---------------------|--------------|---------|-----------------------|-------------|
| | Survival | death | P value | OR(95% CI) | P value |
| Age | 42.8 ± 18.2 | 47.9 ± 16.2 | 0.31 | | |
| <u>Creatinine (Cr)</u> | 7.8 ± 1.0 | 10.1± 3.8 | 0.01 | 1.8(1.2-7) | 0.02 |
| Cr on follow up | 9.6 ± 0.9 | 10.7 ± 2.2 | 0.09 | | |
| Urea | 90.8 ± 27.1 | 112.6 ± 29.9 | 0.01 | 1.1(0.93-1.2) | 0.61 |
| Urea on follow up | 129.2 ± 22.9 | 150.4 ±32.4 | 0.01 | 1.1(0.93-1.2) | 0.40 |
| Calcium (Ca) | 8.1 ± 0.7 | 8.1±0.6 | 0.82 | | |
| Ca on follow up | 8.6 ± 0.3 | 8.5 ± 0.4 | 0.47 | | |
| Phosphate (P) | 6.8± 2.6 | 6.4± 1.9 | 0.37 | | |
| <u>Po4 on follow up</u> | 7.2 ± 1.1 | 7.3 ± 0.8 | 0.04 | 1.8(1.5-7) | 0.03 |
| Hemoglobin (Hb) | 8.2 ± 1.2 | 7.3 ± 1.5 | 0.06 | 2.5 (0.46-13) | 0.28 |
| <u>Hb on follow up</u> | 8.2 ± 0.8 | 7.5± 0.7 | 0.005 | 3.1(1.9-9.2) | 0.05 |
| Albumin | 3.3 ± 0.5 | 2.8 ± 0.6 | 0.41 | | |
| Vit D | 22.1 ± 13 | 27.2 ± 19.2 | 0.32 | | |
| iPTH | 360.9± 218 | 335.2±193.5 | 0.66 | | |
| Uric acid | 7.6 ±1.4 | 7.5 ±1.2 | 0.11 | | |

CONCLUSION

- Patients who don't undergo dialysis have a poor prognosis.
- 64% patient survived less than 6 months.
- Patient with diabetic kidney disease had the worst prognosis.
- Serum creatinine, Hemoglobin level at follow up and hyperphosphatemia further increase the chances of mortality in these patients, hence, conservative management should aim to correct these metabolic parameters so as to prolong survival in these patients.

REFERENCES

1. <http://www.healthdata.org/india>.
2. Dare AJ, Fu SH, Patra J, et al. Renal failure deaths and their risk factors in India 2001–2013: nationally representative estimates from the Million Death Study. *Lancet Glob Health*. 2017;5:e89–e95.
3. Jha V. ESRD burden in South Asia: the challenges we are facing. *Clin Nephrol*. 2015;83:7–10