Vaccination profile among dialysis subjects: a three-Centre study

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INTRODUCTION

- Renal failure is accompanied by immune insufficiency, abnormal phagocytosis and cellular responses
- It heightens susceptibility to tuberculosis, fungal and viral infections.
- Vaccine studies in patients with kidney disease have primarily examined antibody response and rate of antibody decline after vaccination.

Where this is already established, the concern tilts towards optimizing screening schedule and vaccination for CKD pts

However, in our environment, the same cannot be said as we do not even have a standard protocol for our CKD pts

Our literature search shows that no study (to the best of our knowledge) has been carried out on this subject in Nigeria.

Johnson et al. (1992). Clin Pharmacokinet

Fuchshuber et al. (1996). Nephrol Dial Transplant

INTRODUCTION (ctd)

- Studies from elsewhere suggest benefit from HBV, Pneumococcal and H-influenza vaccine despite misgivings from many quarters
- For instance, vaccination against Influenza virus reduces hospital stay and mortality compared to non-immunized ckd pts

DaRoza et al. (2003). Am J Kid Dis
Gilbertson et al. (2003). KI
Kacanzioglu et al. (2000). Clin Transplant
Vlassopoulos (2003). Curr Pharm Biotech

INTRODUCTION (ctd)

In order to optimize sero-response to vaccines, several strategies have been used:

Adding one more vaccine dose

Doubling the dosage of vaccine

Annual repetition of vaccine or when the antibody titre falls below critical level

Starting vaccination at early stage of CKD

Intradermal injections at more frequent intervals

Administer vaccine in combination with immune boosters (EPO, GM-CSF, IL-2, IFN-α and IFN-ɣ

STANDARD VACCINE PROTOCOL

Janus et al (2008), NDT; Choudhury et al (2008) Nature Clin Pract

HBV(ENGERIX B]	**0, 1, 2, AND 6MONTHS**
H-INFLUENZA	**1 DOSE ANNUALLY**
PNEUMOCCOCUS	**2 DOSES, 5YEAR INTERVAL**

INTRODUCTION (ctd)

About 20% of dialysis pts fail to develop a protective titre of antibodies to HBV.

Burden of blood transfusion among HD pts is high (61.4% at KCC Ondo, 70.2% at Boston, USA)

In Africa, 11.7% and 16.3% of donor blood escape screening for HBV and HCV respectively, thereby increasing risk of exposure to blood borne infections

Grzegorzewska AE. Hepatitis B Vaccination in Chronic Kidney Disease: Review of Evidence in Non-Dialyzed Patients. *Hepat Mon.* 2012; 12(11):e7359. DOI: 10.5812/hepatmon.7359

Akinbodewa AA, Adejumo OA, Osho PO et al. Intra-dialysis blood transfusion burden among chronic kidney disease patients at Kidney Care Centre, Ondo State, South-west Nigeria. 2016. (Unpublished)

ELawler EV, Bradbury BD, Jennifer R. Fonda JR, Gaziano JM, Gagnon DR. Transfusion Burden among Patients with Chronic Kidney Disease and Anaemia. Clin J Am Soc Nephrol. 2010 Apr; 5(4): 667–672.

Tapko JB, Toure B, Sambo LG. Status of blood safety in the WHO African region; report of the 2010 survey.

AIMS AND OBJECTIVES

To determine knowledge and awareness of HBV, pneumococcus and H-influenza virus infection among CKD subjects

To determine the immunization status of CKD patients who are undergoing HD.

METHODS

Consecutive CKD patients undergoing dialysis at Kidney Care Centre, Federal Irrua Specialist Hospital and LAUTECH in Ondo, Edo and Osun States respectively were studied.

An interviewer administered questionnaire was used.

Questions addressed awareness of infections, source of knowledge, personnel who conducted formal counselling,

METHODS (ctd)

location and time of counselling in relation to commencement of dialysis, vaccination status of subjects and knowledge of no of doses required for full immunization against viruses among others.

Data was analyzed using SPSS 19.

