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KNOWLEDGE REGARDING CHRONIC KIDNEY DISEASE AND ITS PREVENTION IN DIABETIC AND HYPERTENSIVE PATIENTS AMONG NURSES

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ABSTRACT

Introduction: *Chronic kidney Disease is becoming a major global health problem. Knowledge regarding Chronic Kidney Disease and its prevention among diabetic and hypertensive clients have a significant importance in our society because renal health is unavoidable for a healthy body. The aim of this study is to assess the level knowledge regarding chronic kidney disease and its prevention in diabetic and hypertensive cases among nurses.*

Materials and methods: *A descriptive cross-sectional research study conducted at National Medical College Teaching Hospital, Birgunj, enrolling 101 participants involving the nurses of different departments. The total sample size was 101, using total enumerative sampling technique for sample selection. The ethical clearance letter was taken from the Institutional Review Committee of National Medical College and formal informed consent was also taken from all the participants. Data was organized in excel sheet in order for editing, classifying, coding and tabulating the information and analyzed by using SPSS 20.0 in descriptive and inferential statistics.*

Results: *This study comprising 101 participants found that 37% of respondents had a high level of knowledge, 46% had moderate level of knowledge, and 17% had a low level of knowledge regarding chronic kidney disease prevention in diabetic and hypertensive patients. The average age of the participants was 26 years with maximum belonging to PCL nursing (n=65, 64.4%) followed by BSc Nursing (n=21, 20.8%) and 15 participants (14.8%) were Bachelor of Nursing (BN). The results revealed no association between the respondents knowledge scores with age (p=0.17); educational qualifications (p=0.81); duration of experience (p=0.68).*

Conclusion: *This study gives a conclusion that less numbers of nurses had good knowledge regarding the prevention of chronic kidney disease in diabetics and hypertensive patients. There is a need for formal teaching learning activities including trainings focusing on the different aspects of chronic kidney disease prevention as a good number of nurses are not having the sound knowledge regarding it. The training regarding the same should be mainstay part of understanding about the knowledge of kidney disease prevention.*

Keywords: *Chronic Kidney Disease, Diabetes, Hypertension, Knowledge, Prevention*

INTRODUCTION

Chronic kidney Disease (CKD) is becoming a major global health problem. It increases mortality and morbidity and puts a major economic strain on the health care system. Knowledge regarding CKD and its prevention among diabetic and hypertensive clients has a significant importance in our society. Therefore, nurses who are involving in nursing care of these clients are concerned for both their health and awareness. Increasing medical and nursing science has created special area for awareness and prevention of CKD from metabolic disorders like hypertension and diabetes. Patients with chronic illnesses such as hypertension and diabetes need to adopt healthy attitudes and practices and gain knowledge regarding prevention and early detection of kidney disease to decrease the prevalence of dialysis-related complications and costs.

CKD is a fundamental public health concern since these patients are at an increased risk of end-stage renal disease (ESRD). It is a major global health challenge with a

big burden on health care systems, causing both physical and psychological misery, is closely linked to several cardiovascular diseases, with a considerable morbidity and mortality outcomes.[1]

Diabetes mellitus (DM) and hypertension (HTN) are the main risk factors for CKD both in the developed and developing world. Available studies have established this relationship based on the risk factors that are shared by two diseases (DM and HTN) like obesity, tobacco and alcohol use, and how they promote vascular changes that result into increased risk for kidney damage.[2]

The global increase of patients presenting with CKD and resultant end-stage renal failure requiring complex renal replacement interventions are likely to reach epidemic proportions by end of the next decade. For example, CKD, which virtually doubled as a global cause of death between 1990 and 2010, positioned itself as the 18th top-most universal cause of death in 2010,[3] amid increasing treatment costs.[4]

Many CKD cases are more likely to be clinically misdiagnosed due to patients' lack of awareness about risk factors for CKD. For example, a study that examined the degree of CKD diagnosis among 9772 admitted adult patients revealed a 40–70% risk for developing CKD.[5] As a result, an international need to investigate community based kidney disease screening and awareness programmes for people at increased risk for CKD emerged.[4] The rapid increase of the chief risk factors such as hypertension and diabetes, together with their associated lifestyle risk behaviors among the poor populations will result into more critical health care challenges that developing countries are unable to manage.[6]

The prevalence of adult hypertension has been globally estimated at 26%, with majority 66% of the cases residing in the developing world.[7] Correspondingly, the global estimated prevalence of diabetes has been noted at 6.4% with a prediction that by 2030 this figure will have reached 7.7%.[8]

CKD is a complex disease that has multifaceted etiologies. Changes in population lifestyle and aging, together with fast urbanization processes, has increasingly led to the recognition of non-communicable diseases in low and middle income countries as a potential global disease burden.[9] In a study to estimate the prevalence of CKD among diabetic patients in Tanzania showed that 83.7% of the participants had CKD, and none knew they had the disease (Janmohamed et al. 2013).

