



# **A Study to Assess the Knowledge and Prevalence of Dialysis Induced Hypertension**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

By knowing the level of knowledge of patients about risk factors of dialysis induced hypertension, we will be able to be aware that the patients reduce the risk factor affecting dialysis induced hypertension patients undergoing maintenance hemodialysis. So, the objective of the study were to assess the knowledge and prevalence of dialysis induced hypertension among patient's undergoing maintenance hemodialysis. A qualitative research study was used. The participants was all the dialysis induced hypertensive patients undergoing maintenance haemodialysis, data collection was done using a questionnaires and checklist, 100 were completed the data. Data were analysed by descriptive and inferential statistics. And according to statistical analysis results, there was no significant relationship between the knowledge and risk factor of dialysis induced hypertension patients.

**Background:** Intradialytic hypertension is an increase in blood pressure during or immediately after hemodialysis which results in post-dialysis hypertension, is often largely ignored. Patients undergoing hemodialysis will possibly raise blood pressure, because the role of the kidneys in blood homeostasis is impaired, risk factors like chronic volume overload and a range of other risk factors might also contribute to high blood pressure.

**Objectives:** The objectives of this study were as follows, 1. Assess the knowledge and prevalence of dialysis induced hypertension among patients undergoing haemodialysis.

2. Find out the association between risk factors and knowledge of dialysis induced hypertension among patients undergoing haemodialysis.

**Results:** The clinical significance of dialysis induced hypertension lies in the fact that each of these possible risk factors may contribute to the development of dialysis induced hypertension, out of 100 participants 4 (4%) were in the age group of 21 to 30 years, 16 (16%) were in the age group of 31 to 40 years, 36 (36%) were in the age of 41 to 50 years, 44 (44%) were in the age group of the year above. As regard Gender, 63 (63%) were male and 37 (37%) were females. As regards 92 (92%) were Married and 08(08%) were Unmarried. Regarding prevalence 50 (50%) had hypertension before and 50 (50%) had hypertension after the dialysis. Out of 100 patients, all 100 samples were had increased dry weight, 13 were had volume overload, 77 were had poor dietary salt restriction, 24 were had a family history of hypertension, nil have pulmonary oedema, 03 were had hyperthyroidism, 15 were had diabetes, 04 were had the cardio vascular disorder, 08 were had anaemia. Out of the 100 samples, 15% of the samples had poor, 85 % of the samples had average knowledge on dialysis induced hypertension. Thus, dry weight was present in the entire patient undergoing hemodialysis. Descriptive statistics were used to assess the mean, frequency and percentage, inferential statistics like the Chi-Square test was used to test for association.

*Keywords: Assess knowledge; prevalence; dialysis induced hypertension; patient.*

## 1. INTRODUCTION

High blood pressure is a common condition in which the long-term force of the blood against artery walls is high enough that it may eventually cause health problems, such as heart disease. Blood pressure is determined both by the amount of blood the heart pumps and the amount of resistance to blood flow in arteries [1-3]. In haemodialysis patients, one potential confounding factor could be haemodialysis-associated hypertension. While it is plausible that haemodialysis-associated hypertension increases mortality and morbidity [4-8].

Additionally, pre and post dialysis blood pressure values of <140/90 mmHg are recommended as the optimal blood pressure. The extracellular volume (ECV) expansion is the main pathophysiological determinant of hypertension in dialysis patients [9-11,12,13].

Although, blood pressure is usually raised in patients receiving dialysis, possibly because the role of the kidneys in blood pressure homeostasis is impaired, chronic volume overload and a range of other factors might also contribute to high blood pressure [14-17]. Several clinical trials and meta-analyses have shown the cardiovascular benefits of lowering blood pressure in the general population and in patients with early kidney disease [18-22]; therefore, reduction of blood pressure is an attractive therapeutic target for patients on

dialysis. Intradialytic hypertension (IDH) is defined by blood pressure values during and at the end of the dialysis session exceeding BP values at dialysis onset [23-25]. It occurs in around 10% of haemodialysis patients.

### 1.1 Aim of the Study

This study aimed to assess the prevalence and knowledge of dialysis induced hypertension as well as associated risk factors among patients undergoing maintenance hemodialysis.

## 2. MATERIALS AND METHODS

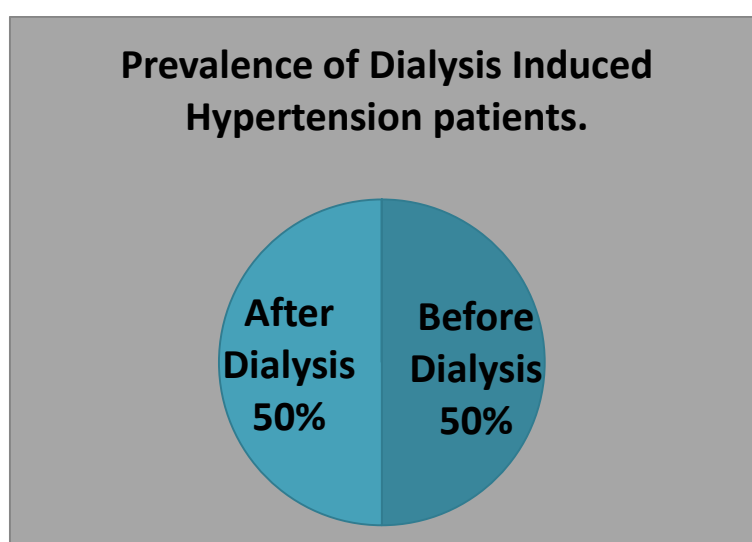
A Qualitative research approach was used along with an exploratory research design. A purposive sampling technique was used to select 100 patients as a participant with dialysis induced hypertension. A self-structured knowledge questionnaire was used to assess the knowledge and checklist to check risk factors affecting patients with dialysis induced hypertension undergoing haemodialysis.

