

# Supplementary Data

**Incidence of Acute Aortic Dissections in Patients with Out Of Hospital Cardiac**

**Arrest: A Systematic Review and Meta-analysis of Observational Studies.**

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## 1. RESEARCH STRATEGY.

#	Searches
1	exp Cardiac Arrest, Out-of-Hospital/
2	exp Cardiac Arrests, Out-of-Hospital/
3	exp Out of Hospital Cardiac Arrest/
4	exp Out-of-Hospital Cardiac Arrests/
5	exp Out-of-Hospital Heart Arrest/
6	exp Heart Arrest, Out-of-Hospital/
7	exp Heart Arrests, Out-of-Hospital/
8	exp Out of Hospital Heart Arrest/
9	exp Out-of-Hospital Heart Arrests/
10	exp Cause of Death/
11	etiology.fs,hw.
12	Causes.fx,kf,ti,xs.
13	10 or 11 or 12
14	limit 13 to "causation-etiology (best balance of sensitivity and specificity)"
15	ohca.ti,ab.
16	9 or 15
17	14 and 16
18	remove duplicates from 17

Databases: MEDLINE, CENTRAL, PsycInfo, Web of Science Core Collection.

## 2. RISK OF BIAS CHECKLIST AND ANALYSIS:

### A. RISK OF BIAS CHECKLIST:

Validity	Original Hoy et al items	Adapted Hoy et al items	Reasons for downgrading
<b>External</b>	1. Was the study's target population a close representation of the national population in relation to relevant variables?	1. Was the study's target population a close representation of the national population in relation to relevant variables?	Specific age criteria not including all adults, specific population (Ex: ECMO patients)
	2. Was the sampling frame a true or close representation of the target population?	2. Was the sampling frame a true or close representation of the target population?	Specific age criteria not including all adults.
	3. Was some form of random selection used to select the sample, OR was a census undertaken?	3. Were the included centers representative of the population	Did not include all, or the vast majority of hospitals admitting OHCA patients in the region/country studied
	4. Was the likelihood of nonresponse bias minimal?	4. Was the likelihood of nonresponse bias minimal?	Did not include all, or the vast majority of hospitals admitting OHCA patients in the region/country studied. Did not account correctly for intrinsic OHCA causes
<b>Internal</b>	1. Were data collected directly from the subjects (as opposed to a proxy)?	1. Were data collected directly from the subjects (as opposed to a proxy)?	Accounted for unmeasured patients (extrapolated data based on small findings)
	2. Was an acceptable case definition used in the study?	5. Was an acceptable case definition used in the study?	Not a clear definition of OHCA or aortic dissection
	3. Was the study instrument that measured the parameter of interest shown to have validity and reliability?	3. Was the study instrument that measured the parameter of interest shown to have validity and reliability?	No reference to validity of the method used
	4. Was the same mode of data collection used for all subjects?	4. Was the same mode of data collection used for all subjects?	If included some of patients screened with different methods
	5. Was the length of the shortest prevalence period for the parameter of interest appropriate?	5. Was the length of study adequate?	Inferior to one year study inclusion
	6. Were the numerator(s) and denominator(s) for the parameter of interest appropriate?	6. Were the numerator(s) and denominator(s) for the parameter of interest appropriate?	Was total intrinsic OHCA patients included in the analysis of causes or was it a convenience or available smaller set of patients

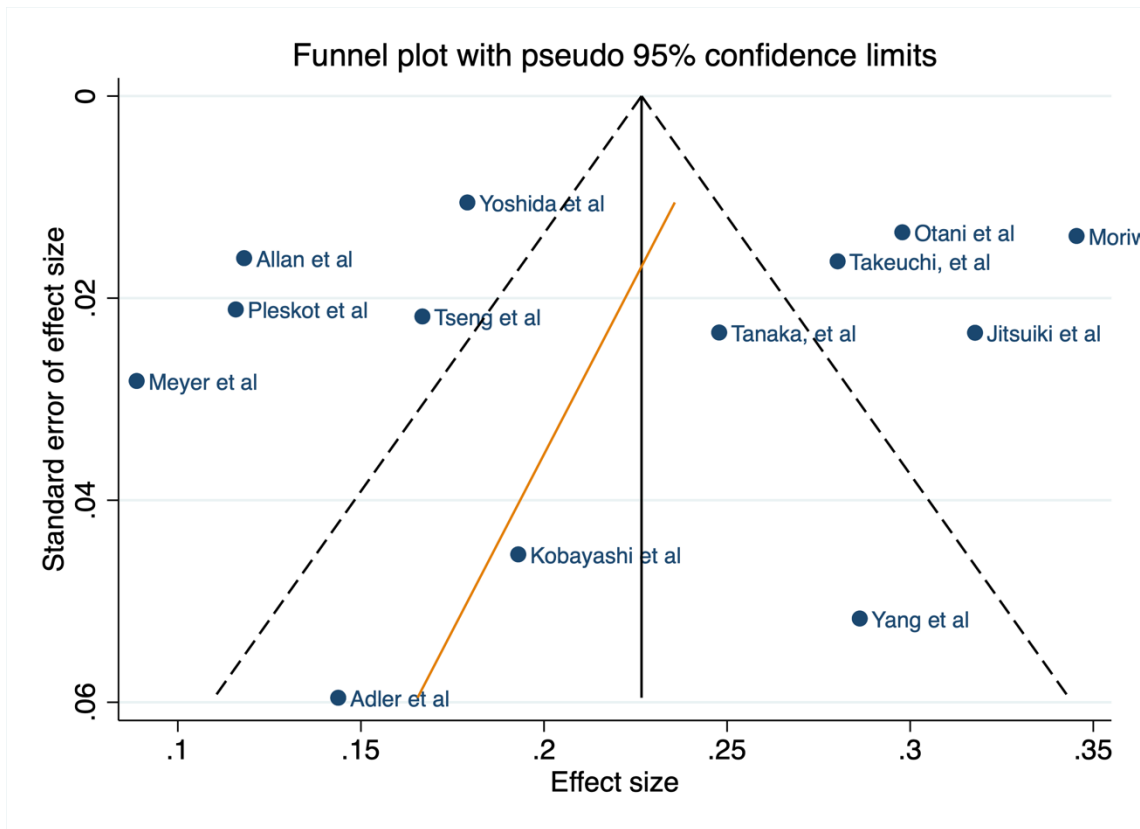
NOTE: Risk of Bias using adapted Hoy et al study checklist. H: High risk of bias; U: Unclear risk of bias; L: Low risk of bias; AAD: Acute Aortic Dissection. This tool was adapted from the Hoy et al study checklist, in which we used 10 out of the 10 original items. The table above shows the changes made and what was considered to downgrade the risk of Bias.

