



In-hospital, short-term and long-term adverse clinical outcomes observed in patients with type 2 diabetes mellitus vs non-diabetes mellitus following percutaneous coronary intervention A meta-analysis including 139,774 patients

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Abstract

Background: Several studies have shown that patients with type 2 diabetes mellitus (T2DM) have worse clinical outcomes in comparison to patients without diabetes mellitus (DM) following Percutaneous Coronary Intervention (PCI). However, the adverse clinical outcomes were not similarly reported in all the studies. Therefore, in order to standardize this issue, a meta-analysis including 139,774 patients was carried out to compare the in-hospital, short-term (<1 year) and long-term (\geq 1 year) adverse clinical outcomes in patients with and without T2DM following PCI.

Methods: Electronic databases including MEDLINE, EMBASE, and the Cochrane Library were searched for Randomized Controlled Trials (RCTs) and observational studies. The adverse clinical outcomes which were analyzed included mortality, myocardial infarction (MI), major adverse cardiac events (MACEs), stroke, bleeding, target vessel revascularization (TVR), target lesion revascularization (TLR), and stent thrombosis. Risk Ratios (RR) with 95% confidence intervals (CI) were used to express the pooled effect on discontinuous variables and the analysis was carried out by RevMan 5.3 software.

Results: A total number of 139,774 participants were assessed. Results of this analysis showed that in-hospital mortality and MACEs were significantly higher in patients with T2DM (RR 2.57; 95% CI: 1.95–3.38; P=.00001) and (RR: 1.38; 95% CI: 1.10–1.73; P=.005) respectively. In addition, majority of the short and long-term adverse clinical outcomes were also significantly higher in the DM group as compared to the non-DM group. Stent thrombosis was significantly higher in the DM compared to the non-DM group during the short term follow-up period (RR 1.59; 95% CI: 1.16–2.18;P=.004). However, long-term stent thrombosis was similarly manifested.

Conclusion: According to this meta-analysis including a total number of 139,774 patients, following PCI, those patients with T2DM suffered more in-hospital, short as well as long-term adverse outcomes as reported by most of the Randomized Controlled Trials and Observational studies, compared to those patients without diabetes mellitus.

Abbreviations: PCI = percutaneous coronary intervention, TLR = target lesion revascularization, TVR = target vessel revascularization, MACEs = major adverse cardiac effects, DM = diabetes mellitus, RCT = randomized controlled trials.

Keywords: adverse clinical outcomes, diabetes mellitus, percutaneous coronary intervention, stent thrombosis

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1. Introduction

Now a days people are used to a more sedentary lifestyle, and hence, the number of patients with type 2 diabetes mellitus (T2DM) is indirectly increasing annually. Excluding the number of undiagnosed cases, more than 171 million people suffer from T2DM throughout the globe .^[1] T2DM is often complicated by macro-vascular conditions such as coronary artery diseases (CAD) which finally leads to acute coronary syndrome.^[2] Patients with T2DM and co-existing CAD are often candidates of multi-vessel diseases. Silent myocardial infarction may easily lead to sudden cardiac death in such patients.

Even if Coronary Artery Bypass Grafting (CABG) is associated with better prognosis,^[3] Percutaneous Coronary Intervention (PCI) is the preferred mode of treatment in many patients with T2DM.

Several studies have shown T2DM to be associated with worse in-hospital, short-term, and long-term clinical outcomes following PCI in comparison to patients without diabetes.^[4,5] However,

different studies have reported different outcomes; that is, the reported outcomes were not always similar.

Therefore, in order to standardize this issue, a meta-analysis including 139,774 patients was carried out to compare the inhospital, short-term (<1 year) and long-term (\geq 1 year) adverse clinical outcomes in patients with and without T2DM following PCI.

2. Methods

2.1. Data sources and search strategy

MEDLINE, EMBASE, and the Cochrane library were searched for Randomized Controlled Trials (RCTs) and observational studies comparing post PCI outcomes in patients with vs without T2DM by typing the words "diabetes and non-diabetes and PCI". The word "PCI" was also replaced by its full form "percutaneous coronary intervention". To further enhance this search, the terms "angioplasty", "drug eluting stents" were also used. 'Google scholar was also searched for relevant publications. All references from relevant studies were also reviewed for suitable articles. No language restriction was applied.

2.2. Inclusion and exclusion criteria

Studies were included if:

- 1. They were RCTs or observational studies comparing adverse clinical outcomes in patients with vs without T2DM following PCI;
- 2. They reported in-hospital follow-up, short-term follow up (<1 year), or a long-term follow-up (≥1 year).

Studies were excluded if:

- 1. Adverse clinical outcomes were not reported among the endpoints;
- 2. They were meta-analyses or case studies;
- 3. The control group/non-diabetic group was absent;
- 4. They did not include data with discontinuous variables or data which could be easily converted to discontinuous variables.

2.3. Outcomes and follow up

The adverse clinical outcomes which were assessed included:

- 1. Mortality;
- 2. Myocardial infarction (MI);
- 3. Major adverse cardiac effects (MACEs) consisting of death, MI and revascularization;
- 4. Stent thrombosis consisting of definite and probable stent thrombosis;
- 5. Stroke;
- 6. Bleeding consisting of any type of bleeding (minor or major);
- 7. Target vessel revascularization (TVR);
- 8. Target lesion revascularization (TLR).

Follow up time period involved an in-hospital follow-up, a short-term follow up (<1 year) and a long-term follow up (1 year or more).

In-hospital follow-up time period: was defined as a follow-up period during the in hospital stay following PCI. However, a follow up period of 30 days has been considered in this in-hospital follow-up too since it included observations from day 0 to day 30.

Short-term follow-up time period: included the time period after being discharged from the hospital to less than 1 year after PCI.

Long-term follow-up time period: included a follow up time period at 1 year or more following PCI.

2.4. Data extraction and quality assessment

Six authors independently reviewed the data and assessed the eligibility and methodological quality of each eligible trial or observational cohort. Information regarding study and patient characteristics, intervention strategies, and the pre-specified clinical outcomes was systematically extracted. Disagreements were discussed and resolved by consensus. The bias risk of trials was assessed with the components recommended by the Cochrane Collaboration^[6] and those for the observational cohorts was assessed by the Newcastle Ottawa Scale (NOS). For the trial assessment using the Cochrane Collaboration, scores were given (maximum 12 points) whereby a higher score represented a lower bias risk. For the observational cohorts, assessment using the NOS involved a total maximum score of 9 points.

2.5. Statistical analysis

Study selection, data collection, analysis, and reporting of the results were performed using the recommendations of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-*Analyses*) statement.^[7] Heterogeneity across trials was assessed using the Cochrane Q statistic ($P \le .05$ was considered significant) and I^2 statistic.^[8] An I^2 value approaching 0% indicated low heterogeneity, and larger values indicated increased heterogeneity. A fixed effect model ($I^2 < 50\%$) or a random effect model ($I^2 > 50\%$) was used during the data analysis.

Publication bias was visually estimated by assessing funnel plots. We calculated risk ratios (RR) and 95% confidence intervals (CIs) for categorical variables. The pooled analyses were carried out with RevMan 5.3 software.

2.6. Ethics

This is a meta-analysis including data which were obtained from previously published studies therefore ethical approval or board review approval was not required.

