





CARDIOVASCULAR RESPONSES TO AUTONOMIC STRESSORS IN YOUNG ADULTS BELONGING TO HYPERTENSIVE FAMILY



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ABSTRACT

- Hypertension is major risk factor for cardiovascular disease as well as stroke. In present era, stress leads to autonomic dysfunction which act as aggravating factor for development of hypertension.
- The present study was carried out in 1st year medical students. To assess the effect of stressors, we have studied changes in Mean Blood Pressure (MBP) and Heart Rate (HR) by inducing autonomic stressors by **cold pressure test** and **valsalva maneuver** in young healthy adults as indicator of autonomic dysfunction in hypertensive family as well as non hypertensive family.

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- On the basis of present study the offspring of hypertensive parent may be advocated to change or bring modification in their lifestyles, to prevent or delay hypertension at a later stage in their life.



INTRODUCTION



- Hypertension is one of the recognized antecedents of cardiovascular disease¹ and stroke².
- It is generally attributed to a normal cardiac output with increase peripheral vascular resistance³.

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- Abnormal course of response to stressors is seen in most of people who will later have permanent hypertension³
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MATERIAL AND METHOD

- The present study was carried out in 1st year medical students of Shri M.P.Shah Medical College, Jamnagar, India.
- Cases – 15 subjects from hypertensive family
- Control – 15 subjects from family with no history of hypertension

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- Resting HR and MBP were recorded.
 - Change in HR and MBP during the test and in recovery phase recorded.
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- Change induced by -
 1. Cold pressure test
 2. Valsalva maneuver
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Cold pressure test