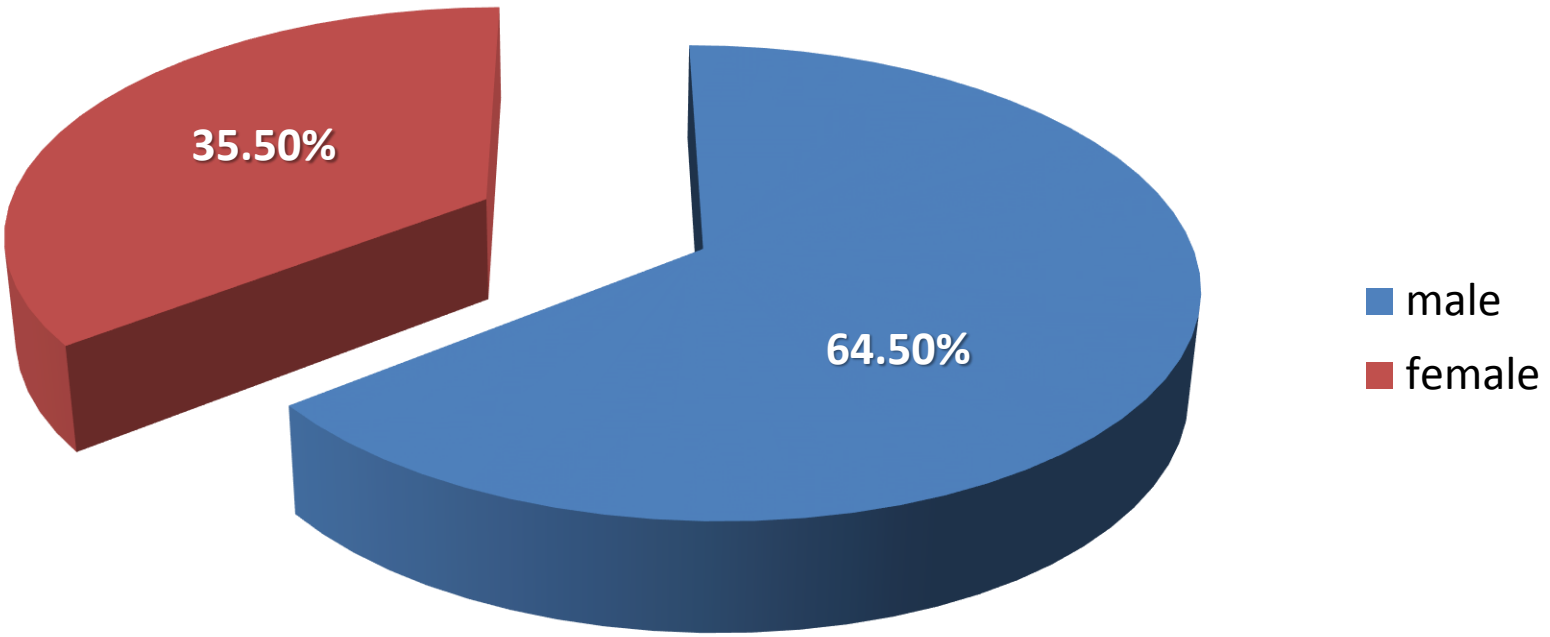
Test of association by Chi-square was defined as significant at $p<0.05$

RESULTS

- 124 subjects were studied.

- 80 males and 44 females

GENDER DISTRIBUTION



SOCIODEMOGRAPHICS OF SUBJECTS

INSTITUTION	FREQUENCY	PERCENT
KCC Ondo	67	54.0
LAUTECH, Osun	41	33.1
ISH, Edo	16	12.9
AGE RANGE		
Young	48	38.7
Middle aged	58	46.8
old	18	14.5
EDUCATIONAL STATUS		
None	4	3.2
Primary	15	12.1
Secondary	28	22.6
Tertiary	77	62.1

SOCIODEMOGRAPHICS OF SUBJECTS

Mean age was 48.26±14.45 years.

Median duration of illness was 6 months.

Median length of dialysis was 3 hours

Mean number of sessions of dialysis per week was 1.52±0.67.

