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## Knowledge regarding infections and complications among patients undergoing hemodialysis in NMCH, Nellore, Andhra Pradesh

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### Abstract

**Background:** Hemodialysis is a method that is used to achieve the extracorporeal removal of waste products such as creatinine and urea and free water from the blood when kidney are in a state of renal replacement therapies. Infections and complications of vascular access are major source of morbidity and mortality among hemodialysis patient. Numerous reports implicate the vascular occurs up to 48% to 73% of all bacteria in hemodialysis patients.

**Aim:** The aim of the study was to assess the knowledge regarding complications of fracture among dialysis patients.

**Objectives:** 1.To assess the level of knowledge regarding infections and complications of dialysis among dialysis patients. 2. To find the association between level of knowledge with socio demographic variables.

**Methodology:** 60 dialysis patients admitted in Narayana Medical College Hospital, Nellore were selected by using probability simple random sampling technique method.

**Results:** Regarding the level of knowledge among dialysis patients, 50 (83%) had inadequate knowledge, 8 (14%) had adequate knowledge and 2 (3%) had good knowledge regarding infections and complications among patients undergoing hemodialysis.

**Keywords:** Knowledge, Infections, Complications, Patients, Hemodialysis

### Introduction

Hemodialysis is a method that is used to achieve the extracorporeal removal of waste products such as creatinine and urea and free water from the blood when kidney are in a state of renal replacement therapies. Infections and complications of vascular access are major source of morbidity and mortality among hemodialysis patient. Numerous reports implicate the vascular occurs up to 48% to 73% of all bacteria in hemodialysis patients<sup>[1]</sup>.

Renal failure is characterized by damage of kidney from various diseases such as diabetes mellitus, hypertension, glomerular nephritis, nephrotic syndrome and poisoning resulting in temporary or permanent damage with severe loss of kidney function. Most nephrologists accept the definition of acute renal failure as a rise in the serum creatinine concentration of 0.5gms per deciliters per day over several days. The clinical manifestations of this disorders arise from the decline in glomerular filtration rate and inability wastes produced in the body<sup>[2]</sup>. Infections and complications of hemodialysis include bacterial infection caused by contaminated water or equipment other bacterial infection including vascular access infection and blood born virus especially primary hepatitis B and C virus infection the total incident dialysis cases rate 0.27 percent in the past world<sup>[3]</sup>.

Patient of 340 per million population in 2010, Incidence of vascular access related infection is highest when central venous dialysis catheters are employed. Native arteriovenous fistula carry lowest risk of infection. Unfortunately prosthetic arterio-ventricular grafts which represent the most common type of hemodialysis access in the united states have been repeatedly shown to be a risk factors for bacteremia and non-bacteremia infections<sup>[4]</sup>.

The prevention of transmission of both bacteremia and blood born virus in hemodialysis setting CDC recommends that all single use injectable medications and solution be dedicated for use on a single patient and be entered on time only medication packaged as multi dose should be assigned to a single patient whenever possible. All parenteral medication should be prepared in a clean area separate from potentially contaminated items and surface. Proper infectious control practice must be followed during administration of injected medication<sup>[5]</sup>.

A prospective study was conducted to analyze the risk of infectious complication after temporary hemodialysis catheter. A total of 210 catheter insertions were done in 160 patient as vascular access jugular in 86, subclavian in 27 and femoral in 97. All catheter were inserted by attending nephrologists using sterile technique. Bacteria occurred in 36 cases (17.14%) of which 17 were femoral 8 were subclavian and 11 were jugular. The risk of bacteremia varied significantly according to duration of use and site of insertion. The study conclude that bacteremia is not an uncommon complication following temporary catheter insertion. Change of catheter does not increases the risk of bacteria [6].

### Need For the Study

Hemodialysis is the most commonly used method of dialysis more than 3, 00000 Americans currently receive hemodialysis [7]. According to USR renal data system, an infections and complication is the second leading cause of death among dialysis patients accounting for 33 deaths per 1000 patient. Septicemia account for 79.7% of infectious death [8].

More than one million patient receive dialysis treatment with the number growing at an annual global average rate of 7%. 17, 83, 000 people were undergone treatment for end stage renal disease among them 13, 71, 000 (77%) were received dialysis treatment. USA and Japan are two countries who contributes to the largest ESRD population who are on dialysis treatment [9].

