

The Survival of Elderly Patients on Haemo-Dialysis: A Single Center Study from Rural North Karnataka

PRAMILADEVI R., MALAJI SANGAMESH, HALAGALI G.R., KHANAPURE SHASHIDHAR, KORA S.A., NARAYAN M., KASTURI B.

ABSTRACT

Introduction: Dialysis and transplantation prolong the survival and the quality of life in patients with chronic kidney disease (CKD). There are no published data on the survival of elderly patients of over 65 years of age, who are on dialysis. Because of several social, economical and practical reasons (mentioned below), not many elderly chronic kidney disease patients opt for dialysis. It is worthwhile to look into the data of the survival of elderly CKD patients on dialysis to justify the treatment.

Materials and Methods: All adult patients who were aged 60 years and above, who continued dialysis for more than one month were included in the study which was conducted in Department of Medicine in the S.Nijalingappa Medical College and HSK Hospital and Research Center between 1st May 2005 and 31st March 2011. The patients with ESRD were prospectively followed up and a survival analysis was done.

Results and Conclusions: The total number of patients who were undergoing dialysis during this period, who were aged 60 years and above after the above mentioned criteria, were 23. All were ambulant, not opting for renal transplant and willing for maintenance HD regularly, at least twice weekly and they were

taking regular medications and erythropoietin. Very few had co morbid factors. The mean age of the elderly patients was 63+2.7 years. Elderly males constituted 82.6 % (19/23) of the patients and in them 68.2% were diabetics. 17.4% (4/23) of the patients were elderly females and in them, 50% were diabetics. The mean period for which they were on dialysis was 14.7 months. As expected, their haemoglobin and calcium levels were lower and these were corrected accordingly.

A 1 year survival was seen in 34.75% (8/23) patients and a 2 year survival was seen in 26 % (6/23) patients. Our study showed reasonably good 1 year survival rates which were in par with the rates of other Indian studies. The survival in our set up can be improved by proper patient selection, by creating awareness among the patients and their family members for an early initiation of the ESRD patients on haemodialysis before the complications occur, and by giving a maintenance haemodialysis weekly twice, even though they are asymptomatic. In addition, proper management of the co morbid factors, maintaining adequate haemoglobin levels by using erythropoietin and providing good nutrition and concessional rates for MHD for the elderly in accordance with the state government norms are the other modalities for the improvement of their survival in rural conditions.

Key Words: End stage renal disease, haemo-dialysis chronic kidney disease (CKD), Maintenance haemodialysis (MHD), Renal replacement therapy

INTRODUCTION

Chronic kidney disease is on the rise in our country, with diabetes entering an era of epidemic in this part of the world and contributing to a significant cause of kidney failure. There are many published papers which have discussed the scenario of chronic kidney disease in India, which have brought out the issue of the growing burden of the disease, the lack of resources available and the financial implications [1, 2], but none has shown the outcome of the dialysis, especially in the elderly, to encourage the CKD population to take treatment appropriately and to have a meaningful life rather than accepting the disease as a death sentence. Hence, it is important to know the rate of survival of the elderly Indian patients who are on dialysis.

MATERIALS AND METHODS

The Hanagal Sri Kumareswar Hospital Research Centre which is attached to the S.N.Medical College is a tertiary care hospital which serves the poor people of the rural population in the backward areas of north Karnataka. Presently, the haemodialysis unit in this centre is functioning with 4 stations and it runs 3 shifts a day. Though peritoneal dialysis is available, many people have not

opted for it. Likewise, though a protocol of a 3,4 hour session dialysis thrice a week was offered, a majority of the patients are on a 4-5 hour dialysis twice weekly because of various reasons which have been discussed later. All the patients undergo routine blood tests every month; the blood tests which the patients undergo are for the evaluation of haemoglobin, blood urea, serum creatinine, serum electrolytes, calcium and blood glucose. They also undergo viral serology tests for the evaluation of the HbsAg, HIV and HCV every 6 months. All the adult patients who were aged 60 years and above, who continued dialysis for more than one month, were included in the study between May 2005 and April 2011. Those who died or moved to other centres within 1 month were excluded. HIV and malignancy were not included.

RESULTS

The total number of patients who were undergoing dialysis during this period, who were included in this study were 23. All were ambulant, not opting for renal transplant and were willing for maintenance HD regularly, at least twice weekly and were taking regular medications and erythropoietin. Very few had co morbid factors.

The mean age of the elderly patients was 63+2.7 years. Elderly males constituted 82.6 % (19/23) of the patients and in them, 68.2% were diabetics. 17.4% (4/23) of the patients were elderly females and in them, 50% were diabetics. Other causes included chronic glomerulonephritis and hypertension in 21% patients, obstructive uropathy in 13% patients and others in 1% patients. As expected, the haemoglobin and calcium levels of the patients were lower and they were corrected accordingly.