3. Results

3.1. Searched outcomes

A total number of 2466 articles were identified from the search databases. Two thousand fifty six (2056) articles were excluded based on the titles and abstracts. Twelve (12) articles were added from references. One hundred forty four (144) full text articles were assessed for eligibility. Additional articles were excluded for the following reasons: they were meta-analyses, case studies, data for non-diabetics (control group) were not available, outcomes of interest were not reported and also discontinuous variables which were very important for the statistical analysis were not reported. The study selection has been represented in Figure 1.

A total number of 42 articles were included in this metaanalysis with a total number of 40,053 patients with T2DM and 99,721 patients without DM (T2DM + non-DM = 139,774patients).



Figure 1. Flow diagram representing the study selection.

3.2. Baseline features of the studies

The baseline features of the participants have been listed in Table 1. *Trial Michael 2008^[35] had 60.4% of patients with T2DM

*Trial Michael 2008^[35] had 60.4% of patients with T2DM over the age of 65 years old while 39.6% of the patients without diabetes were over 65 years of age.

Treated hyperlipidemia was considered to be in the same category as dyslipidemia.^[12]

Smoking and current smoking have been included in the same category.

Participants in the diabetic and non-diabetic groups were almost of similar age. However, in certain studies, patients without diabetes were younger.^[17] Male patients were dominant compared to female patients. Three studies consisted of more than 90% of patients suffering from hypertension.^[4,11,15] The percentage of patients with T2DM who smoke was less compared to patients without diabetes (exceptions: ^[13,18,41]).

The number of participants, stent types, and the follow up time period reported in each study have been listed in Table 2.

3.3. Outcomes associated with in-hospital follow up time period

In-hospital mortality was significantly higher in patients with T2DM (RR 2.57; 95% CI: 1.95–3.38; P < .00001). MACEs were also significantly higher in the diabetic group (RR 1.38; 95% CI: 1.10–1.73, P=.005). However, MI and bleeding were not significantly different during this in-hospital follow-up. Even if stent thrombosis was higher in the diabetic group, the result was not statistically significant. The result for the in-hospital follow up has been illustrated in Figure 2.

3.4. Outcomes associated with a short term follow up time period

The short term mortality was significantly higher in patients with T2DM (RR 2.09; 95% CI: 1.76–2.49, P < .00001). Compared to patients without diabetes mellitus (DM), MI was also significantly higher in the diabetic group (RR 1.42; 95% CI: 1.23–1.65;

	Age	(years)	Mer	1 (%)	HT	(%)	Ds	(%)	CS (%)		
Study	DM	NDM	DM	NDM	DM	NDM	DM	NDM	DM	NDM	
Adrian, 2010 ^[9]	65.4	65.0	71.0	79.9	69.9	65.3	81.5	76.7	15.8	21.7	
Ajay, 2008 ^[10]	63.0	62.1	64.7	75.0	82.1	64.5	74.0	69.6	18.4	24.9	
Ajay, 2009 ^[11]	64.0	63.3	60.4	71.0	90.6	76.7	87.1	81.4	_	_	
Ajay, 2010 ^[12]	65.3	62.3	69.3	80.2	78.6	63.7	67.7	60.8	17.0	25.4	
Akira, 2015 ^[13]	68.3	70.3	70.0	75.0	86.0	85.0	_	_	25.0	24.0	
Alexendre, 1998 ^[14]	63.0	61.0	56.6	76.3	70.4	54.2	62.0	69.1	_	_	
Asmir, 2010 ^[15]	63.6	61.0	57.1	70.9	92.5	76.2	89.9	79.1	24.2	38.7	
Bahram, 2011 ^[16]	58.1	58.2	64.7	80.6	58.8	38.0	38.2	29.5	20.6	36.4	
Bernhard, 2011 ^[17]	64.5	59.6	73.4	77.2	72.3	49.8	60.3	39.7	-	-	
Bimmer, 2011 ^[18]	61.9	61.2	83.8	86.4	66.1	56.6	74.5	62.9	27.8	23.9	
Christoph, 2013 ^[19]	60.0	58.0	68.5	80.5	68.5	43.5	57.2	50.5	28.4	41.8	
Dean. 2010 ^[20]	63.3	63.3	63.3	70.0	87.0	71.9	82.5	72.6	18.3	24.0	
Duk, 2009 ^[21]	62.7	59.7	63.9	73.0	61.6	46.4	_	_	23.2	31.3	
Eduardo, 2013 ^[22]	61.0	59.0	56.0	71.0	72.0	57.0	_	_	17.0	37.0	
Elezi, 1998 ^[23]	66.7	62.5	68.1	79.1	75.0	63.0	39.0	37.1	23.8	35.5	
Elvin. 2014 ^[24]	63.1	63.2	63.6	64.6	82.7	82.9	78.3	78.7	24.0	29.5	
Ghannudi, 2011 ^[25]	63.9	65.6	-	-	75.5	41.8	63.3	45.2	38.3	52.7	
Greaa, 2011 ^[26]	63.8	63.0	63.2	71.3	83.1	62.5	79.4	64.0	_	_	
Ibrahim, 2010 ^[4]	66.7	64.4	71.6	76.5	92.5	79.9	82.6	79.9	17.9	24.5	
Joost, 2008 ^[27]	63.5	61.2	70.0	79.0	72.1	51.5	64.8	66.3	16.2	25.8	
Jose, 2011 ^[28]	71.7	68.7	70.2	80.3	78.0	68.9	51.8	50.8	38.3	44.6	
Joseph, 2003 ^[29]	63.5	61.0	68.0	80.0	60.5	55.0	51.5	53.0	23.0	29.0	
Kishore, 2003 ^[30]	64.0	60.0	63.0	75.0	63.0	43.0	42.0	39.0	28.0	43.0	
Lisette, 2010 ^[31]	64.0	63.0	68.1	72.8	61.0	39.7	_	_	30.8	41.5	
Lisette, 2012 ^[32]	63.6	64.3	74.4	75.8	76.9	51.6	85.3	68.7	26.0	30.4	
Mai. 2012 ^[33]	67.2	67.5	52.2	66.8	86.2	69.2	66.1	68.5	18.7	29.2	
Mattie, 2006 ^[34]	66.5	63.0	69.0	74.0	69.5	59.0	74.5	59.0	20.5	26.0	
Michael, 2008 ^[35]	*	*	70.7	78.8	80.7	56.7	60.8	58.5	20.2	40.0	
Michael, 2011 ^[36]	66.0	64.5	71.5	74.0	72.0	49.0	80.0	66.5	29.0	32.5	
Min. 2012 ^[37]	66.0	63.4	66.2	72.2	_	_	4.7	5.2	53.7	60.9	
Pallav, 2008 ^[38]	65.6	64.3	62.6	70.0	87.2	70.2	84.4	71.9	15.6	22.9	
Sean, 2004 ^[39]	63.6	63.4	57.0	73.0	78.0	67.0	_	_	8.8	15.0	
Seved, 2012 ^[40]	59.0	57.4	53.0	75.8	61.4	46.1	78.7	61.5	26.4	47.0	
Shoichi, 2013 ^[41]	70.0	69.0	76.7	73.5	84.0	74.2	65.2	72.1	26.3	24.2	
Sigmund, 2013 ^[42]	65.2	63.5	66.4	74.4	87.6	73.1	86.2	76.0	18.2	22.1	
Steven, 2012 ^[43]	61.8	58.0	71.4	81.0	63.2	32.1	60.2	37.8	39.3	50.2	
Tetsuva, 2012 ^[44]	68.1	70.4	71.3	73.3	62.5	45.9	60.8	34.0	26.0	27.0	
Tobias. 2006 ^[5]	65.0	62.0	58.6	71.1	71.0	52.9	49.2	43.1	15.6	23,9	
Tomohisa. 2011 ^[45]	67.3	68.8	71.5	76.0	77.0	73.0	_	_	18.5	20,0	
Verahese, 2004 ^[46]	61.8	59.8	70.0	80.0	75.0	57.0	64.0	65.0	16.0	25.0	
Yoshinob, 2011 ^[47]	64.0	61.0	70.0	79.0	72.0	51.5	64.5	66.5	16.5	26.0	

CS = current smoker (actively smoking), DM = diabetes mellitus, Ds = dyslipidemia, HT = hypertension, NDM = non-diabetes.