## B. RISK OF BIAS ANALYSIS:

	E.1. Was the study's target population a close representation of the national population in relation to relevant variables?	E.2. Was the sampling frame a true or close representation of the target population?	E.3. Were the included centers representative of the population	E.4. Was the likelihood of nonresponse bias minimal?	I.1. Were data collected directly from the subjects (as opposed to a proxy)?	I.2. Was an acceptable case definition used in the study?	I.3. Was the study instrument that measured the parameter of interest shown to have validity and reliability?	I.4. Was the same mode of data collection used for all subjects?	I.5. Was the length of study adequate?	I.6. Were the numerator(s) and denominator(s) for the parameter of interest appropriate?	Overall
Adler et al (2018)	L	L	H	L	L	U	H	H	L	L	H
Allan et al (2017)	H	H	L	H	L	L	H	H	L	L	H
Pleskot et al (2006)	L	H	L	L	L	L	H	H	L	L	H
Jitsuiki et al (2017)	L	L	H	L	L	L	L	L	L	L	L
Kim et al (2020)	L	H	H	L	L	L	L	L	L	H	H
Moriwaki et al (2013)	L	L	H	L	L	L	L	L	L	L	L
Takeuchi et al (2020)	L	H	H	L	L	L	L	L	L	L	H
Tanaka et al (2016)	L	H	H	L	L	L	L	H	L	L	H
Tseng et al (2020)	L	L	L	L	L	L	H	L	L	L	L
Yang et al (2020)	H	H	H	L	L	L	L	L	L	L	H
Meyer et al (2012)	H	H	L	H	L	U	H	H	L	L	H
Otani et al (2017)	L	L	H	H	L	L	H	H	L	L	H
Yoshida et al (2016)	L	H	L	L	L	L	H	H	H	L	H
Kobayashi et al (2013)	L	L	H	H	L	U	H	H	L	L	H

NOTE: Risk of Bias using adapted Hoy et al study checklist. H: High risk of bias; U: Unclear risk of bias; L: Low risk of bias; AAD: Acute Aortic Dissection. This tool was adapted from the Hoy et al study checklist, in which we used 10 out of the 10 original items. The table above shows the changes made and what was considered to downgrade the risk of Bias.

### 3. SMALL STUDY EFFECT ANALYSIS



```
. metabias _ES _seES, egger
```

Note: data input format *theta se\_theta* assumed

Egger's test for small-study effects:  
Regress standard normal deviate of intervention  
effect estimate against its standard error

```
.
Number of studies = 13                                Root MSE = 4.791
```

Std_Eff	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
slope	.2508336	.0592999	4.23	0.001	.1203154	.3813519
bias	-1.43347	3.195346	-0.45	0.662	-8.466379	5.599439

```
Test of H0: no small-study effects                    P = 0.662
```

NOTE: Funnel plot of Acute Aortic Dissection incidence with Egger test for assessment of small study effect.

#### 4. LEAVE-ONE-OUT META-ANALYSIS

<b>Overall incidence of Acute Aortic Dissection in OHCA patients (%)</b>	
<b>Leaving out</b>	
None	4.39 (95% CI: 2.55; 6.68; I <sup>2</sup> 95%)
Takeuchi et al	4.14 (95% CI: 2.22; 6.58; I <sup>2</sup> 96%)
Yang et al	4.22 (95% CI: 2.36; 6.56; I <sup>2</sup> 96%)
Adler et al	4.62 (95% CI: 2.68; 7.03; I <sup>2</sup> 96%)
Tseng et al	4.56 (95% CI: 2.57; 7.05; I <sup>2</sup> 96%)
Allan et al	4.76 (95% CI: 2.84; 7.13; I <sup>2</sup> 95%)
Jitsuiki et al	4.02 (95% CI: 2.20; 6.34; I <sup>2</sup> 95%)
Otani et al	4.07 (95% CI: 2.20; 6.45; I <sup>2</sup> 95%)
Tanaka et al	4.27 (95% CI: 2.33; 6.71; I <sup>2</sup> 96%)
Yoshida et al	4.51 (95% CI: 2.44; 7.14; I <sup>2</sup> 95%)
Moriwaki et al	3.90 (95% CI: 2.27; 5.93; I <sup>2</sup> 94%)
Kobayashi et al	4.47 (95% CI: 2.54; 6.89; I <sup>2</sup> 96%)
Meyer et al	4.84 (95% CI: 2.88; 7.26; I <sup>2</sup> 95%)
Pleskot et al	4.76 (95% CI: 2.80; 7.18; I <sup>2</sup> 95%)

NOTE: Leave-one-out analysis. OHCA: Out-of-hospital cardiac arrest. CI: Confidence interval