



Original research Article

Evaluation of Urinary Albumin Level in Newly Diagnosed Hypertensive Patients for Early Diagnosis of Renal Diseases in Rural Area of Rajasthan

Authors

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ABSTRACT

Now-a-days, Hypertension is worldwide threat. For the detection of early renal disease, proteinuria play the important role. Specially, urine albumin is important to find out early renal diseases. For the present study, a total 100 newly diagnosed hypertensive patients were detected along with same no. of healthy individuals, having same aged grouped between 25-65 years were taken as control. Test for detection of urine protein through calorimetry method by total urinary protein detection. Male have higher value than female patients for determination of newly hypertensive patients. The value of urine albumin in newly diagnosed was significant higher than that of the control group. The elevation of the urine albumin is important for the diagnosis of renal disease in newly hypertensive patients. The present study helped to detect the renal damage in newly hypertensive patients and in the rural region of Rajasthan a high intake protein diet has been taken in their meal which should be checked and a balance diet should be taken.

Keywords: Hypertension, Urine Protein, Proteinuria, Renal Diseases.

INTRODUCTION

Hypertension is a major health problem throughout the world because of its high prevalence and its association with increased risk of cardiovascular disease. Proteinuria especially albumin get filtered and appeared in the urine in hypertensive cases¹. As the GFR decreases, the basement membrane lost the negative charges of the kidney and lower molecular weight proteins, albumin passes the urine. Proteinuria is the sign of CKD, which can result from diabetes, high blood pressure and diseases that cause inflammation in

the kidney². Presence of the excess protein particularly albumin in urine indicates renal disease. The present study aimed to determine the level of urine albumin in newly diagnosed hypertensive patients.

AIM & OBJECTIVES

1. To determine the urine albumin level in newly diagnosed hypertensive patients.
2. Interpretation and assessment of renal function.

MATERIALS AND METHODS

In the present study 100 patients aged 25 to 65 who were diagnosed as newly hypertensive and were confirmed by the estimation of blood pressure on two occasions and questionnaire, were recruited from medicine OPD and the IPD of NIMS Medical College and Hospital. Same number of healthy patients who were aged and sex matched with the newly hypertensive patients, were selected as the control.

Freshly voided random urine sample has been taken and urine albumin level has been detected.

Normal value of urine albumin is 30 – 300 mg/24 hrs.

Quantitative determination of total urinary protein⁽³⁾:

Table 1: Reagent Composition

R	Pyrogallol red Sodium molybdate	50 mmol/L 0.04 mmol/L
μ Protein CAL	Albumin / Globulin aqueous primary standard	1000 mg/L

Table 2: Test Procedure

Reagents	Blank	Standard	Sample
R (ml)	1.0	1.0	1.0
Calibrator (μL)	-	20	-
Sample (μL)	-	-	20

Mix and incubate for 5 min. at 37 degree celcius.

Wavelength – 598 nm.

Read the absorbance of the samples and standard, against the blank. The color is stable for atleast 30 min.

Calculation

Mg protein / 24 hrs. =(Sample / Standard) x 1000 (Standard conc.) x Volume (L) urine 24 hrs.

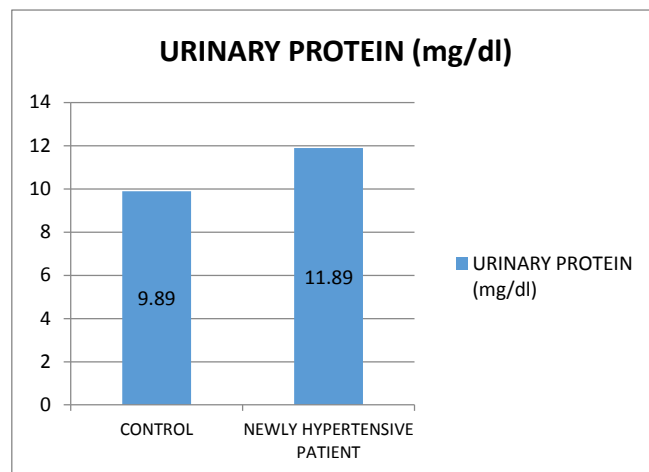
RESULTS AND DISCUSSION

Table 3: Comparison of urine protein between control and newly hypertensive group by unpaired t-test.

Parameter	Control group (n=100)	Newly Hypertensive Group (n=100)	p-value
Urinary Protein (mg/dl)	9.89±3.92	11.89±1.66	<0.005

Values in mean ± SD.

Figure 1: Comparison of urine protein between control and newly hypertensive group by unpaired t-test.

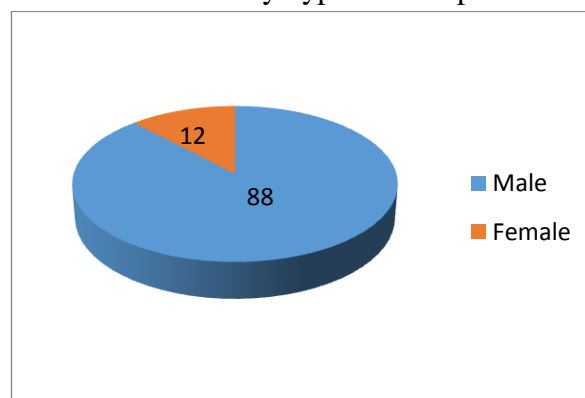


The mean urinary protein concentration which was found in newly hypertensive group was 11.89±1.66 mg/dl whereas for control group it's was 9.89±3.92 mg/dl and protein excretion in spot urine samples in newly hypertensive group and control group was found significantly higher, with p value of 0.023.

Table 4: Comparison of urine protein between male and female newly hypertensive patients.

Total no. of patients	Male	Female
100	88	12

Figure 2: Comparison of urine protein between male and female newly hypertensive patients.



The number of male patients was more than that of female patients having newly diagnosed patients and the value was 88 and 12 respectively. Some investigators advocate the use of albumin as an alternative to the total protein measurements^(4,5,6). And others have suggested that the

profile excreted has differential diagnostic and prognostic value⁽⁷⁾. The National Kidney Foundation has recommended that an increased in protein excretion be used as a screening tools in patients at the risk of developing renal disease⁽⁸⁾. In the study, the urine protein level of the patients was found to be significantly elevated as compared to the control subjects.

CONCLUSION

The present study is useful for the determination of early renal disease and help to treat such patients and different methods should be taken to avoid the renal diseases.

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