P < .00001). MACEs were also significantly higher in patients with T2DM (RR 1.48; 95% CI: 1.32–1.67; P < .00001) as well as bleeding (RR 1.40; 95% CI: 1.05–1.85; P = .02). TVR was significantly higher in the diabetic group (RR 1.29; 95% CI: 1.08–1.54; P = .005). In the short-term follow up period, stent thrombosis was significantly higher in the diabetic group as compared to the non-diabetic group (RR 1.59; 95% CI: 1.16–2.18; P = .004). The result for the short term follow up has been represented in Figure 3.

3.5. Outcomes at 12 months follow-up time period

At a follow-up time period of 1 year, mortality in patients with T2DM was significantly higher (RR 1.87; 95% CI: 1.27–2.76; P=.002). MACEs were also significantly higher in the diabetics (1.57; 95% CI: 1.36–1.82; P<.00001). TVR and TLR were also significantly higher in the diabetic group (RR 1.51; 95% CI: 1.30–1.77; P<.00001) and (RR 1.51; 95% CI: 1.24–1.83;

P < .00001) respectively. However, stent thrombosis was not significantly different at 1 year follow-up. The result for the 1 year follow-up has been shown in Figure 4.

3.6. Outcomes associated with a long-term (>1 year) follow up time period

Similarly, the long-term mortality was significantly higher in patients with T2DM (RR 1.64; 95% CI: 1.45–1.86, P < .00001). Compared to patients without diabetes, MI and MACEs were also significantly higher in the diabetic group (RR 1.30; 95% CI: 1.12–1.50; P = .0004) and (RR 1.79; 95% CI: 1.36–2.36; P < .0001) respectively. TVR and TLR were also significantly higher in the diabetic group (RR 1.38; 95% CI: 1.27–1.50; P < .00001) and (RR 1.38; 95% CI: 1.27–1.50; P < .00001) and (RR 1.38; 95% CI: 1.24–1.54; P < .00001), respectively. Stroke also significantly favored non-diabetics (RR 1.86; 95% CI: 1.10–3.16; P = .02). However, the long-term (>1 year) stent thrombosis was not significantly higher in patients

Table 2

Number of patients, stents used, and the follow-up period in each study.

	Total number of patients (DM	Total number of	Types of stents used in DM and	Follow-up period	Methodological assessment score based on the CC for
Study	+NDM) (n)	DM patient (n)	NDM patients	(months)	RCT and NOS for OC
Adrian, 2010	887	225	Р	At 12	10/12
Ajay, 2008	3513	827	P, BM	48	10/12
Ajay, 2009	1490	456	Ζ, Ρ	At 12	10/12
Ajay, 2010	7832	2563	Z	12	6/9
Akira, 2015	2188	1065	D	12-60	6/9
Alexendre, 1998	954	248	PS	H, 12	5/9
Asmir, 2010	556	161	P, S	H, at 12	6/9
Bahram, 2011	163	34	_	H, 12	6/9
Bernhard, 2011	3599	593	_	1, 12	9/12
Bimmer, 2011	1742	395	S, P, BM	12-60	6/9
Christophe, 2013	1093	199	_	84	8/12
Dean, 2010	3672	1176	E, P	At 12	10/12
Duk, 2009	3160	865	P	36	7/9
Eduardo, 2013	205	64	_	120	10/12
Elezi, 1998	3554	715		1	6/9
Elvin. 2014	6334	3167	_	1. at 12	10/12
Ghannudi, 2011	436	163	P, S, BM	9	7/9
Greaa, 2011	6780	1869	D	24	9/12
Ibrahim. 2010	5218	1659	P. E	H.12	6/9
lssam. 2004	1057	279	S	Н. 9	8/12
Joost. 2008	607	159	BM. S	36	10/12
Jose, 2011	334	141	S	>20	5/9
Joseph. 2003	1307	677	S. E. Z. P	34	6/9
Kishore, 2003	3742	626	_	6	7/9
Lisette, 2010	12.347	1575	_	1. <12. >12	6/9
Lisette, 2012	2774	390	S or P	H. <12, >12	8/12
Mai. 2012	1652	297	E. S	H: >12	6/9
Mattie, 2006	2824	1877	_	12	7/9
Michael, 2008	1012	201	_	24	9/12
Michael, 2011	2332	337	S. P	18	8/12
Min. 2012	2438	921	Z. S	H. 6. at 12	7/9
Pallav, 2008	17.793	5051	BM. P. S. Z. E. B	36	7/9
Sean, 2004	4284	1142	S. P. BM	Н	5/9
Seved. 2012	2884	703		12	6/9
Shoichi, 2013	592	452	D	>12	6/9
Sigmund, 2013	2707	861	BM. DZ	24	9/12
Steven, 2012	434	119		36	7/9
Tetsuva, 2012	562	183	S. P	8	6/9
Tobias, 2006	1228	263		60	8/12
Tomohisa, 2011	10.778	4400	S	36	6/9
Verahese, 2004	11,482	2684	_	H. 9	8/12
Yoshinobu, 2011	1228	271	BM, S	60	8/12

BES = biolimus eluting stents, (BM) BMS = bare-metal stents, CC = Cochrane collaboration, (D) DES = drug-eluting stents. DES has been mentioned if the exact DES model has not been given, DM = diabetes mellitus, (E) EES = everolimus eluting stents, H = In-Hospital, Non-DM = non-diabetics, NOS = Newcastle Ottawa scale, OC = observational cohorts, (P) PES = paclitaxel eluting stents, PS = Palmaz-Schatz, (S) SES = sirolimus eluting stents, (Z) ZES = zotarolimus eluting stents.

with T2DM after PCI (P=.08). The result for the long-term (>1 year) follow up has been represented in Figure 5.

4. Discussion

The results of this analysis showed patients with T2DM to be more at risk of several adverse clinical outcomes after PCI whether during the in-hospital stay, short-term or long-term follow up period. Stent thrombosis has also been found to be higher in the DM patients during the short term follow-up period, however, the long-term risk was not significantly higher.

