Supplementary Material

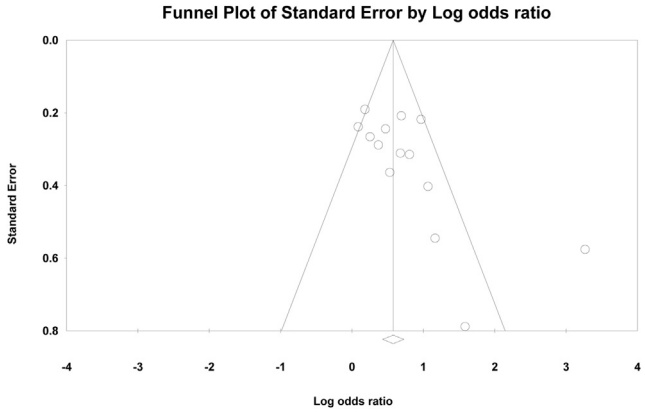
Estimation of Odds Ratio From Mean and Standard Deviations

Although most studies reported OR as a categorical variable (binary, tertiles, quartiles), some others reported the mean and standard deviation of cases and controls along with an OR for each unit change in exposure (or adiposity) (eg, for each 1-cm/5-cm increase in WC, for each 1-cm^2 increase in visceral adipose tissue surface area, or for each decimal unit (0.1) increase in WHR). For studies in which OR was not reported as a categorical variable, we estimated the OR from mean, standard deviation, and sample size of the cases and controls. This was performed by using the equation below, which has been validated for use in meta-analysis when combining results from studies that report ORs and mean differences in continuous outcomes[19]:

$$lnOR = \frac{\pi}{\sqrt{3}} \times SMD$$

where lnOR is the logarithm of OR, and SMD is the standardized mean difference in cases and controls.

We validated this approach by comparing the magnitude of association between these 2 types of studies and testing for interaction. Because of differences in exposure definitions and reporting (visceral adipose tissue area reported in cm^2, WHR reported as a ratio, and WC reported in cm) and significant differences in the inherent range and distribution of these measures (as well as differences in reporting OR, either as per 1-unit change, per 5-unit change, or per 10-unit change), we could not perform a meta-analysis of OR for each unit change in exposure. Instead, we performed a sensitivity analysis of such studies for each measure of adiposity and each esophageal disease outcome (reported in Supplementary Table 3). (Note that all studies that reported OR in this manner also reported OR as categories and/or as means and standard deviations).



Supplementary Figure 1. Funnel plot asymmetry seen in studies on patients with BE.

Supplementary Table 1. Newcastle-Ottawa Scale for Assessment of Quality of Included Studies: Case-control Studies

Quality assessment criteria	Acceptable(*)	Anderson[13]	Beddy[55]	Chua[27]	Chung[28]	Corley[9]	Corley[56]	Edelstein[10,45]	El-Serag[46]	Greer[51]	Healy[47]	Kendall[49]	Kramer[53,54]	Lee[33,34]	Mokrowiecka[35]	Mulholland[36]	Nelsen[16]	Park[38]	Rubenstein[50]	Rubenstein[11]	Wu[40]
Selection																					
Is the case definition adequate?	Yes, with independent validation	*	*	*	*	*	*	*	*	*	*	*	*	–	—	*	*	*	*	*	*
Representativeness of cases?	Consecutive or obviously representative series of cases	*	*	*	*	*	*	*	*	*	*	*	*	*	—	*	—	—	*	*	*
Selection of controls?	Community controls	*	—	—	—	*	*	*	—	—	—	*	—	*	—	*	*	—	—	—	—
Definition of controls?	No history of EE/BE/EAC	*	*	*	*	*	*	—	*	*	*	*	*	—	*	*	*	*	*	*	*
Comparability																					
Study controls for age/sex	Yes	*	*	*	*	*	*	*	—	*	—	*	*	*	*	*	*	*	*	*	*
Study controls for at least 3 additional factors	Race, BMI, smoking, alcohol, GERD or reflux symptoms, PPI use, hiatal hernia, family history of outcome, caffeine intake, *Helicobacter pylori* infection For studies on BE: medication use (aspirin/NSAIDs/PPIs/statins) For studies on EAC: presence of BE, length of BE segment, histology of BE	*	—	—	*	*	*	*	—	—	—	*	*	*	—	*	*	*	*	*	*
Exposure																					
Ascertainment of exposure?	Secure record, structured interview by healthcare practitioner, blinded to case/control status	—	*	—	—	—	*	—	*	*	—	*	—	*	—	—	*	—	—	—	*
Same method of ascertainment of cases/controls?	Yes	*	*	*	*	*	*	*	*	*	*	*	*	—	*	*	*	*	*	*	*

