# Impact of intraprocedural stent thrombosis on outcomes of percutaneous coronary intervention: a meta-analysis

A. Aggarwal<sup>1</sup>, A. Jain<sup>1</sup>, V. Kohli<sup>2</sup>

<sup>1</sup> Wayne State University School of Medicine, Rochester Hills, United States of America; <sup>2</sup> East Tennessee State University, Johnson, United States of America

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**Background:** Intraprocedural stent thrombosis (IPST), defined as the development of occlusive or nonocclusive new thrombus in or adjacent to a recently implanted stent before completion of PCI. IPST even though a rare entity, yet is associated with worse prognosis amongst all intraprocedural thrombotic events.

**Purpose:** Data regarding the impact of IPST is scarce and needs further investigation.

**Methods:** We performed literature search of all published full-length articles that studied and compared data on patients with IPST and with no IPST during PCI. We calculated odds ratios via the random effects model for 30 day and 1 year outcomes.

**Results:** Our literature search yielded 3 studies (1 retrospective, 2 observational post-hoc analysis) relevant to the meta-analysis. Total 19272 patients were included. IPST occurred in 159 patients (0.8%). At 30 days,

IPST was associated with statistically significant higher all-cause mortality (OR 10.79, 95% CI [6.31, 18.45] p<0.00001), MI (OR 4.82, 95% CI [2.39, 9.73] p<0.0001), target vessel revascularization (TVR) (OR 6.70, 95% CI [3.38, 13.29] p<0.00001), definite stent thrombosis (OR 10.44, 95% CI [5.87, 18.58] p<0.00001), definite or probable stent thrombosis (OR 9.28), 95% CI [5.54, 15.56] p<0.00001) and death or MI or TVR (OR 7.20], 95% CI [4.10, 12.64] p<0.00001), than those without IPST. At one year, results remained statistically significant for higher mortality (OR 4.27, 95% CI [1.92, 9.49] p=0.0004) and death or MI or TVR (OR 2.91, 95% CI [1.58, 5.36] p=0.0006) in patients with IPST.

**Conclusions:** IPST even though is a rare occurrence, is associated with more adverse ischemic events, including higher mortality at 30 days and 1 year.

#### 1.1 Mortality

	Experim	Cont	Control		Odds Ratio	Odds Ratio		Risk of Bias	
Study or Subgroup	Events	Total	Events	Total	Weight	IV, Random, 95% CI	IV, Random, 95% CI		ABCDEF
brener 2013	6	47	87	6544	37.0%	10.86 [4.49, 26.25]	9	-	
Champion 2013	9	89	106	10850	56.3%	11.40 [5.58, 23.31]	9	-	
Xu 2013	1	23	13	1878	6.7%	6.52 [0.82, 52.04]	1	-	
Total (95% Ct)		159		19272	100.0%	10.79 [6.31, 18.45]		•	
Total events	16		206						
Heterogeneity: Tau <sup>2</sup> ×	0.00; Ch?	= 0.25, 0	# = 2 (P	0.88):	P = 0%				00
Test for overall effect:	Z = 8.69 (P	< 0.000	(100				0.01 0.1 1 Favours [IPST] F		

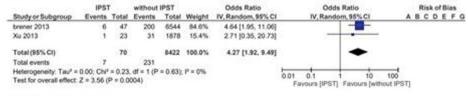
#### 1.2 Acute Mi

	IPST	t	without IPST			Odds Ratio	Odds Ratio		Risk of Bias	
Study or Subgroup	Events	Total	Events	Total	Weight	IV, Random, 95% CI	TV, Rando	m, 95% CI	ABCDEFO	
brener 2013	7	47	313	6544	32.0%	3.48 [1.55, 7.84]	440	-	- 10 (-75 pt 12 pt	
Champion 2013	24	89	473	10850	44.3%	8.10 [5.03, 13.05]		-8-		
Xu 2013	4	23	130	1878	23.7%	2.83 [0.95, 8.44]		-		
Total (95% CI)		159		19272	100.0%	4.82 [2.39, 9.73]		•		
Total events	35		916							
Heterogeneity: Tau* =	0.23; Chif	= 5.05	df = 2 (P	= 0.08)	1" = 60%		001 01	- 40	100	
Test for overall effect				- 7			0.01 0.1 Favours (IPST)	f 10 Favours (without	100 ut IPST1	

#### 1.3 Death or MI or TVR

	IPST	r.	without IPST			Odds Ratio	Odds Ratio	Risk of Bias
Study or Subgroup	Events	Total	Events	Total	Weight	ight IV, Random, 95% CI	IV, Random, 95% CI	ABCDEFG
brener 2013	6	23	163	1878	24.5%	3.71 [1.44, 9.55]	-	
Champion 2013	9	89	106	10850	34.7%	11.40 [5.58, 23.31]	-	-
Xu 2013	16	47	435	6544	40.8%	7.25 [3.93, 13.36]		
Total (95% CI)		159		19272	100.0%	7.20 [4.10, 12.64]		
Total events	31		704					
Heterogeneity: Tau <sup>4</sup> =	0.10; Chi*	= 3.46	d=2(P	= 0.18)	1" = 42%		1 1	
Test for overall effect:	Z = 6.88 (	P < 0.0	0001)				0.01 0.1 1 10 Favours [IPST] Favours [	) 100 without IPST]

## 1.7 One year mortality



### 1.8 One year Mortality or MI or TVR

	IPST	Without	IPST .		Odds Ratio	Odds Ratio		Risk of Bias	
Study or Subgroup	Events	Total	Events	Total	Weight	IV, Random, 95% CI	IV, Randor	m, 95% CI	ABCDEF
brener 2013	В	47	472	6544	63.3%	2.64 [1.23, 5.68]	3		2400-000 0000-000
Xu 2013	5	23	140	1878	36.7%	3.45 [1.26, 9.43]		-	
Total (95% CI)		70		8422	100.0%	2.91 [1.58, 5.36]		•	
Total events	13		612						
Heterogeneity: Tau* =	0.00; Chi*	= 0.17	d=1(P	= 0.68)	P = 0%		0.01 0.1	40	100
Test for overall effect:	Z = 3.44 (	P = 0.0	006)				Favours (IPST)		