Mean duration of dialysis was 4.89±4.76

AETIOLOGY OF CKD

AETIOLOGY	FREQUENCY	PERCENT
Chronic glomerulonephritis	45	36.3%
Diabetic nephropathy	33	26.6%
Hypertensive kidney disease	20	16.1%
Obstructive uropathy	9	7.3%
HIVAN	8	6.5%
ADPKD	3	2.4%
Multiple myeloma	1	0.8%
Others	5	4.0%

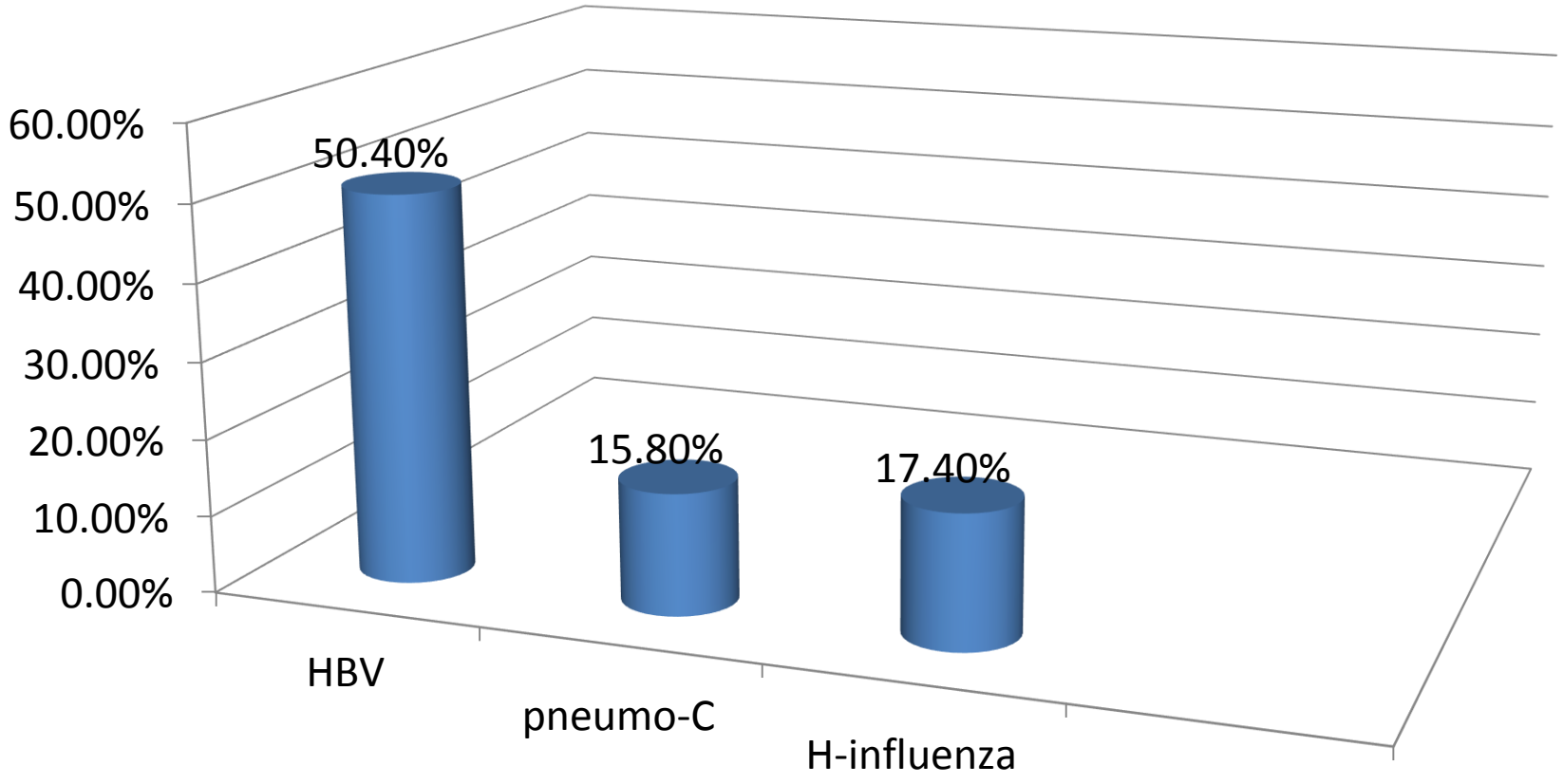
PRE-DIALYSIS VIRAL STATUS OF HD SUBJECTS

Status	HBV	HCV	Pneumo coccus	H-influenza
Positive	8 (6.4%)	4 (3.2%)	-	-
Negative	116 (93.6%)	120 (96.8%)	-	-
Total	124 (100%)	124 (100%)	-	-