Supplementary Table 1. Continued

Quality assessment criteria	Acceptable(*)	Anderson[13]	Beddy[55]	Chua[27]	Chung[28]	Corley[9]	Corley[56]	Edelstein[10,45]	El-Serag[46]	Greer[51]	Healy[47]	Kendall[49]	Kramer[53,54]	Lee[33,34]	Mokrowiecka[35]	Mulholland[36]	Nelsen[16]	Park[38]	Rubenstein[50]	Rubenstein[11]	Wu[40]
Non-response rate?	Same for both groups	—	—	—	—	*	—	—	—	—	—	*	—	*	—	—	*	—	*	*	*
Overall study quality (maximum = 9)		7	6	5	6	8	8	6	5	6	4	9	6	6	3	7	8	5	7	7	8

NOTE. Each asterisk represents if individual criterion within the subsection was fulfilled.
NSAIDs, nonsteroidal anti-inflammatory drugs; PPIs, proton pump inhibitors.

Supplementary Table 2. Newcastle-Ottawa Scale for Assessment of Quality of Included Studies: Cohort and Cross-sectional Studies

Quality assessment criteria	Acceptable(*)	Akiyama[44]	Gunji[29]	Ha[30]	Hsu[31]	Jacobson[48]	Kang[41]	Kato[42]	Koo[32]	Lee[43]	MacInnis[57]	Nam[37]	Nam[12]	O'Dpherty[58]	Rubenstein[52]	Sogabe[14]	Steffen[59]	Tai[39]
Selection																		
Representativeness of exposed cohort?	Representative of average adult in community (age/sex/being at risk of disease)	—	—	—	—	—	—	*	—	—	*	—	—	*	—	—	*	—
Selection of the nonexposed cohort?	Drawn from same community as exposed cohort	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ascertainment of exposure?	Secured records, structured interview	*	*	*	*	—	*	*	*	*	*	*	*	*	*	*	*	*
Demonstration that outcome of interest was not present at start of study?	Only incident cases of outcome	—	—	—	—	*	—	—	*	—	*	—	—	*	—	—	*	—
Comparability																		
Study controls for age/sex?	Yes	*	*	*	*	*	*	—	*	—	*	*	*	*	*	*	*	*
Study controls for at least 3 additional risk factors?	Race, BMI, smoking, alcohol, GERD or reflux symptoms, PPI use, hiatal hernia, family history of outcome, caffeine intake, *Helicobacter pylori* infection For studies on BE: Medication use (aspirin/NSAIDs/PPIs/statins) For studies on EAC: presence of BE, length of BE segment, histology of BE	—	*	*	*	—	*	—	*	—	*	*	*	*	*	*	*	*
Outcome																		
Assessment of outcome?	Independent blinded assessment, record linkage	*	*	*	*	*	*	*	—	*	—	*	*	*	*	*	—	*

Supplementary Table 2. Continued

Quality assessment criteria	Acceptable(*)	Akiyama[44]	Gunji[29]	Ha[30]	Hsu[31]	Jacobson[48]	Kang[41]	Kato[42]	Koo[32]	Lee[43]	MacInnis[57]	Nam[37]	Nam[12]	O'Dpherty[58]	Rubenstein[52]	Sogabe[14]	Steffen[59]	Tai[39]
Was follow-up long enough for outcome to occur?	Follow-up >3 y	—	—	—	—	*	—	—	*	—	*	—	—	*	—	—	*	—
Adequacy of follow-up of cohorts?	Complete follow-up, or subjects lost to follow-up unlikely to introduce bias	—	—	—	—	*	—	—		—	*	—	—		—	—	*	—
Overall quality of studies (maximum = 9)		4	5	5	5	6	5	4	6	3	8	5	5	8	5	5	8	5

NOTE. Each asterisk represents if individual criterion within the subsection was fulfilled. Note that cross-sectional studies were treated as cohort studies for quality assessment.
NSAIDs, nonsteroidal anti-inflammatory drugs; PPIs, proton pump inhibitors.

Supplementary Table 3. Sensitivity Analysis of Studies That Reported ORs per Unit Change in Exposure

	No. of studies	Unit	OR	95% CI
EE				
Visceral adipose tissue area	1	Per 1-cm^2 increase	1.001	1.000–1.002
Subcutaneous adipose tissue area	1	Per 1-cm^2 increase	0.999	0.997–1.001
WC	3	Per 1-cm increase	1.021	1.007–1.035
BMI	2	Per 1-kg/m^2 increase	1.062	1.029–1.095
BE				
Visceral adipose tissue area	2	Per 1-cm^2 increase (1 study);	1.007	1.000–1.015
		per 10-cm^2 increase (1 study)	1.077	1.070–1.151
BMI	2	Per 1-kg/m^2 increase	1.015	0.935–1.103
EAC				
WC	2	Per 1-cm increase (1 study);	1.100	1.032–1.172
		per 10-cm increase (1 study)	1.460	1.047–2.035
WHR	1	Per 0.1-unit increase	1.590	0.935–2.704
BMI	1	Per 1-kg/m^2 increase	1.090	0.981–1.211