DISCUSSION

Within the general medical and the subspecialty areas, chronic kidney disease has been increasingly recognized as an important co morbid condition with increased morbidity and mortality [1,2] Given the heightened awareness of CKD, its high prevalence, the associated co morbid conditions and the impact of dialysis on the survival of the patients, we under took this study in our centre [1]. With the growing burden of CKD and increased awareness, even if HD is available at an approachable distance, it is not affordable to most of the patients [3]. At our centre, we have many patients who are on HD twice weekly, as per the standard recommendation of 12 hrs/wk, but we feel that HD twice a week is enough for the Indian patients, though this was never formally studied and proven. Although we too feel that HD 3-5 times /week as recommended by western standards is adequate , it is not feasible in our country to set up a standard of 3 times/week for all the patients, particularly for elderly patients who do not opt for a transplant and who find it difficult to travel and reach the HD centers. Added to this, there are other factors like the lack of care takers, care giver burnouts, low dietary protein intake and diminished muscle mass, the non availability of insurance schemes and above all, the financial constraints of the retired age groups (>60 years) which are the reasons for the reluctance of the patients in undergoing dialysis. These are some of the reasons for the twice weekly HD which was more accepted by the elderly and their families in our centre. Hence, this study was designed to know about the survival rates in our own set up and for data recording from a rural area.

Out of all the dialysis patients, the elderly are the most neglected group. All over the world, the elderly dialysis population is increasing and a strong debate is going on whether it is meaningful to offer maintenance dialysis to these patients or not. Analysis has shown a better survival by dialysis than by conservative treatment [3].

However, few studies have shown a poor outcome and a rapid decline in the elderly population with the start of dialysis with respect to advancing age [4,5]. In India, most of the elderly patients refuse long term renal replacement therapy due to the financial, social and psychological burden on them and more so, on their families. However, a ray of hope is the increasing number of insurance companies and people becoming aware of the need for health insurance, which in future will make it easy for the patients as well as the health care professionals to manage these patients better as per international recommendations.

In this study, males were predominant like in all other studies, as most of them opted for HD as compared to their female counter parts. Likewise, more diabetics reached ESRD. Anaemia was more prevalent in our study population, probably because of the late diagnosis, the severe course of the disease, the financial constraints in getting regular erythropoietin and the very late seeking of MHD and these were corrected to accepted standards. The haemoglobin levels were slightly lower as compared to those in Tarun et al. [6] study.

	Present Study (Total=23)
Age:(in Years)	63+2.7
Sex (% M)	82.6
Causes 1) DM	65%
2) CGN/HTN	21%
3) Obstructive uropathy	13%
Hb (g/dl)	8.0+0.45
Pre HD BUN (mg/dl)	119.8+13.4
Pre HD creatinine (mf/dl)	7.2±1.25
Blood glucose (mg/dl)	156.7±28.5
Na (meq/L)	143.2±0.8
K (meq/L)	5.42±0.25
Ca (mg/dl)	7.9±0.45
PO ₄ (mg/dl)	3.08±0.08
Albumin (g/dl)	3.3±0.12
cholesterol (mg/dl)	185.1±1.4

[Table/Fig-1]: Results

	Present Study	Tarun et al
Age:(in Years)	63+2.7	72.3 + 7
Sex (% M)	82.6	77.7
Hb (g/dl)	8.0+0.45	10.3±1.3
Pre HD BUN (mg/dl)	119.8+13.4	48.7±17.9
Pre HD creatinine (mf/dl)	7.2±1.25	6.2±1.2
Blood glucose (mg/dl)	156.7±28.5	148.6±36.
Na (meq/L)	143.2±0.8	134.6±4.6
K (meq/L)	5.42±0.25	4.8±1.7
Ca (mg/dl)	7.9±0.45	8.4±0.9
PO ₄ (mg/dl)	3.08±0.08	3.7±1.7
Albumin (g/dl)	3.3±0.12	3.8±0.6
cholesterol (mg/dl)	185.1±1.4	198.7±39.5

[Table/Fig-2]: Comparing demographic and biochemical data

	Our Study	Tarun et al	Sankar-subbaiyan et al	Latos et al	Jassal et al
Survival in years					
One Year (%)	34.5%	68%	–	71%	77%
Two Year (%)	26%	41%	–	54%	50%
Overall (Months)	14.7	60.9	13.7	–	–

[Table/Fig-3]: Survival Comparisons

Our study showed a median survival of about 14.7 months in the elderly patients who were aged above 60 years and who were on dialysis. Earlier data from Sankar Subbaiyan's study [7] from south India showed an overall survival of 410 days only (13.7 months) for the CRF patients. Tarun et al reported a survival of 25 months for the same type of population [6]. An early initiation of the dialysis (mean BUN 48.7 mg/dl), an urban setting, better transportation facilities, as well as a thrice weekly HD and less co morbid factors led to 10 months of additional increase in the survival rates in their studies as compared to those in our study. The one and two year survival of the elderly dialysis patients was about 34.7% and 26% respectively with twice weekly dialysis. The comparison of the demographics showed significantly more number of diabetics in the elderly group as in all the studies. However, the other two western studies by Latos⁹ and Jassal [9] were large scale and retrospective, with very high one and two year survival rates of 71% and 54% and 77% and

50%. Their standard of living and healthcare seeking was beyond comparison for our citizens and especially for our rural folks.