Few studies have conducted to assess the nurse's knowledge and revealed that nurses have low level of knowledge regarding chronic kidney disease and its prevention in diabetic and hypertensive patients. Various literature exhibits knowledge of nurses regarding chronic kidney disease and its prevention are influenced by various factors such as age of the nurse, professional qualification, experience, working area, availability of needful resource, and availability of protocol. Most of the literatures obliges improving knowledge not only lead to better practice, but also improve personal development of nurses and provide satisfactory health service to the client. Thus, the researcher was interested to conduct the study that would be helpful in determining the factors related to knowledge among nurses regarding chronic kidney disease and its prevention.

Reviewed literature revealed that limited number of studied carried out to assess the knowledge of nurses regarding chronic kidney disease and its prevention in Nepal and majority of studies were conducted in other developing and developed countries. Therefore, further studies are necessary to find out the other influencing factor of knowledge of nurses regarding chronic kidney disease.

MATERIALS AND METHODS

This study was a descriptive cross-sectional research design conducted in National Medical College Teaching Hospital, Birgunj, Nepal. The study population were the nurses working in National Medical College. The total sample size is 101 using total enumerative sampling technique (Census method) for sample selection. The study population of this study was all the nurses working in critical care units (CCU, MICUi, MICUii, SICU, NICU and PICU) and general ward (Nephro ward, Neurosurgery ward, Surgery ward, Postoperative ward, and Emergency) who had acquired one of the professional qualification PCL (Proficiency Certificate Level) nursing, BN (Bachelor in Nursing) and B.Sc. (Bachelor of Science in Nursing) and were having experience in clinical field working in selected ward of the National Medical College Teaching Hospital and registered in Nepal Nursing Council.

Inclusion criteria: Registered nurse having any qualification such as PCL nursing BSc. Nursing and BNS and nurses who are willing to participate in the study

Exclusion criteria includes: Students not available during data collection

Semi structured knowledge questionnaires was prepared according to the objectives of the study. The tool was developed by reviewing related literature and by consulting the subject expertise in the field.

The content validity of the research instrument was ascertained by research advisors, a group of professionals from National Medical College Nursing Campus including other faculty members and subject experts. The reliability of tool was determined by pre-testing it in 10 samples (10% of total sample). The reliability will be tested by using Split half method.

Formal Ethical clearance letter was taken from the research committee of National Medical College, Institutional Review Committee (F-NMC-315/074/075). Human dignity and principle of justice was maintained. Informed verbal consent was taken from each respondent. Privacy and confidentiality of all the respondents was maintained.

Data was organized in order for editing, classifying, coding and tabulating the information. The collected data was coded and entered in Epi Data version 3.1 and will be analyzed by using Statistical Package for Social Science (SPSS) 20 version in descriptive statistics (frequency, percentage, mean, mean percentage and standard deviation) and inferential statistics (chi square test). In the inferential statistics, to find the significant association Chi square test was used at 0.05 level of significance and 95% confidence interval.

RESULTS

Total numbers of participants were 101 and all were females with the average age of 26 years. Figure 1 below shows the number of participants as per their qualification.

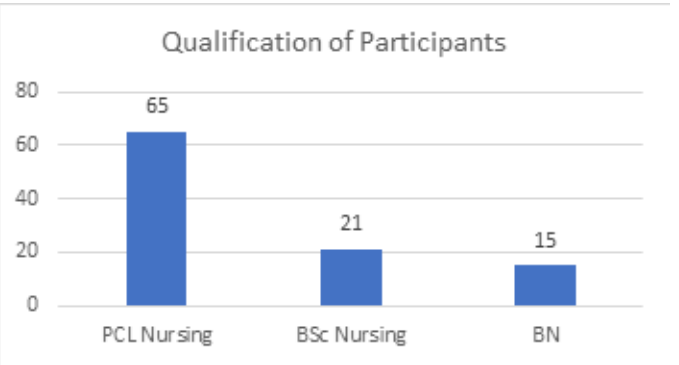

Figure 1: Professional qualification of the participants

The average duration of experience was found to be 12.5 years among the participants. The results revealed no association between the respondents knowledge scores with age (p=0.17); educational qualifications (p=0.81); duration of experience (p=0.68). The study concluded that there were optimum equipment, and learning material available for patient care in majority of the study units, however the ER department and certain wards had inadequate tools. The study revealed that nurse patient ration were not fulfilled in any of the study units. And only 49% of the participants were involved in the self-directed learning frequently.

