

# CORONARY ARTERY DIAMETER AS A POSSIBLE RISK FACTOR IN ASIAN-INDIANS WITH CORONARY ARTERY DISEASE

## INTRODUCTION:

Studies have suggested that Asian-Indians (AI) have higher rates of coronary artery disease (CAD) than other ethnic groups. Sizes of the coronary arteries of AI may be smaller than in other ethnic groups. Anatomical factors may play a role in the higher occurrence of CAD in A.I. We explored the differences in the sizes of coronary arteries between AI, Caucasians (Cauc.), and African-Americans (AA). Our groups (total n=77) were matched in terms of body mass index (BMI), body surface area (BSA), and select risk factors for CAD (i.e. history of hypertension, hypercholesterolemia, and family history of CAD).

## METHODS:

Subjects were randomly chosen from a pre-existing database of patients who underwent cardiac catheterization. Measurements of diameters for the following arteries were measured by electronic caliper: proximal left main (LM), the left anterior descending (LAD), the left circumflex (LCX) and the right coronary (RCA). Sample included: AI (n=50), Cauc.(n=72), and AA (n=54). A subset had BMI, BSA, and risk factor data available: AI (n=23), Cauc.(n=28), and AA (n=26). Differences in BMI, BSA, and risk factors between groups in the subset sample were not significant. Two sets of ANOVA's were performed for each clinical measure between the three patient groups: (1) those with BMI and BSA data available and (2) the entire sample.

## RESULTS:

For the smaller sample of patients, AI had significantly smaller diameters for the RCA, LM, LAD, and LCX arteries (Table 1A). For the larger group of patients similar results were found (Table 1B, Figure 1).

## CONCLUSIONS:

Coronary artery size in AI is smaller than in other ethnic groups, even after controlling for BMI, BSA, and select risk factors for illness. These results may help to explain the higher prevalence of CAD among AI. Further studies are needed that take into account other potential contributing factors, such as age and smoking history, as well as studies that utilize larger sample sizes and prospective methodology.

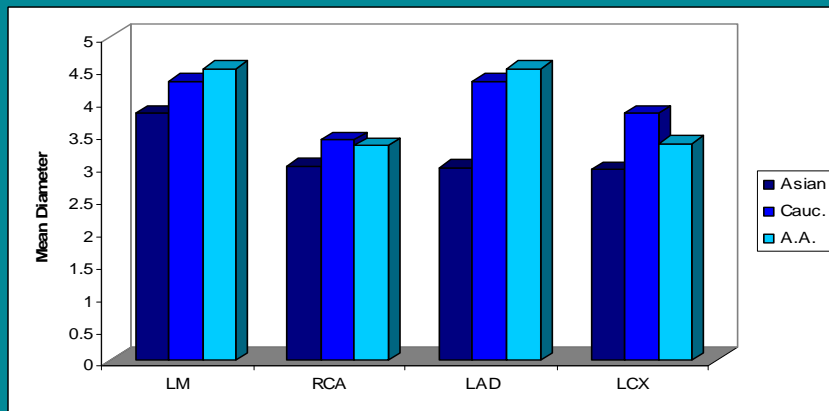


Figure 1. Average coronary artery diameter by ethnicity

	(A)	Mean (SD)	F	P	(B)	Mean (SD)	F	P
RCA			3.66	.03	RCA		4.51	.01
A.I.		2.97 (.57)			A.I.	3.00 (.62)		
Cauc.		3.46 (.83)			Cauc.	3.40 (.81)		
A.A.		3.46 (.73)			A.A.	3.31 (.73)		
LM			7.85	.01	LM		9.77	<.01
A.I.		3.69 (.75)			A.I.	3.81 (.67)		
Cauc.		4.38 (.88)			Cauc.	4.31 (.86)		
A.A.		4.58 (.81)			A.A.	4.50 (.89)		
LAD			9.17	<.01	LAD		9.08	<.01
A.I.		2.96 (.53)			A.I.	2.98 (.52)		
Cauc.		3.45 (.58)			Cauc.	3.35 (.69)		
A.A.		3.77 (.82)			A.A.	3.30 (.70)		
LCX			6.77	<.01	LCX		4.91	<.01
A.I.		2.91 (.42)			A.I.	2.95 (.47)		
Cauc.		3.20 (.65)			Cauc.	3.18 (.68)		
A.A.		3.54 (.68)			A.A.	3.35 (.73)		

Table 1. One-Way ANOVA (F statistic) for Clinical Measures for Subjects with BMI and BSA data available (N=77) (A) and for Whole Sample (n=176) (B)