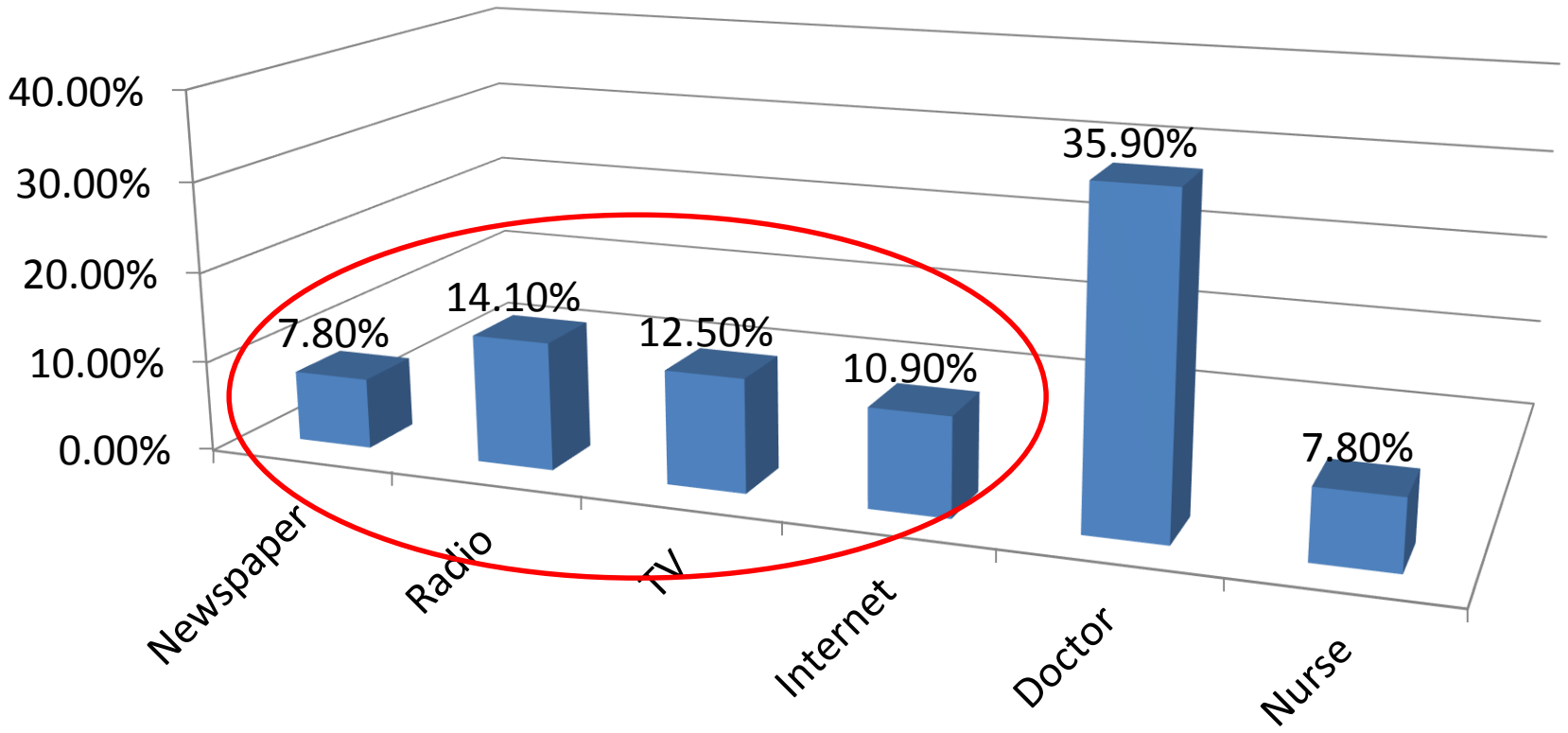
Blood transfusion burden among HD subjects

Blood transfusion burden	frequency	percent	
Received at least 1 pint of blood	57	46.0%	
No blood transfusion	67	54.0%	