There are multiple possible explanations for the increased adverse outcomes in patients with T2DM following PCI. First of

all, DM is an independent risk factor for the occurrence of cardiovascular diseases.^[2] DM can even aggravate serious cardiovascular impairments. Patients with T2DM are exposed to a high risk profile with associated dyslipidemia and hypertension which could to an extent, contribute to these adverse outcomes in comparison to patients without diabetes.^[37] Furthermore, the angiographic sub-study of the PRESTO Trial demonstrated that patients with T2DM were more likely to have new lesions on angiographic follow-up compared to non-diabetic.^[46]

Patients with T2DM are often associated with different comorbid conditions such as multi-vessel diseases and previous MI. Additionally, although the total number of diseased vessels _____

ta da an Out	diabet	ics	non dial	oetics	M	Risk Ratio	Risk Ratio
tudy or Subgroup	⊨vents	i otal	⊨vents	Total	weight	wi-H, Fixed, 95% Cl	и мі-Н, Fixed, 95% СІ
	-	404	0	005	4 40/	0.04/0.00.0.001	
smir2010	5	161	6	395	1.4%	2.04 [0.63, 6.60]	
anram2011	1	34	0	129	0.1%	11.14 [0.46, 267.62]	,
orahim2010	13	1659	11	3559	2.8%	2.54 [1.14, 5.65]	
lin2012	84	921	54	1517	16.3%	2.56 [1.84, 3.57]	
ean2004	11	1142	9	3142	1.9%	3.36 [1.40, 8.09]	
erghese2004	0	2684	3	8798	0.7%	0.47 [0.02, 9.06]	
	444	0001	00	17540	23.1%	2.57 [1.95, 5.50]	
eterogeneity: Chi ² = 2 est for overall effect: 2	.60, df = 5 2 = 6.68 (F	5 (P = 0. P < 0.00	83 .76); l² = (001))%			
1.2 Myocardial Infar	ction						
smir2010	1	158	6	395	1 4%	0 42 [0 05 3 43]	
ahram2011	1	2/	1	120	0.2%	3 79 10 24 50 111	
ananzon rahim2010	י 19	1650	\2 1	3550	۰، ۲۰۰ ۱۱ ۵۰/		
	10	2604	40	2700	2 50/	0.80 [0.32, 1.35]	
ubtotal (95% CI)	5	∠004 4535	19	12881	3.5% 16.0%	0.88 [0.56 1.39]	-
otal events	25		60		/ / /	0.00 [0.00, 1.00]	T
eterogeneity: Chi² - 1	58 df = 1	R (P = 0	66): 12 = 0	1%			
est for overall effect: Z	2 = 0.55 (F	P = 0.58)	70			
.1.3 Stroke							
orahim2010	8	1659	18	3559	4.6%	0.95 [0.42, 2.19]	
ubtotal (95% CI)		1659		3559	4.6%	0.95 [0.42, 2.19]	\bullet
otal events	8		18				
eterogeneity: Not app	licable						
est for overall effect: Z	2 = 0.11 (F	> = 0.91)				
1 A Major Advorce C	ardiaa Ef	ffooto					
- hand a set of the se			10	100	4 70/	0.04 14 00 7 403	
anram2011	8	34	10	129	1.7%	3.04 [1.30, 7.10]	
Iezi1998	48	715	108	2839	17.4%	1.76 [1.27, 2.45]	
orahim2010	38	1659	68	3559	17.3%	1.20 [0.81, 1.78]	_ 1
sam2004	4	279	17	778	3.6%	0.66 [0.22, 1.93]	
eyed2012	6	703	27	2181	5.3%	0.69 [0.29, 1.66]	
uptotal (95% CI)		3390		9486	45.2%	1.38 [1.10, 1.73]	
otal events	104		230	0.101			
eterogeneity: Chi ² = 1 est for overall effect: 2	0.13, df = Z = 2.81 (F	9 = 0.00	0.04); I² = 5)	61%			
1.5 Bleedina							
smir2010	5	160	20	305	4.6%	0 62 [0 24 1 62]	
ahram2011	1	21	20	120		3 79 10 24 50 111	
ananzon rahim2010	י 10	1650	1/	3550	3.6%	184 [0.24, 33.11]	<u> </u>
ubtotal (95% CI)	12	1853	14	4083	3.0% 8.3%	1.20 [0.68 2.12]	
otal events	10	1000	35	-003	0.070	1.20 [0.00, 2.12]	\mathbf{T}
eterogeneity: Chi ² = 3 est for overall effect: 2	.69, df = 2 2 = 0.64 (F	2 (P = 0. P = 0.52	.16); l² = 4)	16%			
.1.6 Stent thrombosi	S						
smir2010	1	161	1	395	0.2%	2.45 [0.15, 38.99]	
sette2012	4	316	37	3339	2.6%	1.14 [0.41, 3.18]	
ubtotal (95% CI)		477		3734	2.8%	1.25 [0.48, 3.25]	\bullet
otal events	5		38				
eterogeneity: Chi² = 0 est for overall effect: Z	.26, df = ´ Z = 0.46 (F	1 (P = 0. P = 0.65	.61); I² = ())%			
				54000	400.00/	4 54 54 22 4 701	
otal (95% CI)		18515		512XX	100.0%	1.34 1 32 1 791	
otal (95% CI)	074	18515	470	51283	100.0%	1.54 [1.52, 1.79]	
otal (95% CI) otal events	274	18515	473	51283	100.0%	1.54 [1.32, 1.79]	

Figure 2. Forest plot comparing the in-hospital adverse clinical outcomes observed in patients with vs without type 2 diabetes mellitus following PCI. PCI = percutaneous coronary intervention.

