

Association between epicardial adipose tissue thickness and coronary heart disease :a meta-analysis

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Abstract

Epicardial fat is the true visceral fat located around the heart, particularly around sub epicardial coronary arteries . Epicardial and intra-abdominal fat derive from brown adipose tissue within embryogenesis . Because of the close anatomical relationship to the heart, and the absence of fascial boundaries, epicardial adipose tissue (EAT) may locally interact and modulate the coronary arteries and myocardium through paracrine or vasocrine secretion of anti-inflammatory and proatherogenic cytokines . Therefore, it is meaningful to explore its connection with CAD.

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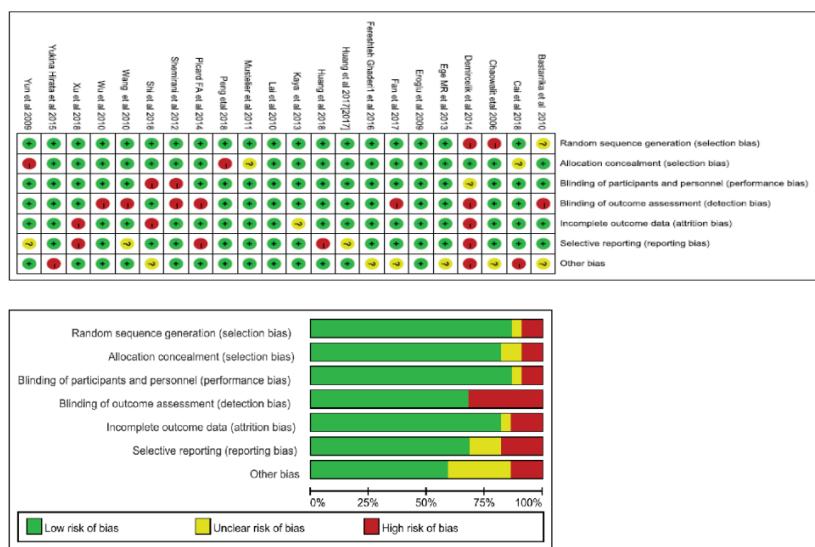


Figure 1: Summary table of publication bias included in the study.

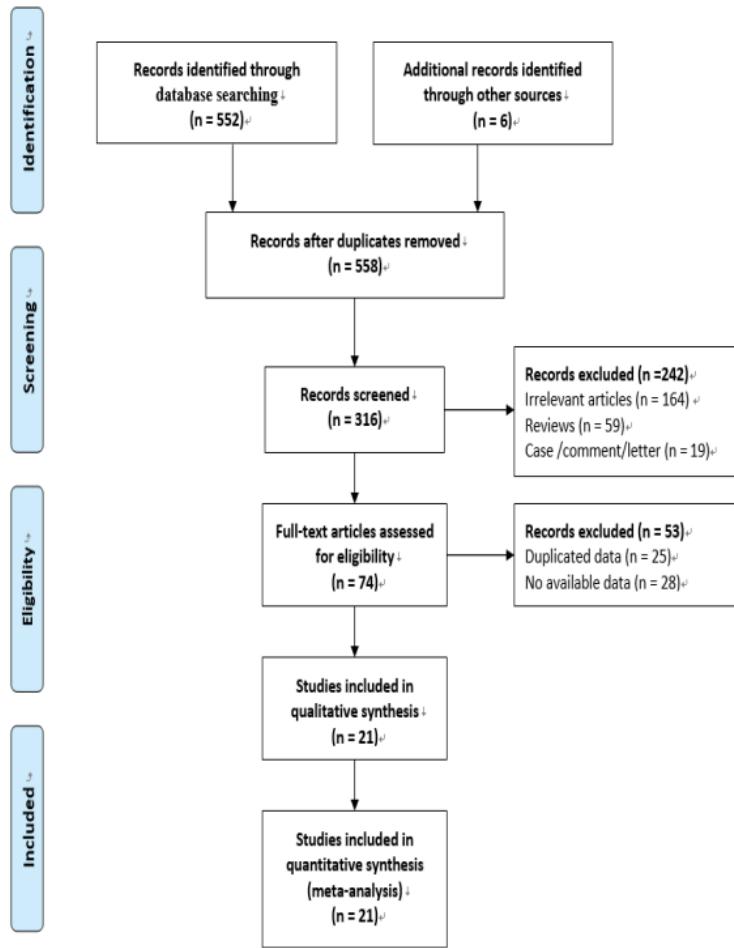


Figure 2: Meta analysis based on PRISMA statement included in the study flow chart.

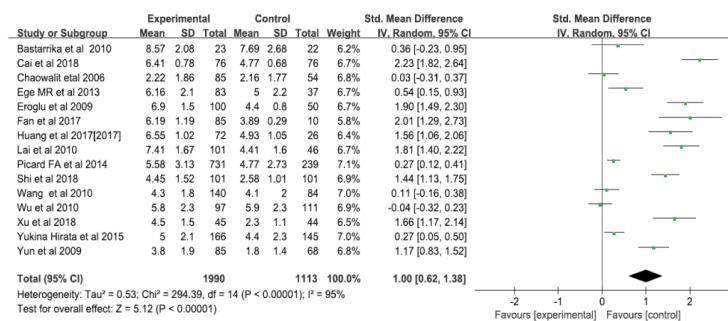


Figure 3: EAT and CAD (Mean and standard deviation of epicardial adipose thickness (measured by echocardiography, CT) in patients with and without Coronary Artery Disease (CAD) in each study and overall analysis).