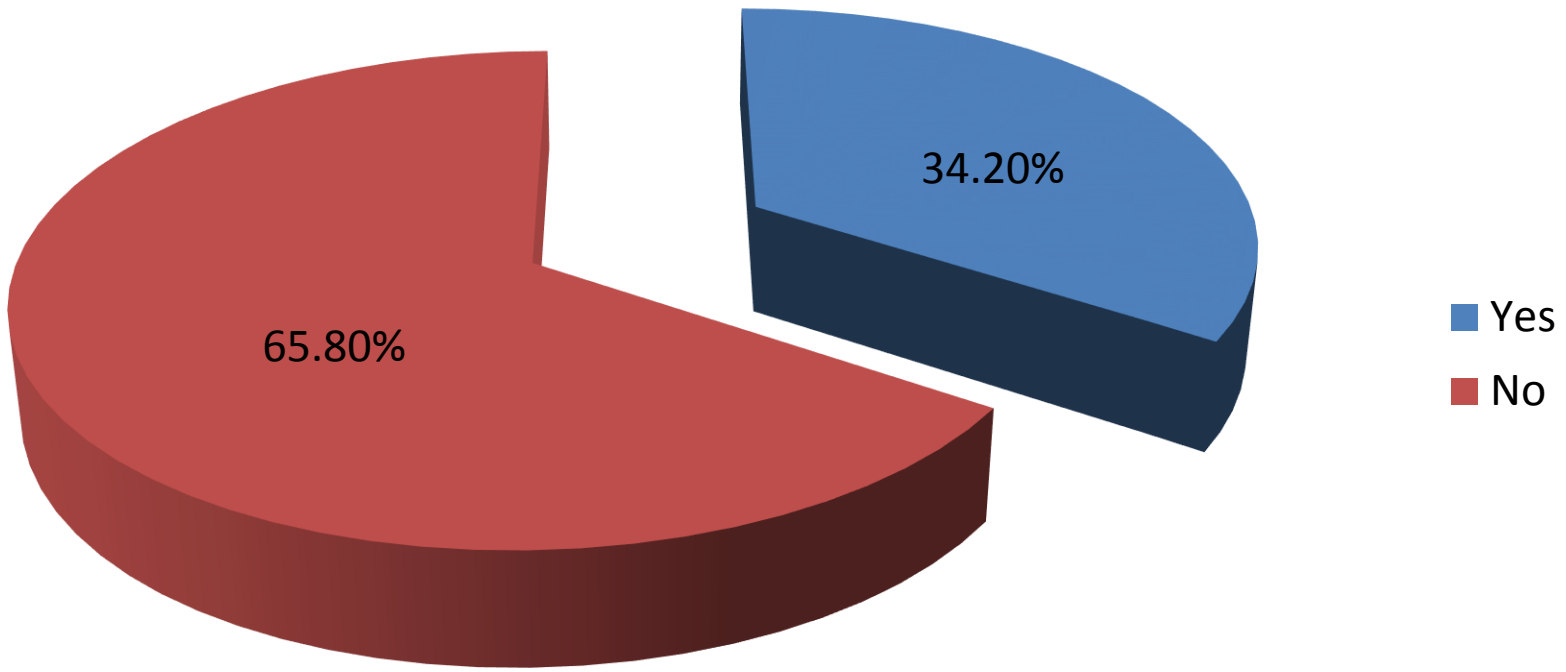
AWARENESS OF COMMON INFECTIONS IN CKD PATIENTS



SOURCES OF KNOWLEDGE OF INFECTIONS



PREVALENCE OF FORMAL COUNSELLING ON INFECTIONS IN CKD



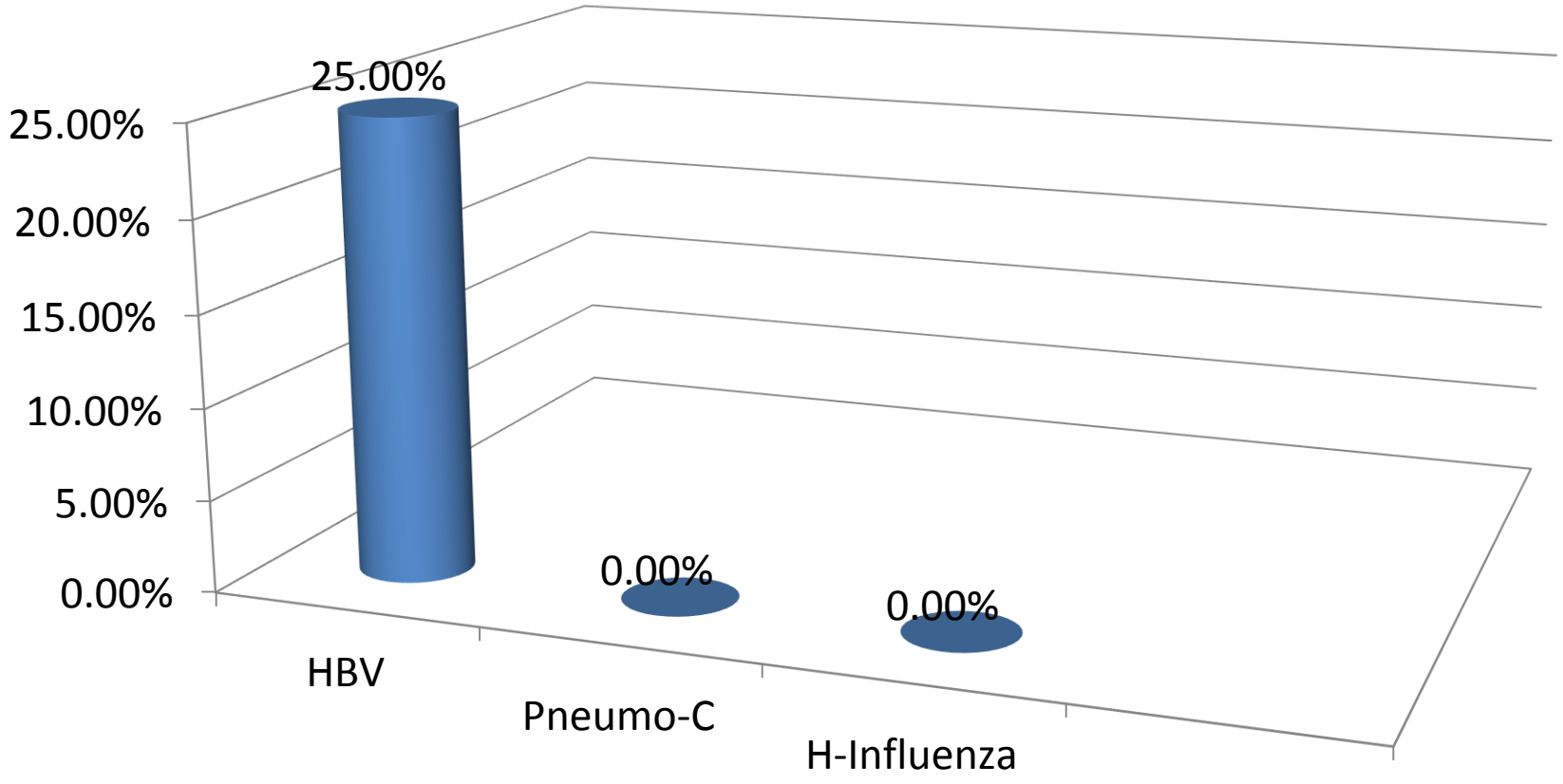
SOURCES OF FORMAL COUNSELLING

SOURCE OF COUNSELLING	FREQUENCY	PERCENT
Doctor	17	44.7%
Nurse	18	47.4%
During Seminar	2	5.3%
NGO	1	2.6%
Total	38	100.0%

TIMING OF COUNSELLING

Timing of Counselling	Frequency	Percent
Before commencing HD	39	86.7%
After commencing HD	6	13.3%
Total	45	100.0%