## 3. RESULTS

In this study, the structured knowledge questionnaire was used. The result showed out of the 100 participants. 15% of the participants stated that they have poor knowledge and, 85 % of the participants stated that they have average knowledge of dialysis induced hypertension.

**Table 1. Analysis and interpretation of the demographic variables of the participants**

Sociodemographic Variable	Frequency	Percentage
Age(years)		
a) 21-30 years	04	4%
b) 31-40 years	16	16%
c) 41-50 years	36	36%
d) Above 50 years	44	44%
Gender		
a) Male	63	63%
b) Female	37	37%
Marital status		
a) Married	92	92%
b) Unmarried	08	8%



**Fig. 1. Analysis and interpretation of prevalence of the dialysis induced hypertension of the participants**

**Table 2. Analysis and interpretation of data collection**

Risk factors		Poor	Average	Good
1. INCREASED DRY WEIGHT	(N=100)	13	87	0
2. VOLUME OVERLOAD	(N=13)	01	12	0
3. POOR DIETARY SALT RESTRICTION	(N=77)	12	65	0
4. FAMILY HISTORY OF HYPERTENSION	(N=24)	03	21	0
5. PULMONARY EDEMA	(N=00)	00	00	0
6. HYPERTHYROIDISM	(N=03)	00	03	0
7. DIABETES	(N=15)	02	15	0
8. CARDIOVASCULAR DISORDER	(N=04)	02	04	0
9. ANEMIA	(N=08)	00	08	0

**Table 3. Overall frequency and percentage distribution of knowledge score of the participants regarding dialysis induced hypertension**

Knowledge	Classification	Frequency	Percentage
Good (0-10)	21-30	00	00
Average (11-20)	11-20	85	85%
Poor (21-30)	00-10	15	15%
Total		100	100%

**Table 4. Association between risk factors and knowledge related to dialysis induced hypertension**

Risk Factors	Score			Total	Calculated value	DF	Calculated T. value 0.05 level of significance
	Poor (1-10)	Average (11-20)	Good (21-30)				
I.D.W	13	87	00	100	4.53	9.54	14.07
V.O	01	12	00	13			
P.D.S	12	65	00	77			
F.H.HY	03	21	00	24			
HY.THY	00	03	00	03			
DIA	02	15	00	17			
CAR.DIS	02	04	00	06			
ANEMIA	00	08	00	08			

#### 4. DISCUSSION

In this study 15% of participants have poor knowledge, 85% of participants have average knowledge and none having good knowledge regarding, dialysis induced hypertension, so through that, the result comes to the point that participants need to improve knowledge about dialysis induced hypertension.

This present study is supported by the finding of the study conducted by Peter Noel Buren, MD, MSCS and Jula K Inring (2016), on mechanisms and treatment of Intradialytic hypertension in Patients with intradialytic hypertension and they have found that out of many risk factors, volume overload and dry weight is a most affected risk factor in dialysis induced hypertension patient. And the engagement of the risk factor was lowering dialysate sodium and changing antihypertensive [26-29]. A randomized controlled study for dry-weight reduction in a hypertensive patients on haemodialysis in Europe was performed and they come to the result that, the dry weight reduction is a simple, efficacious and well-tolerated manoeuver to control dialysis induced hypertension in a hemodialysis patients [30-37]. Lu-Xi Zou, Ling Sun conducted a study on post-dialysis blood pressure in hemodialysis patients with intradialytic hypertension in the USA. This study was conducted to know about the risk factors related to intradialytic hypertension and also post-dialysis blood pressure in maintenance hemodialysis patients with intradialytic hemodialysis [38-41]. And the result of the study was, out of 266 maintenance hemodialysis patients, 133 patients with intradialytic hemodialysis and another 133 patients without intradialytic hemodialysis [42-48].

The study helped the patients to understand the risk factors which are associated with dialysis induced hypertension patients which was the strength of the present study. It helped patients to enhance their confidence for aspects that were unknown to them [49-53]. The study only assessed 100 patients available. If this study will be conducted at most the multispecialty hospitals, it will be really helpful for the patients and their families.

#### 5. CONCLUSION

Dialysis-induced hypertension is now recognized as a recurrent and persistent phenomenon in a subset of hemodialysis patients. There continues to be epidemiologic evidence that intradialytic hypertension is associated with an increased dry weight. The recommendation is that dry weight reduction is considered as an initial approach in any hypertensive hemodialysis patient.

The overall knowledge was not good and had average knowledge regarding risk factors related to dialysis induced hypertension and there is no association between risk factors and knowledge of dialysis induced hypertension patients at 0.05 level of significance. Hence, health education, awareness programs can further improve the knowledge of patients and relatives.

#### CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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