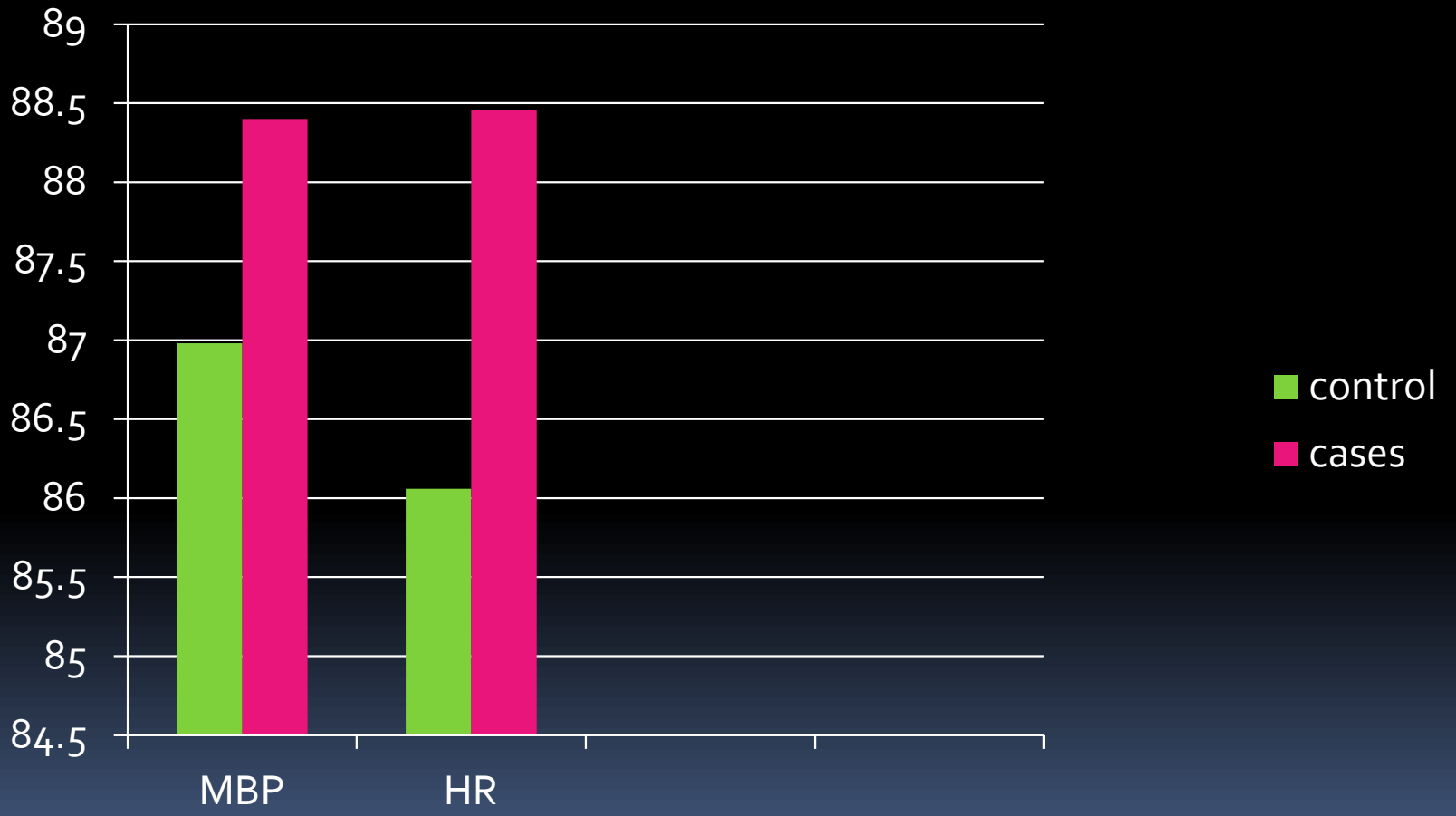
Valsalva maneuver



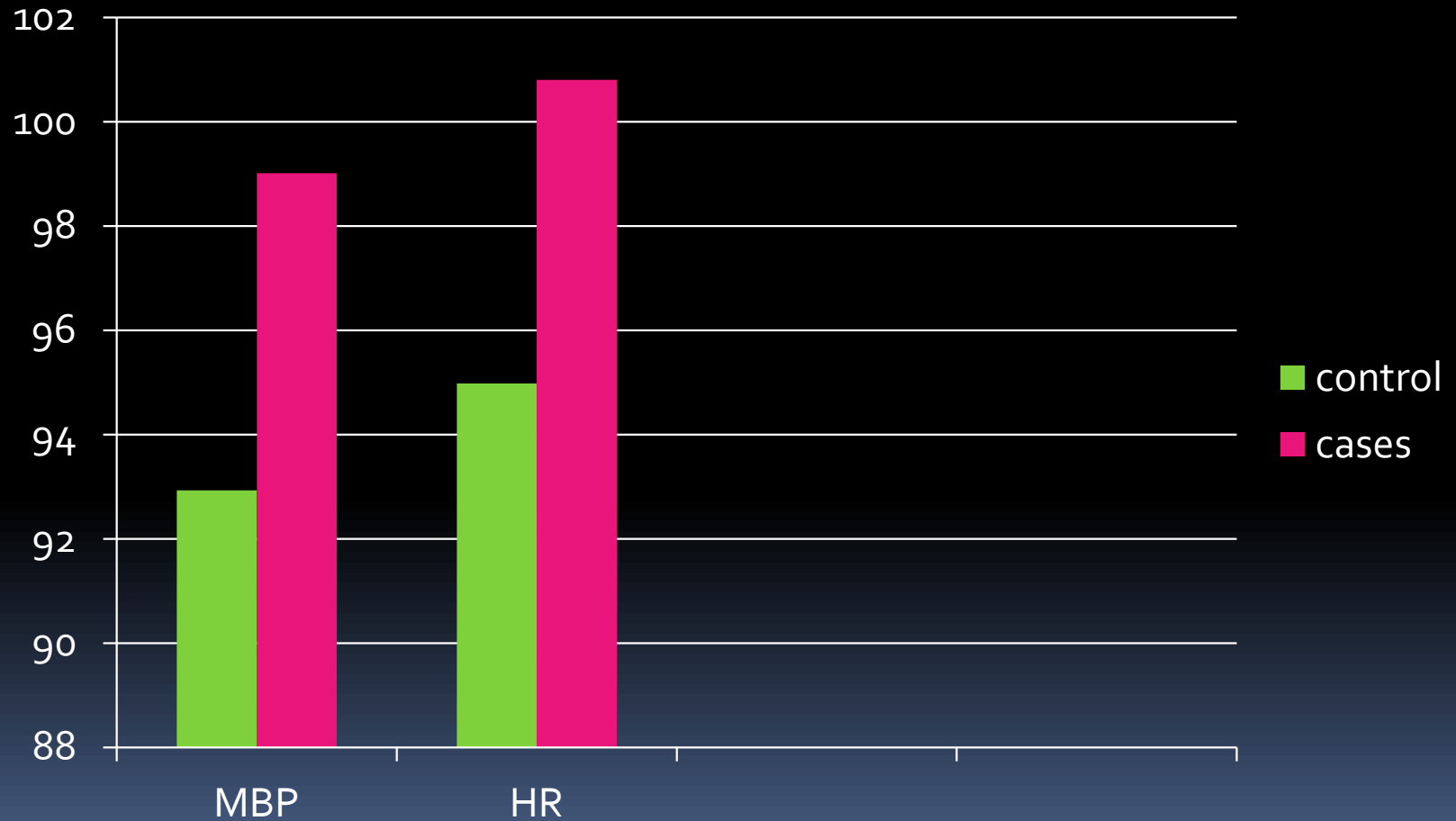
RESULTS

1. Cold Pressure test (* P value significant)

Basal value		During test			After test		
		0 min	1 min	2 min	0 min	1 min	2 min
1. Cases							
MBP	88.4 ±6.3	91.78± 6.3	93.79± 6.1	99.01*± 5.7	93.26 ± 6.6	90.32± 6.5	86.06 ± 6.6
HR	88.46± 5.8	90.66± 5.6	93.33± 6.3	100.8*± 7.1	93.53± 7.1	88.4± 6.2	83.4 ± 6.1
2. Controls							
MBP	86.98± 8.7	89.73± 8.1	92.47± 7.9	92.93*± 5.5	91.19 ± 7.1	88.67± 7.7	83.92 ± 7.8
HR	86.06± 5.6	86.06± 4.9	88.93 ± 4.7	94.98* ± 7.7	88.6 ± 5.0	84.3 ± 4.4	80.4 ± 4.8