1.2.1 Mortality	Events	ics Total	non dial Events	betics Total	Weight	Risk Ratio <u>M-H, Ra</u> ndom, 95% Cl	Risk Ratio <u>M-</u> H, Random, 95% Cl
						,	,,
Bahram2011	0	34	5	129	0.1%	0.34 [0.02, 5.96]	· · · · · · · · · · · · · · · · · · ·
Bernhard2011	27	593	66	3006	1.9%	2.07 [1.34, 3.22]	
Elvin2014	22	3167	12	3167	1.0%	1.83 [0.91, 3.70]	
Ghannudi2011	14	163	11	273	0.9%	2.13 [0.99, 4.58]	
brahim2010	93	1659	121	3559	2.9%	1.65 [1.27, 2.15]	-
(ishore2003	48	626	128	3116	2.6%	1.87 [1.35, 2.57]	
isette2012	55	316	260	3339	2.9%	2.24 [1.71, 2.92]	-
Aattie2006	134	1877	21	947	1.8%	3.22 [2.05, 5.07]	
/lin2012	103	921	66	1517	2.7%	2.57 [1.91, 3.46]	-
Seyed2012	5	703	25	2181	0.6%	0.62 [0.24, 1.61]	
/erghese2004	57	2684	75	8798	2.4%	2.49 [1.77, 3.51]	
Subtotal (95% CI)		12743		30032	19.9%	2.09 [1.76, 2.49]	•
Fotal events Heterogeneity: Tau² = 0. Fest for overall effect: Z	558 .03; Chi ² . = 8.34 (F	= 18.04 P < 0.00	790 , df = 10 (001)	P = 0.05)); l² = 45%		
.2.2 Myocardial Infarc	tion						
Sahram2011	3	34	9	129	0.4%	1 26 [0 36 4 42]	
Bernhard2011	15	593	51	3006	1.4%	1.49 [0.84, 2.63]	—
lvin2014	82	3167	75	3167	2.6%	1.09 [0.80, 1.49]	+-
Shannudi2011	14	163	15	273	1.0%	1.56 [0.77, 3.15]	
orahim2010	68	1659	107	3559	2.7%	1.36 [1.01, 1.84]	
lishore2003	28	626	118	3116	2.1%	1.18 [0.79. 1.77]	+
isette2012	24	316	111	3339	2.0%	2.28 [1.49. 3.50]	
Aattie2006	90	1877	24	947	1.9%	1.89 [1.21. 2.95]	
/in2012	6	921	11	1517	0.6%	0.90 [0.33, 2.42]	
Seved2012	10	703	26	2181	1.0%	1.19 [0.58, 2.46]	
/erghese2004	50	2684	108	8798	2.5%	1.52 [1.09. 2.12]	
Subtotal (95% CI)		12743		30032	18.1%	1.42 [1.23, 1.65]	♦
otal events leterogeneity: Tau ² = 0	390 .01; Chi ²	= 11.37	655 , df = 10 (P = 0.33); l² = 12%		
est for overall effect: Z	= 4.71 (F	² < 0.00	001)				
.2.3 Stent thrombosis	;						
Ivin2014	26	3167	15	3167	1.2%	1.73 [0.92, 3.27]	+
3hannudi2011	15	163	7	273	0.7%	3.59 [1.49, 8.62]	· · · · ·
brahim2010	81	1659	117	3559	2.8%	1.49 [1.13, 1.96]	
isette2010	28	1575	167	10772	2.1%	1.15 [0.77, 1.71]	
isette2012	2	316	7	3339	0.3%	3.02 [0.63, 14.47]	
Subtotal (95% CI)		6880		21110	7.1%	1.59 [1.16, 2.18]	◆
otal events	152		313				
leterogeneity: Tau ² = 0. est for overall effect: Z	.05; Chi ² = 2.89 (F	= 6.54, P = 0.00	df = 4 (P : i4)	= 0.16); l [:]	' = 39%		
	(.		.,				
.2.4 Major adverse ca	rdiac eff	ects					
Bahram2011	12	34	37	129	1.5%	1.23 [0.72, 2.09]	
Sernhard2011	48	593	150	3006	2.6%	1.62 [1.19, 2.22]	-
lvin2014	119	3167	99	3167	2.9%	1.20 [0.92, 1.56]	+ -
Shannudi2011	29	163	38	273	1.9%	1.28 [0.82, 1.99]	+
brahim2010	181	1659	253	3559	3.5%	1.53 [1.28, 1.84]	
ssam2004	49	279	88	778	2.6%	1.55 [1.13, 2.14]	
(ishore2003	113	626	467	3116	3.5%	1.20 [1.00, 1.45]	-
/in2012	175	921	159	1517	3.4%	1.81 [1.49, 2.21]	-
Seyed2012	24	703	38	2181	1.6%	1.96 [1.18, 3.24]	
etsuya2012	32	183	36	379	1.9%	1.84 [1.18, 2.86]	· · ·
Subtotal (95% CI)		8328		18105	25.4%	1.48 [1.32, 1.67]	•
fotal events	782	- 14 60	1365	- 0 101	12 - 208/		
est for overall effect: Z	= 6.53 (F	= 14.69 > < 0.00	, df = 9 (P 001)	= 0.10);	1- = 39%		
							1
.2.5 Bleeding							
.2.5 Bleeding Bernhard2011	54	593	197	3006	2.8%	1.39 [1.04, 1.85]	
.2.5 Bleeding Bernhard2011 Bhannudi2011	54 2	593 163	197 2	3006 273	2.8% 0.2%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78]	
.2.5 Bleeding Bernhard2011 Ghannudi2011 Subtotal (95% CI)	54 2	593 163 756	197 2	3006 273 3279	2.8% 0.2% 2.9 %	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85]	 •
.2.5 Bleeding lernhard2011 Shannudi2011 Subtotal (95% CI) Total events	54 2 56	593 163 756	197 2 199	3006 273 3279	2.8% 0.2% 2.9 %	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85]	 ◆
.2.5 Bleeding lernhard2011 Shannudi2011 Jubtotal (95% CI) Total events leterogeneity: Tau ² = 0 est for overall effect: Z	54 2 56 .00; Chi ² = 2.29 (F	593 163 756 = 0.03, P = 0.02	197 2 199 df = 1 (P =)	3006 273 3279 = 0.85); F	2.8% 0.2% 2.9% ² = 0%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85]	 •
.2.5 Bleeding ternhard2011 Shannudi2011 Jotal (95% CI) Jotal events leterogeneity: Tau ² = 0 est for overall effect: Z .2.6 Target vessel rev	54 2 56 .00; Chi² = 2.29 (F	593 163 756 = 0.03, P = 0.02 zation	197 2 199 df = 1 (P =	3006 273 3279 = 0.85); F	2.8% 0.2% 2.9% ² = 0%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85]	
.2.5 Bleeding ternhard2011 bhannudi2011 ubtotal (95% CI) iotal events leterogeneity: Tau ² = 0 iest for overall effect: Z .2.6 Target vessel rev ternhard2011	54 2 56 .00; Chi ² = 2.29 (F asculari 18	593 163 756 = 0.03, P = 0.02 zation 593	197 2 199 df = 1 (P =	3006 273 3279 = 0.85); F 3006	2.8% 0.2% 2.9% ² = 0%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27]	
.2.5 Bleeding Jernhard2011 Shannudi2011 Bubtotal (95% CI) fotal events leterogeneity: Tau ² = 0 fest for overall effect: Z .2.6 Target vessel rev Dernhard2011 Livin2014	54 2 56 .00; Chi ² = 2.29 (F rasculari: 18 38	593 163 756 = 0.03, P = 0.02 zation 593 3167	197 2 199 df = 1 (P 2) 67 30	3006 273 3279 = 0.85); F 3006 3167	2.8% 0.2% 2.9% ² = 0% 1.6% 1.7%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04]	
.2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) Total events set for overall effect: Z .2.6 Target vessel rev Dernhard2011 Ivin2014 orahim2010	54 2 56 .00; Chi ² = 2.29 (F vasculari 18 38 199	593 163 756 = 0.03, P = 0.02 zation 593 3167 1659	197 2 199 df = 1 (P 2) 67 30 370	3006 273 3279 = 0.85); F 3006 3167 3559	2.8% 0.2% 2.9% ² = 0% 1.6% 1.7% 3.6%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36]	
