measure can serve as an imaging biomarker to understand mechanistic correlations between atherosclerosis, fatty liver and CVD risk.

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BOTH VERTEBRAL BONE MINERAL DENSITY AND PRESENT OR GROWTH OF SCHMORL'S NODE ARE IMPORTANT PREDICTORS FOR FUTURE VERTEBRAL FRACTURE

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Introduction: Both osteoporosis and Schmorl's node in vertebrae are common conditions in the general population. The association between vertebral fracture (VF) and presence or growth of Shmorl's node was not clear. We aimed to estimate the relationship between VF and Schmorl's node and vertebral bone mineral density (BMD) using chest or cardiac CT scan.
Methods: A total of 3409 consecutive patients (1730 women) who underwent non-contrast CT heart and chest scans were studied. The thoracic vertebral BMD was measured using QCT technique. The Schmorl's node (>2 mm in deep) was assessed per individual and per vertebrae. The presence of vertebral fractures (VF) was estimated by identifying morphological deformities of the spinal bodies using the semi-quantitative method by Genant HK, et al. The ratio between the anterior, mid and the posterior height, or a given body diameter to the superior spinal height was calculated. Morphological deformity was definite when the ratio was $\geq$ 20%, assessed by two physicians. The association between VF and both Shmorl's node and BMD was analyzed.
Results: With advancing age, the number of patients (or vertebrae) suffered from Schmorl's node progressively increased and reversely related to the BMD ($p<0.001$). Both Shmorl's node and BMD associated strongly with VF (display in table, $p<0.001$).
Conclusions: Shmorl's node and vertebral BMD are significantly associated with VF. Both can be diagnosed and monitored by using CT of heart or chest CT scans with scout images

Vertebral fracture significantly associated to amount of Shmorl's node

	male			Female		
age(year)	No	Node VF (%)	Node NoVF (%)	No	Node VF (%)	Node NoVF (%)
20-40	274	50.0	36.7	185	20.0	8.1
40-50	128	60.2	40.6	176	33.3	17.7
50-60	217	78.0	46.6	228	72.2	27.6
60-70	544	83.5	45.3	478	71.8	35.9
70-80	325	85.7	65.0	454	87.9	48.5
>80	191	85.4	69.9	209	80.0	60.4

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ANTI-HYPERTENSIVE MEDICATIONS CAN REDUCE THE VERTEBRAL BONE MINERAL LOSS IN AGING HYPERTENSIVE PATIENTS

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Introduction: Hypertension and osteoporosis are two major public health burdens in the general population. The effect of hypertension and anti-hypertensive medication on osteoporosis is poorly understood. We aimed to investigate the effect of the anti-hypertensive drugs to the thoracic bone mineral density (tBMD) and compare to the normotensive cohort.
Methods: 2267 patients (age 65 $\pm$ 11, females 1231) with hypertension and anti-hypertensive therapy and a control group matched in cohort size, gender, age and race underwent Multi-row detector CT heart scan for evaluation of coronary plaque score. The tBMD was measured using quantitative computed tomography technique. The comparison between disease and control groups in the tBMD value was completed.
Results: The values of BMD are 160.9 vs 152.5 mg/cc for female, 162.9 vs 158.3 mg/cc for male in anti-hypertensive and normotensive patients respectively ($p<0.001$). A significant higher tBMD was found in patients using anti-hypertensive therapy as compared to the normotensive population.
Conclusions: Anti-hypertensive drugs can reduce the rate of vertebral bone mineral loss. Specific medication classes are being investigated.

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A STEPWISE INCREASE IN EPICARDIAL FAT VOLUME IS ASSOCIATED WITH INCREASED MICROVASCULAR AND MACROVASCULAR ABNORMALITIES

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Introduction: It has been reported that an increase in epicardial fat volume (EFV) has been associated with an increase in cardiovascular structural and functional abnormalities (CVSFA). The purpose of the study was to assess whether a stepwise increase in EFV is associated with an increase in microvascular and macrovascular abnormalities, as assessed by the Early Cardiovascular Health Assessment Scoring System (ECVHAS).
Methods: We screened 280 asymptomatic individuals, ages 50 to 89, for early cardiovascular disease (CVD) risk using the ECVHAS, which has been previously reported. The structural microvascular element of the ECVHAS includes C2 arterial stiffness. The macrovascular functional element includes an abnormal rise in blood pressure - post mild exercise protocol (BP-PME) which consists of a 3-minute walk at 7% elevation and a speed of 2.5 mph. Additionally these 280 subjects underwent a CT scan for the coronary artery calcium score (CACS) and EFV determination using the Siemens Somatom Definition Dual-source CT scanner 64x2. The EFV was quantified using Hounsfield method. The 280 subjects were categorized into four groups based on EFV as outlined in the table. Statistical significance was determined using ANOVA, T-Test and Chi-Square analysis. A p-value < 0.05 was considered statistically significant.
Results: A significant correlation was present between a stepwise increase in EFV and C2 abnormalities ($p=0.0321$) and an abnormal rise in blood pressure - post mild exercise protocol ($p=0.0052$), as shown in the table.
Conclusions: Based on our data, a stepwise increase in EFV is associated with a significant increase in microvascular abnormalities/C2 ($p=0.0321$) and abnormal rise in BP-PME protocol ($p=0.0052$). Accordingly, healthcare professionals should consider incorporating EFV measurement into their CVD risk assessment, as its excess appears to be a significant marker for early detection of CVSFA. "Early Detect to Protect".

Group number	EFV (cm^3)	C2	BP rise PME (mmHg)	ECVHAS
Group 1 *(48 subjects, 16 M; 32 F)*	<69	4.71	34.83	5.78
Group 2 *(121 subjects, 55 M; 66 F)*	70-119	4.88	30.60	5.59
Group 3 *(52 subjects, 23 M; 29 F)*	120-144	4.74	32.27	7.04
Group 4 *(59 subjects, 45 M; 14 F)*	>145	6.04	43.02	6.25
	P-values	**0.0321**	**0.0052**	**0.04559**

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THE ROLE OF LEFT ATRIAL WALL THICKNESS AND PULMONARY VEIN ANATOMY IN SUCCESS OF PULMONARY VEIN ISOLATION USING THE CLOSE PROTOCOL.

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Introduction: The CLOSE protocol is a novel contact-force guided technique for enclosing pulmonary veins in patients with atrial fibrillation (AF). Consistency and lesion contiguity are essential factors for procedural success. We sought to determine whether left atrial (LA) wall thickness (LAWT) and pulmonary vein