Catheter related bacteremia is a major cause of morbidity among hemodialysis patient. The article receives the medical literature regarding the treatment and prophylaxis of catheter related bacteremia. Treatment with systemic antibiotic alone facts to definitively eradicate the infection in most patient. Catheter related bacteremia can be managed by either catheter removal with the delayed placement of a new catheter (or) exchange of infected catheter with a new catheter over a guide wire. More recent studies suggested that instillation of an antibiotic anticoagulant lock into the catheter related bacteremia may be reduced by using tunneled rather than non-tunneled dialysis catheter and strict aseptic technique. In addition several pharmacological ointment (mupirocin or polysporin) to the catheter exit site (or) instillation of an antimicrobial solution (gentamicin or taurolidine) into the catheter lumen may be useful for prophylaxis against catheter related bacteremia [10].

In India uremic and infections complication together account for 57% of all deaths in patient receiving dialysis treatment [11].

### Statement of the Problem

A study to assess the knowledge regarding infections and complications among patients undergoing hemodialysis in NMCH, Nellore.

### Objectives

- To assess the knowledge regarding infections and complications among hemodialysis patients.
- To associate the level of knowledge regarding infections and complications among hemodialysis patients with selected demographic variables.

### Delimitations

- Dialysis patients admitted in Narayana Medical College Hospital, Nellore.

- Patients willing to participate in the study
- Sample size of 60.

### Methodology

#### Research Approach

A quantitative approach was adopted to determine the research study.

#### Research Design

The present study was conducted by using descriptive research design

#### Setting of the Study

The study was conducted at Narayana Medical College Hospital, Nellore.

#### Target Population

The target population for the present study was dialysis patients.

#### Accessible Population

The accessible population for the present study was dialysis patients admitted in Narayana Medical College Hospital, Nellore and who fulfilled the inclusion criteria.

#### Sample Size

The samples consist of 60 dialysis patients.

#### Sampling Technique

Probability simple random sampling technique was adapted for the study.

#### Criteria for Sampling Selection

##### Inclusion Criteria

- Patients within the age group of 21-50 years.
- End stage renal disease client, those who are undergoing hemodialysis in NMCH, Nellore.

##### Exclusion Criteria

- Clients who are critically ill.
- Clients who are not available at the time of data collection.

#### Description of the Tool

**Part-I:** Socio demographic variables.

**Part-II:** A study to assess the knowledge regarding infections and complications among patients undergoing hemodialysis.

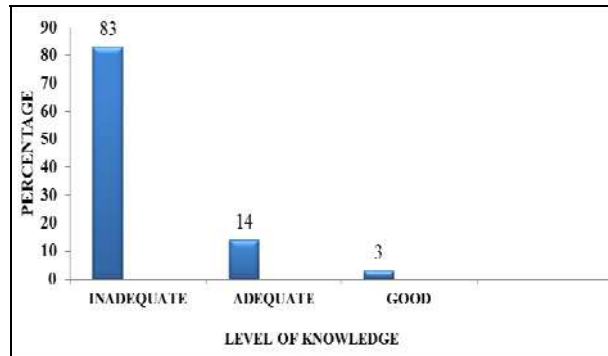
#### Score Interpretation

Level Of Knowledge	SCORE
Inadequate knowledge	<50%
Adequate knowledge	50-75%
Good knowledge	>75%

#### Data Analysis and discussion

**Table 1:** Frequency distribution of level of knowledge among dialysis patients (N=60).

S. No	Level of Knowledge	Frequency(f)	Percentage (%)
1	Inadequate	50	83.33
2.	Adequate	8	13.33
3.	Good	2	3.33
	Total	60	100



**Fig 1:** Percentage distribution of level of knowledge among dialysis patients

**Table 2:** Mean and standard deviation of knowledge score among dialysis patients. (N=60)

Level of knowledge	Mean	SD
Dialysis patients	12.2	3.49

### Major Findings of the Study

- Regarding the level of knowledge among dialysis patients, 50 (83%) had inadequate knowledge, 8 (14%) had adequate knowledge and 2 (3%) had good knowledge regarding infections and complications among patients undergoing hemodialysis.
- The mean knowledge score of dialysis patients was 12.2 and standard deviation was 3.49.
- Regarding association with demographic variables, education and occupation had significant association with level of knowledge at  $P < 0.05$  level.

### Conclusion

The study concluded that majority of dialysis patients, 50(83.3%) patients had inadequate knowledge regarding infections and complications among patients undergoing hemodialysis.

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