



Study of HS-CRP in Essential Hypertension

KEYWORDS

Essential hypertension, vascular inflammation, hs-CRP

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ABSTRACT Hypertension affects approximately 1 billion people worldwide. Mounting evidence indicates that smoldering vascular inflammation plays a central role in the genesis and complications of hypertension. The American Heart Association and the Center for Disease Control and Prevention issued a statement in 2003 regarding the use of hs-CRP in clinical practice. hs-CRP levels > 3 mg/liter should be interpreted as higher relative vascular risk. An aim of present study is to co relate association of high hs-CRP in essential hypertension and target organ damage. A total of 50 patients and 25 controls were in study and serum hs-CRP level measured by high sensitivity immune turbidometry assay. Standard unpaired student t-test was used to compare hs-CRP in essential hypertensive patient and control and with different AGE, SEX, BMI, SBP, DBP, Target organ damage groups. On comparison hs-CRP level was very significantly raised in patients with essential hypertension.

INTRODUCTION

C-reactive protein is a plasma protein and level <1mg/l in healthy subjects. Its concentration increases 100 folds by inflammation, infection and injury. CRP is primarily synthesized by liver and its half life is 19 hours. It is stable and has very small variation in values in fresh and frozen forms that make its best tool to measure.

METHOD AND MATERIAL

Institutional Ethics Committee has approved the study to be conducted.

The present cross sectional study was carried out on 50 essential hypertensive patients and 25 control meeting inclusion criteria attending outpatient clinic as well as who were admitted in our institute during period of march 2010 to august 2011.

Hypertension was defined according to the criteria in JNC-7.

INCLUSION CRITERIA: Patients with 1st time detected essential hypertension or known case of essential hypertension between age group of 30 to 80 years.

EXCLUSION CRITERIA: Patients with secondary hypertension, diabetes mellitus, having previous history of rheumatoid arthritis or other vasculitis syndrome, inflammatory bowel disease and suffering from other acute inflammatory conditions like hepatitis, pneumonia, septicemia, meningitis, glomerulonephritis or local pyogenic abscess and age more than 80 years.

Sera was separated from patient and control subjects and Serum hs-CRP concentration were measured by IMMUNO-TURBIDIMETRY TEST.

RESULTS AND DISCUSSION

Table-1: hs-CRP & HYPERTENSION

hs-CRP (mg/lt.)	Present study	Saito M et al ⁹²	Ridker PM et al ⁹³
>3	36 (72%)	68.19%	74.04%
<3	14(28%)	31.81%	25.96%

From the above table it is observed that hs-CRP values more than 3 mg/lt. found by Saito M et al⁹²(68.19%)& Ridker PM et al⁹³(74.04%) is consistent with the present study i.e. 72%. Patients with HT have higher hs-CRP values than non hypertensive.

Table-2: SHOWING CORRELATION OF hs-CRP WITH BMI, AGE, SEX IN STUDY GROUP

	hs-CRP (mg/lt.)		P value
	>3	<3	
BMI ≥ 25kg/m ²	24(85.71%)	4(14.29%)	< 0.0001
Age			
41-50 years	55.55%	54.45%	< 0.05
51-60 years	68.42%	31.58%	
61-70years	90.90%	9.10%	
Sex			
Male	72.97%	27.03%	< 0.05
Female	69.23%	30.77%	

From the above table, hs-CRP values more than 3 mg/lt. found by Ford et al⁹⁵(83.82%) for BMI & Saito M et al for Age and sex is consistent with the present study.

Table-3: CORRELATION OF hs-CRP WITH SBP, DBP, MAP OF STUDY GROUP

	hs-CRP(mg/l.)		P value
	>3	<3	
SBP>160	30(73.17%)	11(26.83%)	< 0.05
DBP>90	23(67.65%)	11(32.35%)	< 0.05
MAP>110	30(73.17%)	11(26.83%)	< 0.05

From the above table, hs-CRP values more than 3 mg/l. found by Yamada et al & Festa et al for SBP,DBP,MAP is consistent with the present study

Table-4: CORRELATION OF hs-CRP WITH DURATION AND TOD OF STUDY GROUP

	hs-CRP(mg/l.)		P value
	>3	<3	
Duration			
1 st time	19(73.07%)	7(36.93%)	< 0.017
1-5year	13(92.05%)	1(7.95%)	
Target organ damage	31(73.80%)	12(26.20)	<0.05

From the above table, hs-CRP values more than 3 mg/l. found by recent JUPITER trial for duration & Ratto E et al for target organ damage is consistent with the present study.

CONCLUSION:

Elevated hs CRP level is a risk marker for new onset of hypertension and accelerated progression of hypertensive target organ disease and hs CRP has a definite prognostic value in essential hypertension.

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