SUPPLEMENTAL MATERIAL

Supplemental Methods: Search Strategy for Ovid MEDLINE and EMBASE as of September 2, 2016

Results using Search Strategy

1 Myocardial Infarction.mp. (440266)
2 Thrombectomy.mp. (23156)
3 Thrombus Aspiration.mp. (3260)
4 Thromboaspiration.mp. (426)
5 2 or 3 or 4 (25178)
6 Randomized.mp. (1465727)
7 1 and 5 and 6 (818)
8 Remove duplicates from 7 (605)

Supplemental Table S1: Characteristics of Included Trials

Table S1. Trial overview

	TOTAL	TASTE	TAPAS
n	10,732	7,244	1,071
n screened	Not reported	12,005	1,161
% included	Not reported	60	92
No. of centers	87	31	1
Included symptom duration, hrs	0-12	0.5-24	0.5-12
Intervention	Routine Thrombus Aspiration	Routine Thrombus Aspiration	Routine Thrombus Aspiration with direct stenting when possible
Manual Aspiration device	Export®	Export®, Pronto®, Eliminate®	Export®
Primary Outcome	CV death, new MI, chock, or NYHA IV heart failure within 180 days	30 day all-cause death	Myocardial blush grade 0 or 1

CV, cardiovascular; NYHA, New York Heart Association; MI, myocardial infarction.

Supplemental Table S2: Outcome Definitions

Table S2.

<table>
<tr><th>Trial</th><th>CV Death</th><th colspan="2">Recurrent MI</th><th>Heart Failure</th></tr>
<tr><td rowspan="4">TOTAL</td><td rowspan="4">All deaths with a clear cardiovascular or unknown cause will be classified as cardiovascular.</td><td colspan="2">Recurrent myocardial infarction (MI) will be subdivided into MI within the first 24 hours of randomization, between 24 hours and 7 days after randomization and more than 7 days after randomization.</td><td rowspan="4">New or worsening NYHA Class IV heart failure is defined as a physician decision to treat HF with IV diuretic, inotropic agent or vasodilator plus at least one of the following: 1) presence of pulmonary edema or pulmonary vascular congestion on chest radiograph thought to be due to HF; 2) rales reaching above the lower 1/3 of the lung fields thought to be due to HF; or 3) PCWP or LVEDP ≥ 18 mm Hg.</td></tr>
<tr><td>MI occurring within 24 hours of randomization</td><td>Recurrent ischemic symptoms greater than 20 minutes with new ST elevation greater than 0.1 millivolt in at least 2 contiguous leads not due to changes from evolution of the index MI.</td></tr>
<tr><td>MI occurring between 24 hours and 7 days of randomization</td><td>Ischemic symptoms greater than 20 minutes and either i) elevation or re-elevation of cardiac biomarkers (CK-MB or troponin) greater than twice the upper limit of normal, and if already elevated then further elevations more than 50% above a previous value that was decreasing or, ii) new ST segment elevation or, new significant Q waves in at least 2 contiguous leads, which are separate from the baseline MI.</td></tr>
<tr><td>MI occurring after 7 days of randomization</td><td>Typical rise and fall of biochemical markers of myocardial necrosis to greater than twice the upper limit of normal or if markers were already elevated, further elevation of a marker to greater than 50% of a previous value that was decreasing and > 2X ULN, with at least one of: i) ischemic symptoms, ii) development of new pathological Q waves, iii) ECG changes of new ischemia, or Pathological evidence of MI.</td></tr>
</table>

Trial	CV Death	Recurrent MI		Heart Failure
		MI occurring within 24 hours following non-index PCI that is performed more than 24 hours after randomization	Cardiac biomarker (CK-MB or troponin) greater than 3 times the upper limit of normal (ULN) or increased by 50% from the pre-procedural valley level and greater than or equal to 3 times ULN in patients with already elevated enzymes, or new ST segment elevation or development of significant Q waves in 2 or more contiguous leads which are discrete from baseline MI.	
		Within 24 hours Post-CABG	CK-MB (or Total CK, if CK-MB is unavailable) greater than or equal to 5 times ULN and increased 50% from the pre-procedural valley level AND > 5 X ULN in patients with already elevated enzymes and development new pathological Q waves in 2 or more contiguous leads, or CK-MB value greater or equal to 10 times ULN without new pathological Q waves.	
TASTE	All deaths with a clear cardiovascular or unknown cause will be classified as cardiovascular by information from national death registry.	Rehospitalization for myocardial infarction defined as ICD codes I21 and I22 by the treating physician		ICD code I50 as judged by the treating physician.
TAPAS	Death was regarded as cardiac unless an unequivocal non-cardiac cause of death was established	Reinfarction was defined as recurrent symptoms with new ST-segment elevation and elevation of cardiac markers to at least twice the upper limit of normal. +NSTEMI.		Not available
Meta-analysis definition	All deaths with a clear cardiovascular or unknown cause will be classified as cardiovascular.	Recurrent MI as per study definition 30 days, 180 days, 1 year		Heart failure (TOTAL and TASTE only)