The adequate level of knowledge regarding the CKD in relation to diabetes and HTN was found in the participants from BN category followed by BSc Nursing. Majority of questions were answered correctly by only 37% of the respondents considered to have the adequate knowledge regarding the prevention of CKD in diabetics and hypertensive. There were 46% of the respondents having average knowledge regarding the same and about 17% of them had a poor knowledge in this context. This suggested that majority of the participants had moderate to low level of knowledge regarding the prevention of CKD in diabetes and HTN.

Table 1: Responses of participants to the statement regarding general knowledge of CKD

Q. No	Questions	Number of respondents answered correctly	Percentage of respondents answered correctly (%)
1	Main function of the kidney is	75	74.3
2	How many liters of blood is filtered by kidney per day?	30	29.7
3	Normal renal threshold of blood glucose is	40	39.6
4	Chronic kidney disease is defined as	49	48.5
5	Person is at risk for kidney disease if he/she has	55	54.5
6	Two major causes of CKD	45	44.5
7	How would nurses recognize the chronic kidney disease	42	41.6
8	What can be done to keep kidneys healthy?	50	49.5
9	Which are the nephrotoxic drugs?	35	34.6
10	Before prescribing nephrotoxic drug doctors should perform…	44	43.5
11	Which drug is consider as nephro protective drugs?	36	35.6

Table 2: Responses of participants to the statement regarding diagnosis and screening of CKD

Q. No	Questions	Number of respondents answered correctly	Percentage of respondents answered correctly (%)
1	Albuminuria and GFR are tests to identify and classify renal disease severity	52	51.5
2	General recommendation for the request for these tests	42	41.5
3	Which specialization is best for referral to prevention of chronic kidney disease in hypertensive and diabetic patient	70	69.3
4	Appropriate treatment is based on	42	41.6

Table 3: Responses of participants regarding knowledge of Diabetes and CKD

Q. No	Questions	Number of respondents answered correctly	Percentage of respondents answered correctly (%)
1	Diabetes is defined as	49	48.5
2	Which type of diabetes have the risk of developing chronic kidney disease earlier?	40	39.6
3	What happen if blood glucose level is consistently elevated for significant period of time?	52	51.5
4	Nephropathy is chronic complication of diabetes mellitus which is	30	29.7
5	In case of diabetes which actions slow and prevent kidney from chronic kidney disease	38	37.6

Table 4: Responses of participants regarding knowledge of Hypertension and CKD

Q. No	Questions	Number of respondents answered correctly	Percentage of respondents answered correctly (%)
1	Hypertension is defined as	68	67.3
2	In case of hypertension which actions slow or prevent kidney from chronic kidney disease	45	44.5
3	National Kidney Foundation recommends people with high blood pressure should receive the following regular screenings	40	39.6
4	What diet modification should be done hypertension to prevent chronic kidney disease	52	51.5

Total number of respondent: 101

DISCUSSION

This is a descriptive cross-sectional research study conducted at National Medical College Teaching Hospital, Birgunj, enrolling 101 participants involving the nurses of different departments. The average duration of experience was found to be 12.5 years among the participants. The results revealed no association between the respondents knowledge scores with age (p=0.17); educational qualifications (p=0.81); duration of experience (p=0.68). The adequate level of knowledge regarding the CKD in relation to diabetes and HTN was found in the participants from BN category followed by BSc Nursing. Majority of questions were answered correctly by only 37% of the respondents considered to have the adequate knowledge regarding the prevention of CKD in diabetics and hypertensive. There were 46% of the respondents having average knowledge regarding the same and about 17% of them had a poor knowledge in this context. This suggested that majority of the participants had moderate to low level of knowledge regarding the prevention of CKD in diabetes and HTN.