2:5 Bleeding lernhard2011 Shannudi2011 Subtotal (95% CI) total events leterogeneity: Tau ² = 0 rest for overall effect: Z 2:6 Target vessel rev lernhard2011 livin2014 sam2010 sam2004	54 2 56 .00; Chi ² = 2.29 (F rasculari 18 38 199 49	593 163 756 = 0.03, > = 0.02 zation 593 3167 1659 279	197 2 199 df = 1 (P =	3006 273 3279 = 0.85); F 3006 3167 3559 778	2.8% 0.2% 2.9% ² = 0% 1.6% 1.7% 3.6% 2.5%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28]	
.2.5 Bleeding Jernhard2011 Shanudi2011 Jubtotal (95% CI) otal events Jeterogeneity: Tau ² = 0 fest for overall effect: Z .2.6 Target vessel rev Jernhard2011 Jivin2014 orahim2010 ssam2004 Sishore2003	54 2 56 .00; Chi ² = 2.29 (F rasculari 18 38 199 49 59	593 163 756 = 0.03, 2 = 0.02 zation 593 3167 1659 279 626	197 2 199 df = 1 (P 2) 67 30 370 83 343	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116	2.8% 0.2% 2.9% ² = 0% 1.6% 1.7% 3.6% 2.5% 2.9%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11]	
.2.5 Bleeding lernhard2011 shannudi2011 subtotal (95% CI) otal events leterogeneity: Tau ² = 0 cest for overall effect: Z .2.6 Target vessel rev lernhard2011 livin2014 orahim2010 ssam2004 lisbner2003 seved2012	54 2 56 .00; Chi ² = 2.29 (F vasculari 18 38 199 49 59 59	593 163 756 = 0.03, 2 = 0.02 zation 593 3167 1659 279 626 703	197 2 199 df = 1 (P 3) 67 30 370 83 343 23	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181	2.8% 0.2% 2.9% ² = 0% 1.6% 1.7% 3.6% 2.9% 1.2%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.77]	
.2.5 Bleeding lernhard2011 shannudi2011 lubtotal (95% CI) otal events leterogeneity: Tau ² = 0 jest for overall effect: Z .2.6 Target vessel rev lernhard2011 itvin2014 ishore2013 ishore2003 leyed2012 (erghese2004	54 2 56 .00; Chi ² = 2.29 (F rasculari 18 38 199 49 59 17 480	593 163 756 = 0.03, 2 = 0.02 zation 593 3167 1659 279 626 703 2684	197 2 199 df = 1 (P)) 67 30 370 83 343 23 1128	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798	2.8% 0.2% 2.9% 2 = 0% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 4.0%	1.39 [1.04, 1.85] 1.67 [0.24, 11,78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54]	
.2.5 Bleeding ternhard2011 shamud2011 ubtotal (95% CI) otal events leterogeneity: Tau ² = 0 est for overall effect: Z .2.6 Target vessel rev ternhard2011 tivin2014 orahim2010 ssam2004 lishore2003 teyed2012 terghese2004 uibtotal (95% CI)	54 2 56 .00; Chi ² = 2.29 (F rasculari 18 38 199 49 59 17 480	593 163 756 = 0.03, 2 = 0.02 zation 593 3167 1659 279 626 703 2684 9711	197 2 199 df = 1 (P) 67 30 370 83 343 23 1128	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798 24605	2.8% 0.2% 2.9% 2 = 0% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 4.0% 17.6%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54]	
2.5 Bleeding lernhard2011 Shannudi2011 Subtotal (95% CI) otal events leterogeneity: Tau ² = 0 iest for overall effect: Z 2.6 Target vessel rev iernhard2011 ivin2014 srahim2010 sishore2003 eyed2012 'erghese2004 ubtotal (95% CI) otal events	54 2 56 .00; Chi ² = 2.29 (f *asculari 18 38 199 49 59 17 480 860	593 163 756 = 0.03, 2 = 0.02 zation 593 3167 1659 279 626 703 2684 9711	197 2 199 df = 1 (P 30 370 83 343 23 1128 2044	3006 273 3279 = 0.85); I 3006 3167 3559 778 3116 2181 8798 24605	2.8% 0.2% 2.9% * = 0% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 4.0% 17.6%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54]	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) otal events teterogeneity: Tau ² = 0 'est for overall effect: Z 2.6 Target vessel rev Jernhard2011 Sivin2014 Jernhard2011 Sivin2014 Jernhard2013 Sivin2014 Jerghese2004 Sibhore2003 Jeyed2012 (reghese2004 Subtotal (95% CI) otal events Ieterogeneity: Tau ² = 0 'est for overall effect: Z	54 2 56 .00; Chi ² = 2.29 (F *asculari 18 38 199 49 59 17 480 860 .03; Chi ² = 2.78 (F	593 163 756 = 0.03, > = 0.02 zation 593 3167 1659 279 626 703 2684 9711 = 19.13 2 = 0.00	197 2 199 df = 1 (P 30 370 83 343 23 1128 2044 , df = 6 (P 5)	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798 24605 = 0.004	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 2.9% 4.0% 17.6% y; l² = 69%	1.39 [1.04, 1.85] 1.67 [0.24, 11,78] 1.40 [1.05, 1.85] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54]	
2.5 Bleeding Jernhard2011 Shannudi2011 Jubtotal (95% CI) Total events set for overall effect: Z 2.6 Target vessel rev Dernhard2011 Jivin2014 orahim2010 ssam2004 (sishore2003 seyed2012 (erghese2004 Jubtotal (95% CI) Total events leterogeneily: Tau ² = 0 set for overall effect: Z 2.7 Target Lesion com	54 2 56 .00; Chi ² = 2.29 (F vasculari 18 38 199 49 59 17 480 860 .03; Chi ² = 2.78 (F	593 163 756 = 0.03, > = 0.02 zation 593 3167 1659 279 626 703 2684 9711 = 19.13 > = 0.00 zation	197 2 199 df = 1 (P) 67 30 370 83 343 23 1128 2044 , df = 6 (P 5)	3006 273 3279 = 0.85); I ² 3006 3167 3559 778 3166 2181 8798 24605 = 0.004)	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 2.9% 4.0% 17.6% y; l ² = 69%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54]	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) Total events teterogeneity: Tau ² = 0 rest for overall effect: Z 2.6 Target vessel events ternhard2011 Ixin2014 Jernhard2011 Sishore2003 Jeyed2012 Verghese2004 Jubtotal (95% CI) Total events teterogeneity: Tau ² = 0 fest for overall effect: Z 2.7 Target Lesion rev Liven2014	54 2 56 .00; Chi ² = 2.29 (f rasculari 18 38 199 49 59 17 480 860 .03; Chi ² = 2.78 (f rasculari	593 163 756 = 0.03, > = 0.02 zation 593 3167 1659 279 626 703 2684 9711 = 19.13 > = 0.00 zation 2684	197 2 199 df = 1 (P) 67 30 370 83 343 23 1128 2044 , df = 6 (P 5)	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798 24605	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 17.6% 17.6%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54]	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) ofal events teterogeneity: Tau* = 0 Test for overall effect: Z .2.6 