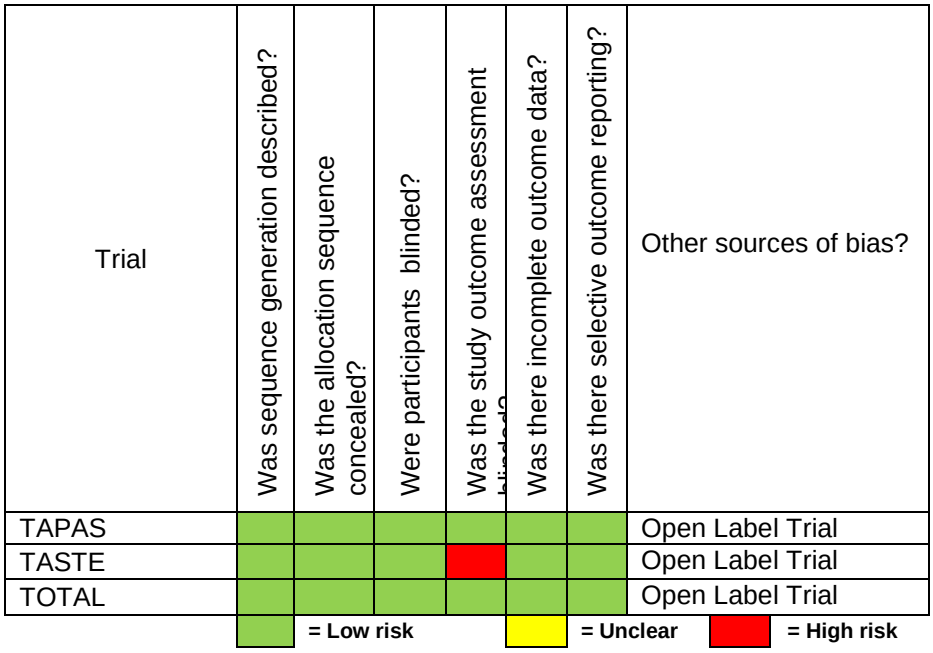
Trial	CV Death	Recurrent MI	Heart Failure
	30 days, 180 days, 1 year		

Table S2. Continued

Trial	Stroke/TIA	Definite Stent Thrombosis	TVR
TOTAL	Any stroke is defined as the presence of a new focal neurologic deficit thought to be vascular in origin, with signs or symptoms lasting more than 24 hours OR A transient episode of a new focal neurologic deficit thought to be vascular in origin, with signs or symptoms lasting <24 hours.	Academic Research Consortium Definition	Any revascularization procedure (PCI or CABG) involving the vessel treated during the index PCI procedure for STEMI.
TASTE	Procedure-related stroke or neurologic complication as judged by the treating physician or in the ward.	Defined according to the Academic Research Consortium definition for "definite and confirmed stent thrombosis" i.e.: "symptoms suggestive of an acute coronary syndrome and angiographic or pathologic confirmation of stent thrombosis". In TASTE the diagnosis of stent thrombosis was confirmed by angiography in all cases.	A new therapeutic PCI in the same coronary artery as the index procedure or coronary artery bypass surgery after the index procedure.
TAPAS	No stroke or TIA collected.	Angiographically proven stent thrombosis was defined as a complete or partial occlusion within the stented segment, with evidence of thrombus and reduced	Ischemia driven target vessel revascularization by means of PCI or CABG

Trial	Stroke/TIA	Definite Stent Thrombosis	TVR
		antegrade flow (TIMI flow <3) with a concurrent acute clinical ischaemic event	
Meta-analysis definition	Stroke/TIA 30 days, 180 days, 1 year	Definite stent thrombosis 24 hours, 30 days, 180 days, 360 days	TVR 30 days, 180 days, 1 year

Supplemental Figure S1: Risk of bias as per the Cochrane Collaboration's tool



Supplemental Figure S2: CV Death at 30 days by Study

Supplemental Figure S3: Stroke or TIA at 30 days by Study