Age and convetional risk factors adjusted odds ratios for CAC

		CAC>0			CAC>100			CAC>400		
		OR	95% CI	P value	OR	95% CI	P value	OR	95% CI	P value
BR. Vs CS males										
(n=2251, n=4304) 52±10 yrs	<45 Years	1.3	1.0-1.6	-0.90.02	1.9	1.2-2.9	0.003	4.2	1.8-9.7	0.0001
	45-64 years	0.6	0.5-0.7	<0.0001	0.7	0.6-0.9	0.002	0.7	0.6-0.9	0.05
	_65 years	0.4	0.2-0.7	<0.0001	0.4	0.3-0.6	<0.0001	0.6	0.4-0.8	0.006
BR. Vs CS females										
(n=443, n=2309) 54±10 yrs	<45 years	1.6	0.8-3.1	0.1	1.3	0.3-5.2	0.6	3.6	0.8-38.6	0.2
	45-64 years	1.2	0.9-1.7	0.1	1.5	0.9-2.4	0.06	2.8	1.4-5.5	0.003
	_65 years	1.2	0.7-2.2	0.4	0.9	0.5-1.6	0.5	1.1	0.9-2.1	0.08

1093-148   Difference in Subclinical Atherosclerosis in Brazilian and Portuguese Populations

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Background: The coronary heart disease (CHD) event rates are lower in the Portuguese population (PO) as compared to the Brazilian population (BR), which is primarily of Portuguese ancestry. One possible explanation for this difference is more frequent use of the Mediterranean diet in PO and saturated fat rich in BR. The objective of this study is to explore differences in coronary artery calcification (CAC) in two populations of similar ethnicity but with different dietary patterns.

Methods & Results: 4611 asymptomatic individuals (79% males, 58% BR, 52±11 years) who underwent electron beam tomography (EBT) in Portugal and Brazil were studied. BR when compared to PO were younger (50.8 ±10.3 years vs. 54.5 ± 10.9 years p<0.0001) had a higher prevalence of high cholesterol (42% vs. 38% p=0.05), family history of CHD (44% vs. 37%, p=0.03) and diabetes (10% vs. 5%<0.0001) and a lower prevalence of smoking (20% vs. 25% p<0.001) respectively. The median, 75th and 90th percentile of CAC scores were significantly higher in BR (table). Even after controlling for risk actors, significantly higher CAC scores were observed in the BR population. Increased odds of CAC were observed in BR with increasing age in both males and females compared to PO.

Conclusions: a higher prevalence of CAC was seen in the BR compared to PO asymptomatic population. Future studies are needed to identify whether cultural or lifestyle differences contribute to difference in cac in individuals with similar ethnicity.

	CAC scores (Median, 75th, 90th percentile)	CAC>0		
	Age group	(BR) vs. (PO)	OR	95%CI	P value
BR Vs. P0 males (n=2251, n=1407)					
	<45 years	(0,5,85) (0,0,1)	3.6	2.4-5.5	0.01
	45-64 years	(5,90,364) (0,0,13)	6.4	5.2-7.8	<0.0001
	_ 65 years	(132,570,1299) (0,24,380)	8.4	5.2-13.6	<0.0001
BR Vs. PO females (n=443, n=510)					
	<45 years	(0,0,17) (0,0,0)	4.1	2.6-6.6	<0.0001
	45-64 years	(0,36,219) (0,0,1)	6.5	2.3-9.5	<0.0001
	_65 years	(69,239,509) (0,0.5,68)	7.3	3.5-15.4	<0.0001

1093-149   Increased Coronary Atherosclerosis in Persons With Chronic Spinal Cord Injury

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Individuals with spinal cord injury (SCI) have been reported to have an increased prevalence of premature cardiovascular disease, leading to higher rates of morbidity and mortality. Specifically, we wanted to know whether this increased risk was due to traditional cardiac risk factor clustering (hypertension, diabetes, tobacco use, family history, and hypercholesterolemia), or was out of proportion to known cardiac risk factors.
Methods:
We prospectively enrolled 91 persons with chronic SCI into a study of subclinical athero-