Target vessel rev Jernhard2011 Evin2014 Drahin2010 Subtotal (95% CI) ofal events teterogeneity: Tau* = 0 Test for overall effect: Z .2.7 Target Lesion rev Evin2014 Denovd/2015	54 2 56 .00; Chi ² = 2.29 (F vasculari 18 38 199 49 59 17 480 860 .03; Chi ² = 2.78 (F vasculari 31	593 163 756 = 0.03, p = 0.02 zation 593 3167 703 2684 9711 = 19.13 p = 0.00 zation 16.59 27.9 62.6 70.3 26.84 97.11 = 19.13 p = 0.00 zation 16.59 27.9 19.13 26.84 19.13 27.5 16.70 27.5	197 2 df = 1 (P) 67 370 83 343 23 1128 2044 , df = 6 (F 5)	3006 273 3279 = 0.85); I 3006 3167 3559 778 3116 2181 8798 24605 = 0.004; 3167	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 4.0% 17.6% 1.2% 1.5%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 4.57]	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) Total events leterogeneity: Tau ² = 0 rest for overall effect: Z 2.6 Target vessel rev Jernhard2011 Jivin2014 orahin2010 ssam2004 Jishore2003 beyed2012 ferghese2004 bubtotal (95% CI) Total events leterogeneity: Tau ² = 0 rest for overall effect: Z 2.7 Target Lesion rev Livin2014 Shannudi2011	54 2 56 0.00; Chi ² = 2.29 (F rasculari 18 38 199 49 59 17 480 860 0.03; Chi ² = 2.78 (F rasculari 31 13	593 163 756 = 0.03, P = 0.02 zation 593 3167 1659 279 626 703 2684 9711 = 19.13 P = 0.00 zation 3167 162 0.00	197 2 df = 1 (P 3) 67 30 370 83 343 23 1128 2044 , df = 6 (P 5) 23 26	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798 24605 : = 0.004; 3167 273	2.8% 0.2% 2.9% 2 = 0% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 1.2% 17.6% 1.2% 1.5% 1.2%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 1.59]	
2.5 Bleeding Jernhard2011 Shannudi2011 Shannudi2011 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Test for overall effect: Z 2.6 Target vessel rev Jernhard2011 Evin2014 Sam2004 Sishore2003 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Test for overall effect: Z 1.2.7 Target Lesion rev Evin2014 Shannudi2011 Ssam2004	54 2 56 200; Chi ² = 2.29 (F asculari 18 38 199 49 59 17 480 860 .03; Chi ² = 2.78 (F vasculari 31 13 42	593 163 756 = 0.03, P = 0.02 zation 593 3167 1659 279 9711 = 19.13 2684 9711 = 19.13 2 = 0.00 zation 3167 162 2 = 0.00 2 = 0.0	197 2 199 df = 1 (P)) 67 30 370 83 343 23 1128 2044 ; df = 6 (P 5) 23 26 65	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798 24605 ' = 0.004] 3167 273 778	2.8% 0.2% 2.9% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 2.5% 1.2% 4.0% 17.6% 17.6% 1.2% 2.3%	1.39 [1.04, 1.85] 1.67 [0.24, 11,78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.08, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 1.59] 1.80 [1.25, 2.59] 1.80 [1.25, 2.59]	
2.5 Bleeding Jernhard2011 Shannud2011 Shannud2011 Subtotal (95% CI) Total events Teterogeneity: Tau ² = 0 rest for overall effect: Z 2.2.6 Target vessel rev Jernhard2011 Evin2014 Drahim2010 Ssam2004 Stabtotal (95% CI) Total events Heterogeneity: Tau ² = 0 rest for overall effect: Z 1.2.7 Target Lesion rev Evin2014 Shannud2011 Shannud2011 Shannud2011 Shanud2014 Sh	54 2 56 .00; Chi ² = 2.29 (f 'asculari 18 38 199 49 59 17 480 .03; Chi ² = 2.78 (f 'asculari 31 13 42 2.23 (f) 'asculari 13 32	$\begin{array}{c} 593\\ 163\\ 756\\ \end{array}$	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 i, df = 6 (P 5) 23 26 65 538	3006 273 3279 = 0.85); F 3006 3167 7559 778 316 2181 8798 24605 ' = 0.004] ' = 0.004] 3167 273 778 5157	2.8% ().2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 1.2% 1.2% 2.3% 1.5% 1.2% 2.3% 1.8%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 1.59] 1.80 [1.25, 2.59] 1.30 [0.77, 2.23]	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) Total events leterogeneily: Tau ² = 0 rest for overall effect: Z .2.6 Target vessel rev Jernhard2011 Ivin2014 Jernhard2011 Ivin2014 Jese2004 Jubtotal (95% CI) Total events leterogeneily: Tau ² = 0 rest for overall effect: Z .2.7 Target Lesion rev Ivin2014 Jinanudi2011 ssam2004 Jin2012 Seyed2012	54 2 566 1.00; Chi ² = 2.29 (F vasculari 18 38 199 49 59 17 480 860 .03; Chi ² = 2.78 (F vasculari 31 13 42 32 7	593 163 756 = 0.03, 756 = 0.02 zation 593 3167 1659 279 6266 703 2684 9711 = 19.13 5 = 0.00 zation 3167 162 279 921 703	197 2 199 df = 1 (P 2) 67 300 370 83 343 23 1128 2044 5, df = 6 (P 5) 23 26 65 36 8 23	3006 273 3279 = 0.85); I 3006 3167 3559 778 3116 2181 8798 24605 ' = 0.004; ' = 0.004; ' = 0.004; ' = 0.778 3167 273 778 1517 2181	2.8% 0.2% 2.9% 2 = 0% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 4.0% 17.6% 17.6% 1.2% 2.3% 1.2% 2.3% 1.8% 0.8%	1.39 [1.04, 1.85] 1.67 [0.24, 11,78] 1.40 [1.05, 1.85] 1.36 [0.82, 2.27] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 1.59] 1.80 [1.25, 2.59] 1.39 [0.87, 2.20] 0.94 [0.41, 2.19]	
2.5 Bleeding Jernhard2011 Shannudi2011 Shannudi2011 Subtotal (95% CI) Total events Test for overall effect: Z 1.2.6 Target vessel rev Bernhard2011 Evin2014 Drahim2010 Ssam2004 Kishore2003 Seyed2012 Verghese2004 Subtotal (95% CI) Total events Test for overall effect: Z 1.2.7 Target Lesion rev Evin2014 Shannudi2011 Shanud201 Shanud201 Shanud201 Shanud2011 Shanud2011 Shanud201 Shan	54 2 506; Chi ² H ascularii 18 38 39 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	593 163 756 = 0.03, 756 = 0.02, 756 = 0.02 zation 593 3167 1659 279 626 703 279 626 49711 = 19.13 2684 9711 = 19.13 3167 162 279 921 1703 162 279 921 1703 183	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 ; df = 6 (P 5) 23 26 65 38 23 36	3006 273 3279 3006 3167 3559 778 3166 2181 8798 24605 2181 8798 24605 2181 8798 24605 2181 8798 2181 8798 2181 8798 2181 8798 2181 8798 2181 8798 2181 879 2181 879 2181 879 2181 2181 2181 2181 2181 2181 2181 218	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 17.6% 17.6% 17.6% 1.5% 2.3% 1.8% 0.8% 0.8% 1.3%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 1.59] 1.39 [0.87, 2.20] 0.94 [0.41, 2.19] 0.81 [0.45, 1.45]	