During test at 2 min



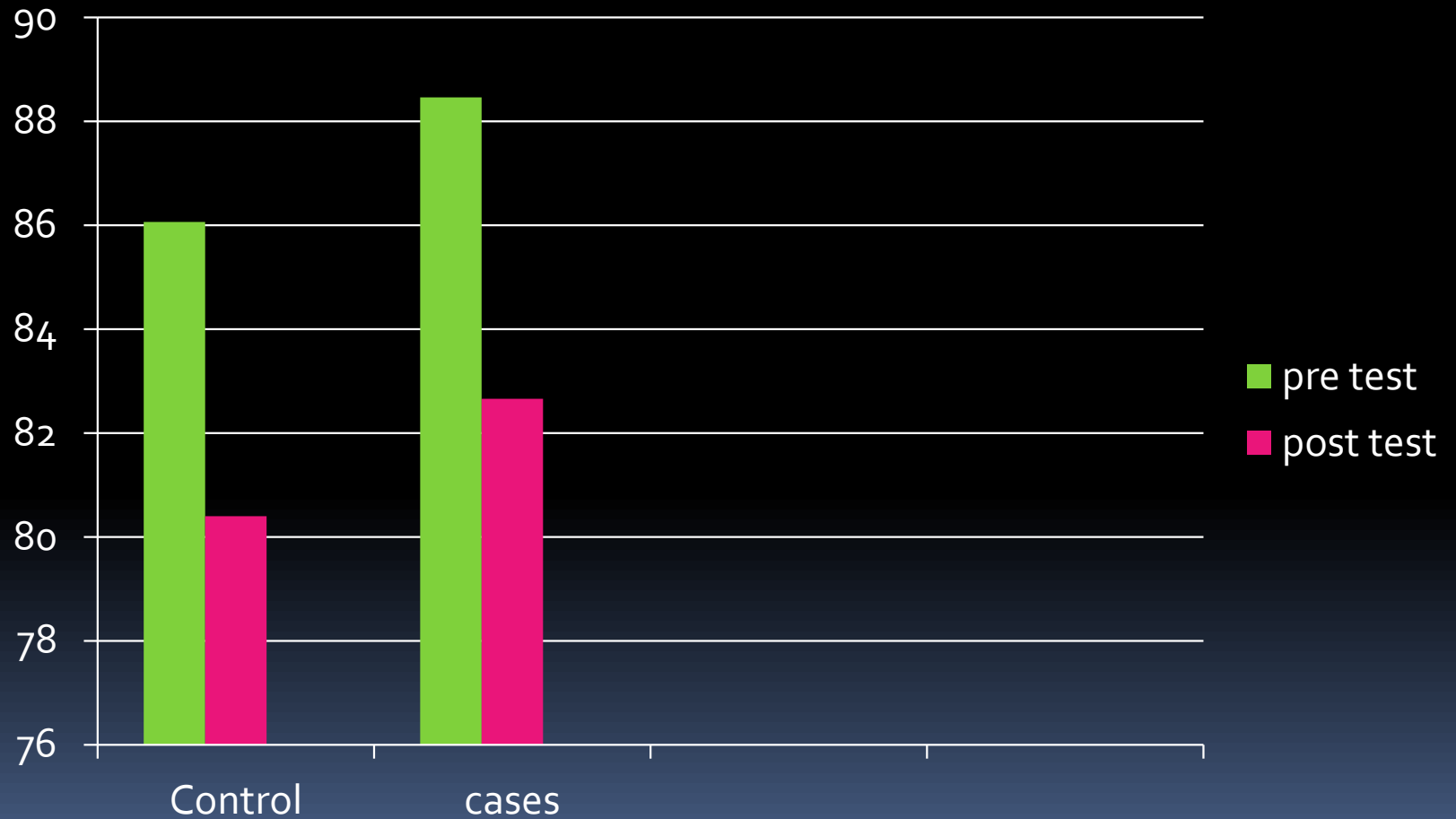
After 2 min



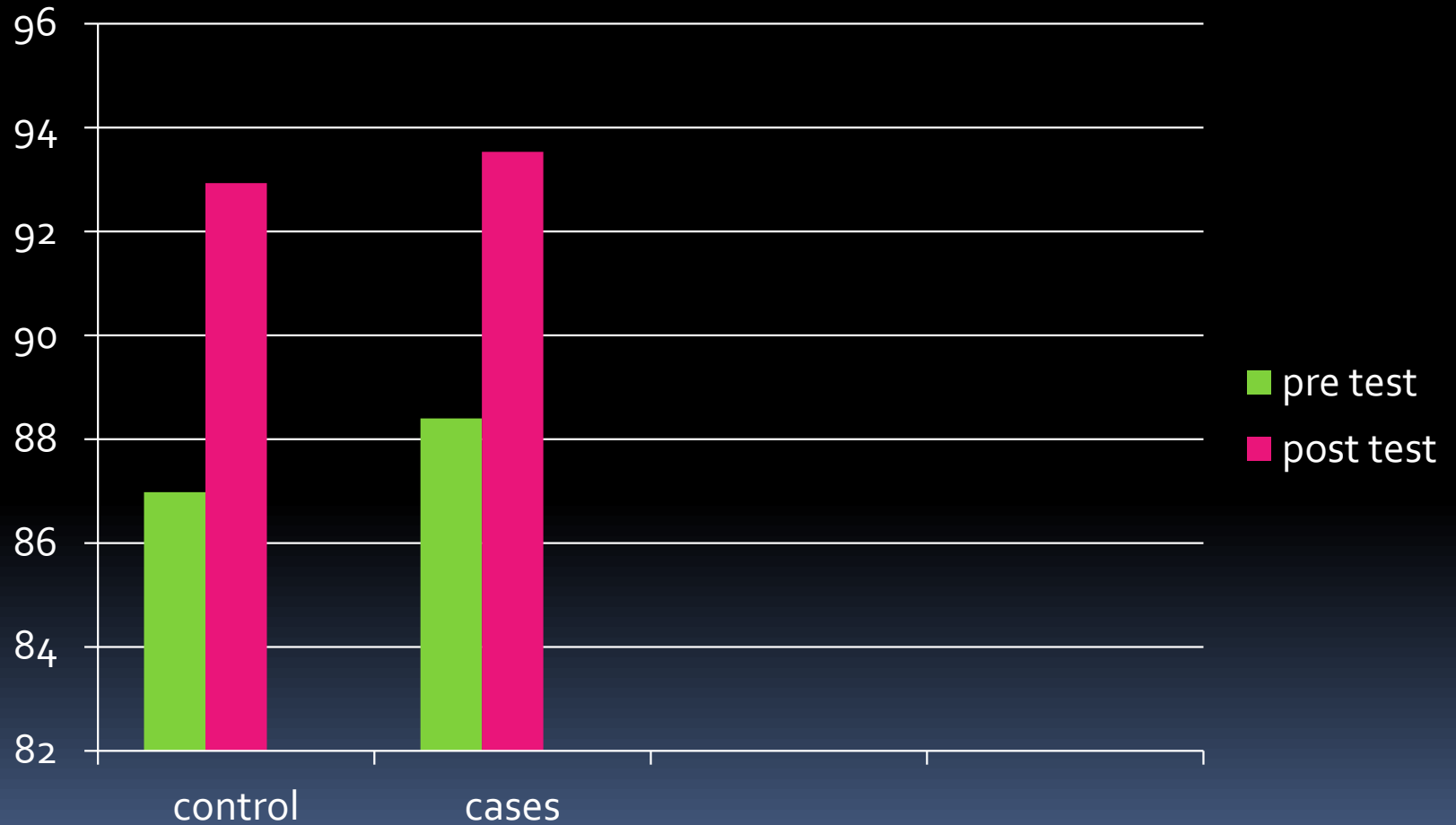
2. Valsalva maneuver (* P value significant)

	Basal value	During test	After test
1. Cases			
MBP	88.4±6.3	-	93.53*±7.1
HR	88.46±5.8	-	82.66*±5.5
2. Control			
MBP	86.98±8.7	-	92.93*±5.5
HR	86.06±5.6	-	80.40*±4.8

Heart rate





Mean Blood Pressure



DISCUSSION

- Earlier studies have proved that hypertension is a familial problem; it is generally attributed to a normal cardiac output with increase in peripheral vascular resistance³.
- Results are similar to present study have been reported by Gayatri et.al⁴.

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- This vascular hyper reactivity may predispose to hypertension, which may be inherited^{5, 6}.
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graph TD; A[After application of stress increase in MBP and HR probably bought through one of the following mechanisms] --> B[Increased total peripheral resistance while cardiac output remains unaltered or decreased.]; A --> C[Simultaneous increase in cardiac output and peripheral resistance3.];
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increase in MBP and HR
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Increased total
peripheral resistance
while cardiac output
remains unaltered or
decreased.

Simultaneous increase
in cardiac output and
peripheral resistance³.



CONCLUSION

- Present studies clearly suggests increase risk of hypertension offspring of hypertensive parents.
- So, modification in their lifestyles, to prevent or delay hypertension at a later stage in their life.

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