ORIGINAL ARTICLE

Outcome of Cardiac Arrest in Patients with End Stage Renal Disease (ERSD) Maintaining Haemodialysis

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ABSTRACT

Aim: To determine the frequency of outcome of cardiac arrest in patients with end stage renal disease on maintenance haemodialysis.
Study design: It was a cross sectional survey.
Duration: From September 2012 to September 2013.
Method: A total of 50 patients between 40-70 years of either gender and ESRD cases of more than 6 months duration on haemodialysis undergoing cardiac arrest were enrolled in the study while subjects with increased BMI(>30kg/m^2), cigarette smoking, and having history of cardiac diseases were excluded from the study to control the effect modifiers.
Results: Age distribution of the patients was done which shows 29(58%) between 40-55 years and 21(42%) were between 56-70 years, mean±sd was calculated as 52.89±3.67. Male were recorded 33(66%) while 17(34%) were females. Duration of haemodialysis was recorded which shows 22(44%) had 6-12 months while 28(56%) had >12 months duration of haemodialysis.
Conclusion: Frequency of survival rate is higher among patients with cardiac arrest maintaining haemodialysis in end stage renal disease but it is not significantly higher than mortality rate.
Keywords: End stage renal disease, haemodialysis, cardiac arrest, survival.

INTRODUCTION

Cardiovascular complications are the most important cause of death in patients with end stage renal disease (ESRD) on hemodialysis treatment[1-3].The incidence of congestive heart failure is 3-fold greater than that of acute coronary syndrome in hemodialysis (HD) patients[4]. Most common causes of end stage renal disease (ESRD) in Pakistan are uncontrolled Diabetes and Hypertension[5]. Escalation in rates of diabetes, especially type 2 diabetes in Pakistan is posing threats to the economy and quality of life of people due to poor glycemic control and very high rates of complications[6]. Dialysis is an established form of treatment for ESRD. It is a life 'saving procedure'. Transplantation much sought after treatment, gives a good quality of life[5]. Improvements in dialysis techniques and associated medical care have resulted in the expansion of dialysis programs in response to the increased number and greater longevity of patients suffering from ESRD[7].

The single most common cause of death in patients with ESRD is cardiac arrest (CA), and in patients who have ESRD and are maintained on hemodialysis, the death rate from cardiac arrest exceeds that for sepsis,respirstory tract infection, stroke, and malignancy combined[8-9]. In our country, less work is done to determine the outcome of cardiac arrest in subjects on maintenance haemodialysis.

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MATERIAL AND METHODS

A total of 50 patients between 40-70 years, Either gender and ESRD cases of more than 6 months duration on haemodialysis undergoing cardiac arrest were enrolled in the study while subjects with increased BMI(>30kg/m^2), cigarette smoking, and having history of cardiac disease were excluded from the study to control the effect modifiers. We considered cardiac arrest in patients having loss of consciousness; no pulse, signs of inspiration and expiration on auscultation. Management for survival of cases was done following departmental protocols. Patients were under observation for 24 hours post arrest and the outcome i.e. survived or death was recorded. The data was analyzed on SPSS version 16.0. Age, duration of heamodialysis was presented as Mean±S.D. Frequency and percentages were calculated for gender, and survival and death.

RESULTS

Age distribution of the patients was done which shows 29(58%) between 40-55 years and 21(42%) were between 56-70 years, mean±sd was calculated as 52.89±3.67. Male were recorded 33(66%) while 17(34%) were females. Duration of haemodialysis was recorded which shows 22(44%) had 6-12 months while 28(56%) had >12 months duration of haemodialysis. Outcome of cardiac arrest shows 27(54%) survived and 23(46%) were died.

Table 1: Age distribution of the subjects (n=50)

Age (in years)	n	%
40-55	29	58
56-70	21	42
Mean±sd	**52.89±3.67**	

Table 2: Gender of the subjects (n=500)

Gender	n	%
Male	33	66
Female	17	34

Table 3: Duration of haemodialysis (n=50)

Duration	n	%
6-12 months	22	44
>12 months	28	56

Table 4: Outcome of cardiac arrest in patients on haemodialysis (n=50)

Outcome	n	%
Survived	27	54
Death	23	46

DISCUSSION

The findings of our study regarding outcome of cardiac arrest are in agreement with a study showing 42.5% patients survived 24 hours, and 11% patients survived 6 months.[10] The 3-day and 30-day survival rates were 62.1% and 43.9%, respectively; among patients with shockable rhythm, the 3-day and 30-day survival rates were 84.8% and 63.0%, respectively.

Our findings are consistent with another study by Davis TR and colleagues[11] who recorded survival at least 24 hours after arrest in 46% of cases.

The evaluation in the dialysis patient who survives SCA is generally the same as that in the patient without renal failure. However, close attention should be paid to the presence of myocardial dysfunction and/or ischemia (since they are so common), the possibility of improper medication dosing in the patient with renal failure, and the circumstances associated with the event, particularly if it occurred during and/or surrounding a hemodialysis session.

With respect to those with ESRD, electrolyte issues are particularly important in this setting. Thus, the 2006 American College of Cardiology (ACC)/American Heart Association (AHA)/ European Society of Cardiology (ESC) guidelines state the following: "The acute management of ventricular arrhythmias in end-stage renal failure should immediately address hemodynamic status and electrolyte (potassium, magnesium, and calcium) imbalance[12].

Though, the survivor rate is higher but on the other hand, the mortality rate is also on higher, however, the patients maintaining haemodialysis should be monitored carefully regarding cardiac complication.

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