Not adequate studies have been done among nurses in our part of location as far as documented. So this study gave an underlying idea regarding the gravity of knowledge of the nurses from different qualification about the diabetes and hypertension and its prevention from CKD. However, an ample number of studies have been conducted in patients of diabetes and hypertension regarding the assessment of knowledge for prevention of CKD.

In Ocean continent, Australia in particular, the general knowledge about CKD among sensitive diabetic affected patient is identical with the non-diabetic community (Gray et al., (2015). Nearly all the renal affected population with diabetes will develop protein deficiency only 10 years within the course of disease progression, while over a quarter in 5 years will have risks of ESRD and a fifth of them with immediate subsequent mortality only 20 years along.[10]

A study done in Kapilvastu Nepal in 2024 found that 43.2% of respondents had a high level of knowledge 40.0% had moderate level of knowledge, and 16.8% had a low level of knowledge regarding chronic kidney disease.[11] But another study conducted in 2024 in Koshi Hospital Biratnagar revealed that half of the hypertensive patients had good (50.9%) level of knowledge whereas majority of them had good practice (87.4%) to prevent CKD.[12]

CONCLUSION

This study gives a conclusion that less numbers of nurses had good knowledge regarding the prevention of chronic kidney disease in diabetics and hypertensive patients. There is a need for formal teaching learning activities including trainings focusing on the different aspects of chronic kidney disease prevention as a good number of nurses are not having the sound knowledge regarding it. The training regarding the same should be mainstay part of understanding about the knowledge of kidney disease prevention.

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CONFLICT OF INTEREST: None

REFERENCES

1. Khalil, A. A., Frazier, S. K., Lennie, T. A., & Sawaya, B. P. (2011). Depressive symptoms and dietary adherence in patients with end-stage renal disease. Journal of renal care, 37(1), 30-39.

2. Alramly, M., Darawad, M. W., & Khalil, A. A. (2013). Slowing the progression of chronic kidney disease: Comparison between predialysis and dialysis Jordanian patients. Renal failure, 35(10), 1348-1352.

3. Lozano, R., Naghavi, M., Foreman, K., Lim, S., Shibuya, K., Aboyans, V., ... & AlMazroa, M. A. (2012). Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. The lancet, 380(9859), 2095-2128.

4. McCullough, P. A., Vassalotti, J. A., Collins, A. J., Chen, S. C., Bakris, G. L., & Whaley-Connell, A. T. (2011). National Kidney Foundation's Kidney Early Evaluation Program (KEEP) Annual Data Report 2010: Executive Summary. American Journal of Kidney Diseases, 57(3), S1-S3.

5. Ferris, M., Detwiler, R. K., Kshirsagar, A. V., Pierre-Louis, M., Mandhelker, L., & Shoham, D. A. (2009). High prevalence of unlabeled chronic kidney disease among inpatients at a tertiary-care hospital. The American journal of the medical sciences, 337(2), 93-97.

6. Thomas, B. A., Wulf, S., Mehrotra, R., Himmelfarb, J., Naghavi, M., & Murray, C. J. (2013). The rapidly growing global burden of end-stage renal disease—an analysis of the chance in maintenance dialysis prevalence between 1990 and 2010. J. Am. Soc. Nephrol. A, 32.

7. Ibrahim, M. M., & Damasceno, A. (2012). Hypertension in developing countries. The Lancet, 380(9841), 611-619.

8. Shaw, J. E., Sicree, R. A., & Zimmet, P. Z. (2010). Global estimates of the prevalence of diabetes for 2010 and 2030. Diabetes research and clinical practice, 87(1), 4-14.

9. Assembly, U. G. (2011). Political declaration of the high-level meeting of the general assembly on the prevention and control of non-communicable diseases. New York: United Nations.

10. Noubiap, J. J. N., Naidoo, J., & Kengne, A. P. (2015). Diabetic nephropathy in Africa: A systematic review. World journal of diabetes, 6(5), 759. doi: 10.4239/wjd.v6.i5.759.

11. Acharya DK, Pun R. Knowledge about Chronic Kidney Disease among Patients with Diabetes and Hypertension in a Hospital. Journal of Birgunj Nursing Campus, 2024: 2(1):42-47.

12. Mahato AK, Mandal PK, Khadgi D. Knowledge and practice on chronic kidney disease prevention and associated factors among hypertensive patients attending in a hospital in eastern Nepal. J Kathmandu Med Coll. 2024;13(1):15-24.