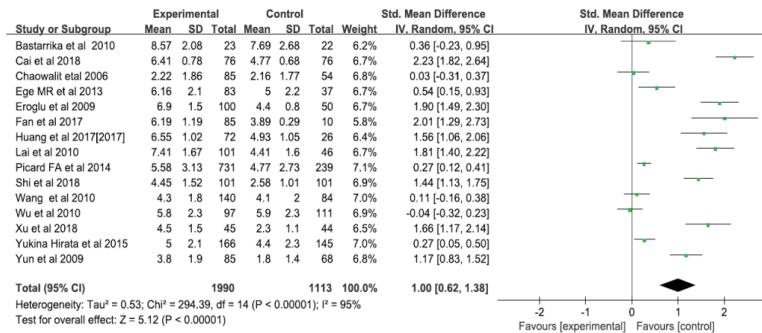


Figure 4: EAT and CAD (Mean and standard deviation of epicardial adipose thickness (measured by echocardiography) in patients with and without Coronary Artery Disease (CAD) in each study and overall analysis).

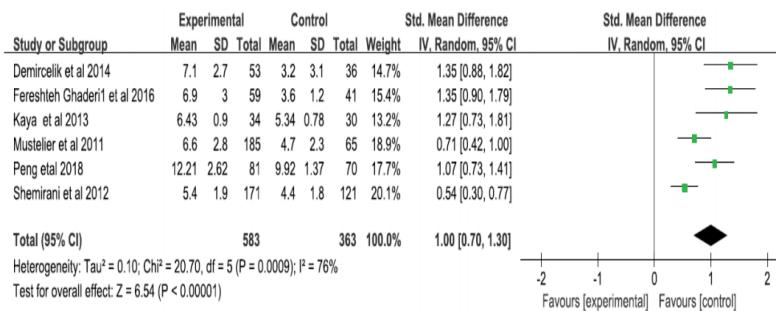


Figure 5: EAT and CAD (Mean and standard deviation of epicardial adipose thickness (measured by CT) in patients with and without Coronary Artery Disease (CAD) in each study and overall analysis).

Table 1: Meta analysis of epicardial fat thickness (EFT), coronary heart disease (CAD) and non-coronary heart disease (CAD) patients included in this study.

Included in the study	N	CAD	Non-CAD		Tools to	
	(total)	n	EAT Thickness/ mm	n	EAT Thickness/mm	Measurement
Yukina Hirata et al [9]	311	166	5 ± 2.1	145	4.4 ± 2.3	Echocardiography
Fereshteh Ghaderi et al [10]	100	59	6.9 ± 3	41	3.6 ± 1.2	Computed Tomography
Demircelik et al [11]	89	53	7.1 ± 2.7	36	3.2 ± 3.1	Computed Tomography
Ége MR et al [12]	120	83	6.16 ± 2.1	37	5 ± 2.2	Echocardiography
Kaya et al [13]	64	34	6.43 ± 0.9	30	5.34 ± 0.78	Computed Tomography
Shemirani et al [14]	292	171	5.4 ± 1.9	121	4.4 ± 1.8	Computed Tomography
Mustelier et al [15]	250	185	6.6 ± 2.8	65	4.7 ± 2.3	Computed Tomography
Lai et al [16]	147	101	7.41 ± 1.67	46	4.41 ± 1.6	Echocardiography
Wu et al [17]	208	97	5.8 ± 2.3	111	5.9 ± 2.3	Echocardiography
Bastarrika et al [18]	45	23	8.57 ± 2.08	22	7.69 ± 2.68	Echocardiography
Wang et al [19]	224	140	4.3 ± 1.8	84	4.1 ± 2	Echocardiography
Eroglu et al [20]	150	100	6.9 ± 1.5	50	4.4 ± 0.8	Echocardiography
Yun et al [21]	153	85	3.8 ± 1.9	68	1.8 ± 1.4	Echocardiography
Picard FA et al [22]	970	731	5.58 ± 3.13	239	4.77 ± 2.73	Echocardiography
Chaowalit et al [23]	139	85	2.22 ± 1.86	54	2.16 ± 1.77	Echocardiography
Huang et al [24]	98	72	6.55 ± 1.02	26	4.93 ± 1.05	Echocardiography
Cai et al [25]	152	76	6.41 ± 0.78	76	4.77 ± 0.68	Echocardiography
Peng et al [26]	151	81	12.21 ± 2.62	70	9.92 ± 1.37	Computed Tomography
Xu et al [27]	89	45	4.5 ± 1.5	44	2.3 ± 1.1	Echocardiography
Shi et al [28]	202	101	4.45 ± 1.52	101	2.58 ± 1.01	Echocardiography
Fan et al [29]	95	85	6.19 ± 1.19	10	3.89 ± 0.29	Echocardiography