VACCINATION STATUS OF HD PATIENTS



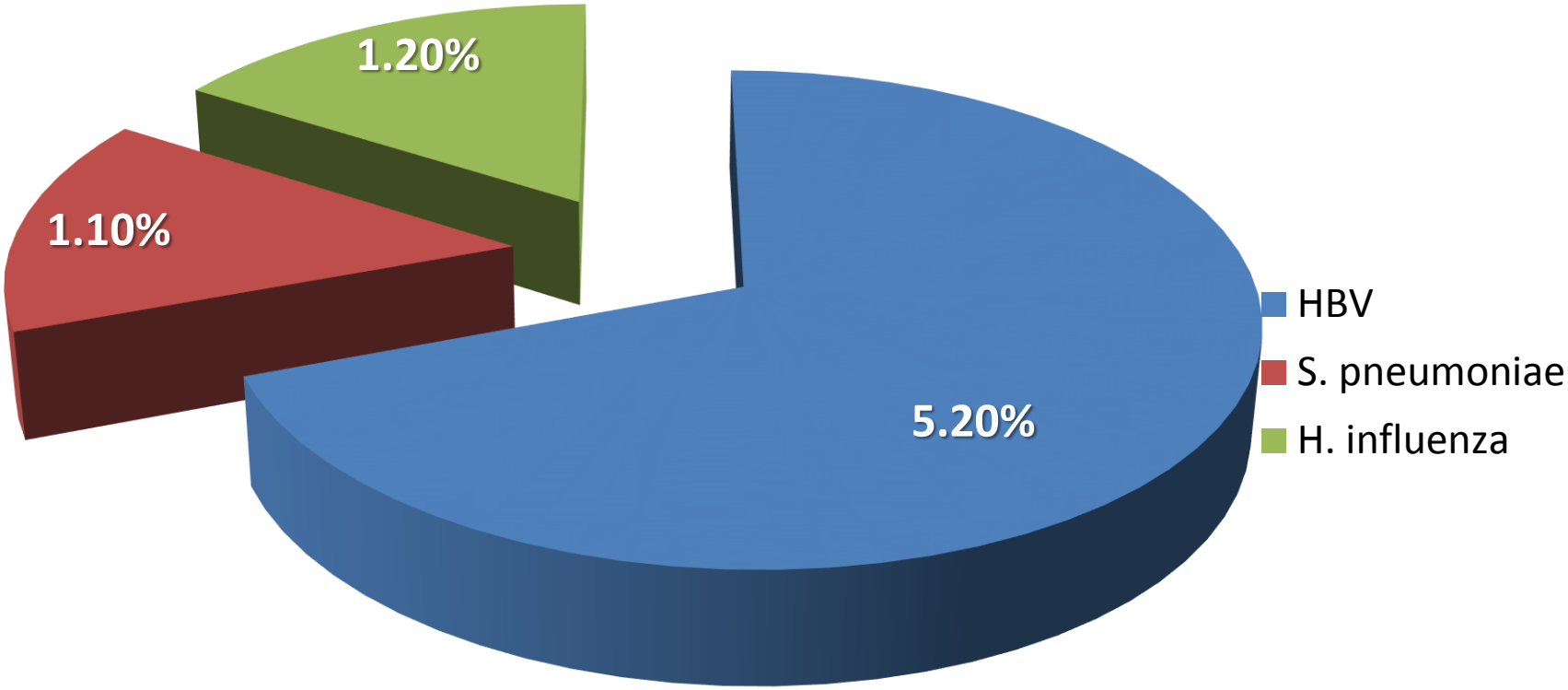
COMPLETION OF Anti-HBV VACCINE

COMPLETION OF VACCINATION	FREQUENCY	PERCENT
YES	7	5.7%
NO	64	51.6%
I HAVE NOT STARTED	53	42.7%
TOTAL	124	100.0%

OTHER RESULTS

- None knew the required number of vaccine doses for pneumococcus and influenza while only 10.5% knew that for HBV.
- There was an association between educational qualification and awareness of HBV, pneumococcus and influenza virus ($p < 0.05$).

Knowledge of effective vaccine dosage



Awareness of HBV	Yes	No	Chi square
Tertiary	28	49	0.000
Secondary and below	33	13	
Awareness of pnemococcus			
Tertiary	58	17	0.006
Secondary and below	43	2	
Awareness of influenza			
Tertiary	57	19	0.003
Secondary and below	43	2	
Awareness of HBV			
Male	37	42	0.264
Female	24	20	
Awareness of pnemococcus			
Male	67	11	0.323
Female	34	8	
Awareness of influenza			
Male	64	15	0.351
Female	36	6	

CONCLUSION

- There is low awareness of blood-borne infections among HD patients
- Many of our CKD patients are ignorant of their viral status.

RECOMMENDATIONS

- There is need for committed efforts to educate CKD patients on blood borne infections
- It is important to mobilize CKD patients on vaccination against blood-borne infections in our setting.

THANK YOU