CONCLUSION

As the life expectancy is increasing in India, the survival of the elderly dialysis patients too is increasing because of the betterment of the health facilities [10]. Our study showed reasonably good 1 year survival rates which were in par with the rates of other Indian studies. The patients with less co morbid factors did much better, with the greater than 2 year survival rates being quite impressive. However, when dialysis is initiated, age alone should not be considered or discouraged, but rather, the decision should be based on the individuals and other factors like co morbidities, the functional abilities of the patients and the overall quality of life. Whenever doubt exists about whether to offer dialysis to an older individual or not, a trial of dialysis should be considered [11].

The survival in our set up can be improved by proper patient selection, by creating awareness among the patients and their family members for the early initiation of the ESRD patients on haemodialysis before complications and weekly twice maintenance haemodialysis, even though they are asymptomatic. Once the patients get a sense of well being, they tend to skip the dialysis till they get worse and present very late for the same, causing lot of morbidity and mortality. Hence, they should be counseled properly before the initiation for MHD, as in most of the elderly patients, this may be the only mode for prolonged survival because of inaccessible renal transplants and contraindications for the same. In addition, proper management of the co morbid factors, maintaining adequate haemoglobin levels by providing

erythropoietin, good nutrition and concessional rates for MHD for the elderly in accordance with the state government norms are the other modalities for the improvement of the survival in rural conditions.

BIBLIOGRAPHY

- [1] Krishnan M, Lok CE, Jassel SV. The epidemiology and the demographic aspects of treated end-stage renal disease in the elderly. *Semin Dial* 2002;15:98-102
- [2] Agarwal SK, Shrivastava RK. Chronic kidney disease in India: challenges and solutions. *Nephron Clin Pract* 2009; 111:c197-203.
- [3] Jha V. Current status of chronic kidney disease care in south-east Asia. *Semin Nephrol* 2009;29:487-496.
- [4] Dasgupta I, Rayner HC. Dialysis versus the conservative management of elderly patients with advanced chronic kidney disease. *Nat Clin Pract Nephrol* 2007;3:480-81.
- [5] Tamura MK, Covinsky KE, Chertow GM, Yaffe K, Landefeld CS, McCulloch CE. The functional status of elderly adults before and after the initiation of dialysis. *N Engl J Med* 2009; 361:1539-47.
- [6] Jeloka T K, Jhamnani A. Survival of elderly/dialysis patients-A single center study from India. *JAPI* 2011; 59:412-14.
- [7] Sankarasubbaiyan S, Rajkumar A, Tangalvadi TA, Dawood US, Kaur P. Challenges and limitations of maintenance hemodialysis in urban south India. *Hemodial Int* 2007;11:485-91.
- [8] Latos DL. Chronic dialysis in patients over the age of 65 years. *J Am Soc Neph* 1996; 7:637-46
- [9] Jassal SV, Trpeski L, Fenton S, Hemmelgarn B. Changes in survival among elderly patients who initiated dialysis from 1990 to 1999. *CMAJ* 2007; 9:1033-8.
- [10] Byrne C, Vernon P, Cohen JJ. Effect of age and diagnosis on the survival of older patients who are to begin chronic dialysis. *JAMA* 1994; 271:34-36.
- [11] Murtagh FE, Marsh A. *Nephrol Dial Transplant* .2007;22:1955-62.

AUTHOR(S):

1. Dr. Pramiladevi R.
2. Dr. Malaji Sangamesh
3. Dr. Halagali G.R.
4. Dr. Khanapure.Shashidhar
5. Dr. Kora S.A.
6. Dr. Narayan M.
7. Dr. Kasturi B.

PARTICULARS OF CONTRIBUTORS:

1. Associate Professor, Department of Medicine, S.N. Medical College, Bagalkot
2. Assistant Professor, Department of Medicine, S.N.Medical College, Bagalkot
3. Professor, Department of Medicine, S.N.Medical College, Bagalkot
4. Assistant Professor, Department of Medicine, S.N.Medical College, Bagalkot
5. Associate Professor, Department of Medicine, S.N.Medical College, Bagalkot

6. Sr. Resident, Department of Surgery, S.N. Medical College, Bagalkot
7. Jr. Resident, Department Medicine, S.N. Medical College, Bagalkot

PLACE OF STUDY:

Department of Medicine in the S. Nijalingappa Medical College and HSK Hospital and Research Center

NAME, ADDRESS, TELEPHONE, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Pramila Devi R.
Associate Professor, Dept. of Medicine,
S.N.Medical College,
Bagalkot- 587102. Karnataka. India
Phone: 9880747526
E-mail: drprams06@gmail.com

DECLARATION ON COMPETING INTERESTS:

No competing Interests.

Date of Submission: **Nov 17, 2011**
Date of peer review: **Dec 05, 2011**
Date of acceptance: **Dec 10, 2011**
Date of Publishing: **Dec 25, 2011**