

Carotid artery calcification prevalence detected via panorex across ethnicity groups

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Objectives

The study aims to evaluate the prevalence of CAC in the Asian, African-American, Caucasian, and Hispanic (A/A/C/H) patient populations at The University of Texas Health Science Center at Houston School of Dentistry using dental panoramic imaging. It will also assess documentation of CAC diagnoses in electronic health records and subsequent referrals to physicians, along with identifying associated risk factors.

Methods

Retrospective study utilizing pre-existing available panoramic images of all A/A/C/H patients aged 45 years or older enrolled in University of Texas Health – Houston School of Dentistry who have undergone panoramic images from 2008 to 2023 will be included in the study. Panoramic images and electronic chart records of these patients will be assessed for the following:

- Presence of CAC
 - labeled following the plaque-RADS classification system of severity and extension from 0 (not present) to 4 (vessel-outlining calcification)
- Gender, age, and cardiac risk factors
 - Risk factors: age, gender, race, and history of diabetes, kidney disease, stroke/myocardial infarction, ischemic attacks, peripheral artery disease, deep vein thrombosis, cardiovascular disease, history of bypass surgery, and use of medications including the most common antihypertensives, blood thinners, diabetes medications, diuretics, and antihyperlipidemics.
- Documented diagnosis of CAC in electronic health record
- Documentation of subsequent referral to physician

Results

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		Asian		African-American		Caucasian		Hispanic		OVERALL
Male		29	23.20%	42	33.60%			49	40.16%	
Female		34	27.20%	71	56.80%			73	59.84%	
CAC Present PANO		15	12.00%	14	11.20%			16	13.11%	
*CAC Classification	1	9	60.00%	7	35.71%			8	50%	

	2	3	20.00%	7	57.14%			2	12.5%	
	3	0	0.00%	0	7.14%			3	18.75%	
	4	3	20.00%	0	0.00%			0	0.00%	
CAC RAD INTERP		0	0.00%	0	0.00%			3	18.75%	
PCP/MD Referral/Consult		0	0.00%	0	0.00%			1	5.56%	
AVG										

Conclusion

Dental professionals improve overall health and should maximize the capacity for recognizing and addressing incidental findings. Early diagnosis of CACs on dental panoramic images potentially reduces patients' morbidity and mortality. Panoramic radiographs commonly used in dental practices pose a cost-effective, easy-to-use diagnostic tool for CAC than sonography, computed tomography, or angiography; thereby, strengthening the association between oral-systemic health and promoting early preventative measures.

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