

ISSN : 2309-3234

# TMSS MEDICAL COLLEGE JOURNAL

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**Volume 05, No. 02, July 2015**



**An Official Publication of TMSS Medical College, Bogra**



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July 2015

An Official Publication  
of  
TMSS Medical College, Bogra

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Vol. 05, No. 02, July 2015

An Official Publication of TMSS Medical College, Bogra, Bangladesh

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## Printed by

TMSS Printing Press  
Bogra, Bangladesh

The TMSS Medical College Journal is a peer reviewed Journal. It is published two times a year, (January and July). It accepts original articles, review articles and case reports. Complimentary copies of the journal are sent to libraries of all medical and other relevant academic institutions in the country and selected institutions abroad.

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# Evaluation of Serum Creatinine in Essential Hypertension

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## Abstract

**Back ground:** Persistent hypertension is one of the major risk factors and is a leading cause of chronic kidney disease (CKD). Mild to moderate essential hypertension usually causes significant renal function impairment only after a number of years. So, we designed this present study to evaluate serum creatinine and creatinine clearance in hypertensive patients. **Objectives:** To assess the renal function of hypertensive patient and compare the findings with those found in normotensive person. **Materials and Methods:** This case control study was done at Department of Biochemistry, Mymensingh Medical College, Mymensingh during the period of January 2010 to December 2010. A total of 143 subjects of both sexes were selected for the purpose. Out of them 73 were case and 70 were control. The subjects were classified into following groups ; Group I includes of 73 were essential hypertensive subjects. Group II includes of 70 were apparently healthy adult. All statistical parameters analysis were done by SPSS 12.0 P value, <0.05 was considered as significant. **Results:** There was significant ( $P < 0.05$ ) increase in serum creatinine in subjects with hypertension in comparison to that of the control. There was significant ( $P < 0.05$ ) decrease in creatinine clearance (CrCl) in subjects with hypertension in comparison to that of the control. **Conclusion:** Monitoring of serum creatinine and creatinine clearance before and during treatment of hypertension is required to prevent end stage renal disease (ESRD) and other consequences.

**Key words:** Essential hypertension, Creatinine clearance, Renal function, End Stage renal disease (ESRD).

## Introduction

Hypertension (HTN) or high blood pressure is a chronic medical condition in which the blood pressure is elevated. It is classified as either primary (essential) or secondary. About 90-95% cases are termed as primary hypertension, which refers to high blood pressure for which no medical cause can be found. The remaining 5-10% cases (secondary hypertension) are caused by another conditions that affect the kidneys, arteries, heart or endocrine system<sup>1</sup>. Persistent hypertension is one of the risk factors and is a leading cause of chronic kidney disease (CKD). Increasing evidence suggests renal involvement in hypertension related to cardiovascular and cerebrovascular diseases<sup>2</sup>.

Hypertension is the commonest cardiovascular disease in all over the world including Bangladesh<sup>3</sup>. Surveys indicate that 15-20% of the adult population (18 years and above) in Bangladesh suffers from hypertension. About 70% of strokes, 23% of myocardial infarction and 11% of renal failures are due to hypertension in Bangladesh<sup>4</sup>.

Hypertension and renal function are closely related. The kidney has several functions including the excretion of water soluble waste e.g. urea and creatinine and foreign materials like drugs. It is responsible for electrolyte balance and acid/base status<sup>5</sup>. When kidneys lose their filtering ability, dangerous levels of fluid and waste

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