sclerosis, by measuring cardiac risk factors as well as coronary calcium (CC), and compared them to matched non-SCI controls. The 273 controls were 3:1 matched for age, gender, ethnicity and risk factors, drawn from a database of over 30,000 asymptomatic persons undergoing coronary scanning.
Results:
The 91 persons with SCI enrolled varied in age from 20-90 years (mean 49.7±12 years). Patients had SCI for an average of 19.7±10 years, including 76 men, 15 women including 49% hispanic and 10% african-american persons. The mean calcium score of the SCI group was 75±218, significantly greater than the control group (28±104, p<0.001). The prevalence of any CC was greater in the SCI population than the control population (51% vs. 39%, p=0.04), as was CC >100 (16% vs. 7%, p=0.008). Women with SCI had significantly less CC than men (mean score 12 vs. 86, p<0.01).
Conclusion:In this study we demonstrated that SCI patients have more atherosclerotic burden, beyond that explained by clustering of traditional risk factors, than ambulatory controls. Coronary calcium is more prevalent and occurs with greater severity in the chronic SCI population than ambulatory persons. Based on these findings, more attention and therapy should be directed at this prevention of coronary heart disease in this population.

1093-150   Effect of Slice Thickness on Image Quality and the Accuracy of Gated Computed Tomography Scanning for Coronary Calcium

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Background: Computed tomography (CT) using electron beam CT is widely used to screen for coronary artery calcium as a marker of coronary artery disease (CAD). There is increasing use of multi-detector CT (MDCT) to identify coronary artery calcium and low attenuation fatty plaque in CAD. Conventional calcium scoring systems are based on 3 mm EBCT slices, with calcification defined as 130 Hounsfield Units (HU), two standard deviations (S.D.) above the mean attenuation of blood and myocardium. Detection of low attenuation plaque by MDCT requires thinner slices. To reduce radiation exposure it would be better not to perform two examinations with different slice thickness. We assessed attenuation characteristics and calcium scores using conventional and thin slice MDCT to determine if the assumptions made with electron beam CT calcium screening are applicable.
Methods: Twenty-one subjects at high risk for or with established CAD were examined using gated MDCT with 2.5 and 1 mm slice thickness. Mean blood pool attenuation and image noise (as indicated by attenuation S.D.) were measured at two standard levels in the aortic root. Calcium scores at each slice thickness (corrected for the volume covered) were calculated using the Agatston method. We evaluated the effect of slice thickness on coronary artery calcium detection.
Results: Mean blood pool attenuation was 42 HU at 2.5mm and 45 HU at 1mm; images were much noisier (63% increase in noise) at 1mm (S.D. 18) than at 2.5 mm (S.D. 11). The volume-corrected mean total calcium score was increased by 35% with thinner slices (953 at 2.5 mm, 1291 at 1mm). Of 84 vessels scored, 35 were negative for coronary artery calcium at 2.5 mm; of these, 8 (23%) were positive for coronary artery calcium at 1 mm.
Conclusions: Using thinner slices for MDCT increases image noise and, as a consequence, increases calcium scores. Assumptions concerning the severity of coronary calcification using systems developed from 3 mm electron beam CT data cannot be applied directly to thinner slice MDCT. Applying the conventional scoring systems to thin slices will lead both to overestimation of the coronary artery calcium score and overestimation of the extent of vessel involvement.

POSTER SESSION

1094   Positron Emission Tomography: Clinical Studies

Monday, March 08, 2004, Noon-2:00 p.m.
Morial Convention Center, Hall G
Presentation Hour: 1:00 p.m.-2:00 p.m.

1094-151   Association Between F-18 Fluorodeoxyglucose Uptake in Large Arteries and Atherogenic Risk Factors in Healthy Subjects

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Background: A high correlation between F-18 fluorodeoxyglucose (FDG) uptake in aorta and macrophage content of atherosclerotic lesions has been reported in an experimental rabbit model. Thus, positron emission tomography (PET) with FDG pears to offer new opportunities for noninvasive imaging of atherosclerosis. The purpose of the present study was to investigate the association between FDG uptake in large arteries and atherogenic risk factors in healthy subjects.
Methods: A total of 197 consecutive subjects (108 men, 89 women; age range, 30-82 years; mean age, 56.9 years) participating in a cancer screening program as part of a health check protocol using whole-body FDG-PET were enrolled in the study. Whole-body FDG PET imaging was performed at fasting condition. FDG uptake in iliac and proximal femoral arteries was visually rated into three categories (high, mild and no uptake) by two independent readers unaware of the clinical data. Six atherogenic risk factors (age, cigarette smoking, hypertension, diabetes, hypercholesterolemia and obesity) were