2.5 Bleeding Jernhard2011 Shannudi2011 Shannudi2011 Subtotal (95% CI) Total events teterogeneity: Tau ² = 0 Ternhard2011 Evin2014 Brahim2010 ssam2004 Kishore2003 Subtotal (95% CI) Total events teterogeneity: Tau ² = 0 Test for overall effect: Z 1.2.7 Target Lesion rev Evin2014 Shannudi2011 Ssam2004 Min2012 Seyed2012 Teisupa2012 Seyed2012 Seyed2012 Seyed2012 Seyed2012 Seyed2012 Seye	54 2 56 (.00; Chi ² = 2.29 (f rasculari 18 38 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 7 7 480 860 0.03; Chi ² 17 480 860 0.03; Chi ² 17 480 860 17 480 860 17 17 18 87 17 18 18 18 18 19 17 17 18 18 18 19 19 17 17 18 18 19 19 17 17 18 18 18 18 19 19 19 17 17 18 18 19 19 17 17 18 18 19 19 17 17 18 18 19 19 19 17 17 18 18 19 19 17 17 18 18 18 19 19 17 17 18 18 19 17 17 18 18 18 19 17 17 18 18 18 19 17 17 18 18 19 17 17 18 18 19 17 17 18 18 18 18 19 17 17 18 19 17 17 18 18 19 17 17 18 18 18 19 17 17 18 18 19 17 17 18 18 19 17 17 18 18 19 17 17 18 19 17 17 17 18 19 17 17 17 18 19 17 17 18 18 19 17 17 18 19 17 17 18 19 17 17 17 17 17 17 18 18 19 17 17 17 17 17 17 17 17 17 17 17 17 17	593 163 756 = 0.03, 756 = 0.02 zation 1659 279 626 703 2884 9711 = 19.13 2 = 0.00 ization 3167 703 2884 9711 = 0.02 279 921 709 279 921 709 279 921 703 3167 1659 279 921 703 3167 1659 279 921 703 3167 1659 279 921 3167 3163 3167 3163 3167 3163 3167 3163 3163 3167	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 5 5) 23 26 65 38 23 36	3006 273 3279 3006 3167 758 2181 824605 2181 824605 2181 824605 2181 81517 2181 319 24605 219 219 219 219 219 219 219 219 219 219	2.8% 0.2% 2.9% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 2.9% 1.2% 4.0% 17.6% 1.2% 1.9% 1.2% 1.9	$\begin{array}{c} 1.39 \left[1.04, 1.85 \right] \\ 1.67 \left[0.24, 11.76 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.27 \left[0.79, 2.04 \right] \\ 1.15 \left[0.98, 1.36 \right] \\ 1.65 \left[1.19, 2.28 \right] \\ 0.86 \left[0.66, 1.11 \right] \\ 2.29 \left[1.23, 4.27 \right] \\ 1.39 \left[1.27, 1.54 \right] \\ 1.29 \left[1.08, 1.54 \right] \\ 1.35 \left[0.79, 2.31 \right] \\ 0.84 \left[0.46, 1.59 \right] \\ 1.80 \left[1.25, 2.59 \right] \\ 1.39 \left[0.87, 2.20 \right] \\ 0.81 \left[0.45, 1.46 \right] \\ 0.81 \left[0.45, 1.46 \right] \\ 0.81 \left[0.45, 1.46 \right] \\ 1.23 \left[0.93, 1.63 \right] \end{array}$	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) otal events leterogeneity: Tau ² = 0 cest for overall effect: Z 2.6 Target vessel rev Jernhard2011 Livin2014 Jernhard2010 Seare 2004 Jishore2003 Seyed2012 Verghese2004 Jishore2003 Seyed2012 Verghese2004 Jishore2003 Seyed2012 Verghese2004 Jishore2003 Seyed2012 Verghese2004 Jishore2004 Jishannudi2011 Ssam2004 Jina012 Seyed2012 Verghese2012 Subtotal (95% CI) Otal events	54 2 56 6 0.00; Chi ² = 2.29 (F rascularin 18 8 88 199 49 59 17 480 0.03; Chi ² = 2.78 (F rasculari 31 13 42 32 2 7 7 14	$\begin{array}{c} 593\\ 163\\ 756\\ =0.03,\\ 756\\ 920, 0.02\\ \textbf{zation}\\ 593\\ 3167\\ 1659\\ 279\\ \textbf{9711}\\ \textbf{9711}\\ \textbf{9711}\\ \textbf{9711}\\ \textbf{9711}\\ \textbf{162}\\ 279\\ \textbf{9711}\\ 162\\ 279\\ \textbf{921}\\ 162\\ 279\\ \textbf{921}\\ 162\\ 279\\ \textbf{921}\\ 162\\ 3167\\ 162\\ 279\\ \textbf{921}\\ 162\\ 3167\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 316\\ 162\\ 162\\ 162\\ 162\\ 162\\ 162\\ 162\\ 1$	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 4, df = 6 (P 5) 23 26 65 38 23 36 2211	3006 273 3279 = 0.85); F 3006 3167 3559 218 3167 2181 378 24605 3167 273 778 3167 273 778 3167 273 379 8295	2.8% 0.2% 2.9% 2 = 0% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 17.6% 17.6% 1.2% 2.3% 1.8% 0.8% 1.3% 8.9%	$\begin{array}{c} 1.39 \left[1.04, 1.85 \right] \\ 1.67 \left[0.24, 11.78 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.27 \left[0.79, 2.04 \right] \\ 1.15 \left[0.98, 1.36 \right] \\ 1.65 \left[1.19, 2.28 \right] \\ 0.86 \left[0.66, 1.11 \right] \\ 2.29 \left[1.23, 4.27 \right] \\ 1.39 \left[1.23, 4.27 \right] \\ 1.39 \left[1.08, 1.54 \right] \\ 1.29 \left[1.08, 1.54 \right] \\ 1.35 \left[0.79, 2.31 \right] \\ 0.84 \left[0.45, 1.59 \right] \\ 1.80 \left[1.25, 2.59 \right] \\ 1.39 \left[0.87, 2.20 \right] \\ 0.94 \left[0.44, 2.19 \right] \\ 0.81 \left[0.45, 1.46 \right] \\ 1.23 \left[0.93, 1.63 \right] \end{array}$	
2.5 Bleeding Jernhard2011 Shannudi2011 Subtotal (95% CI) Otal events Heterogeneity: Tau ² = 0 Test for overall effect: Z .2.6 Target vessel rev Jernhard2011 Sivin2014 Sam2004 Sibore2003 Sieyed2012 (erghese2004 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 rest for overall effect: Z .2.7 Target Lesion rev Sivin2014 Shannudi2011 Sam2004 Sinanudi2011 Sam2004 Sinanudi2011 Sim2014 Shannudi2011 Sim2014 Simanudi2011 Sim2004 Sinanudi201 Sim2004 Sinanudi201 Sim2004 Sinanudi201 Sim2004 Sim20	54 2 56 (00; Chi ²) = 2.29 (F rasculari 18 38 199 49 59 17 480 860 (03; Chi ²) = 2.78 (F rasculari 31 13 43 23 22 7 7 14	$\begin{array}{c} 593\\ 163\\ 756\\ =0.03,\\ 756\\ 920\\ 2ation\\ 593\\ 3167\\ 1659\\ 279\\ 9711\\ =19.13\\ 2684\\ 9711\\ =19.13\\ 3167\\ 162\\ 279\\ 921\\ 162\\ 200\\ 100\\ 100\\ 100\\ 100\\ 100\\ 100\\ 10$	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 4, df = 6 (P 5) 23 26 65 38 23 36 211 df = 5 (P	3006 273 3279 = 0.85); F 3006 3167 3559 218 3167 2181 8798 22605 3167 273 778 3167 273 778 1517 1217 273 379 8295 = 0.004;	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 17.6% 1.2% 2.3% 1.8% 0.8% 1.3% 8.9% 2.3%	$\begin{array}{c} 1.39 \left[1.04, 1.85 \right] \\ 1.67 \left[0.24, 11.78 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.27 \left[0.79, 2.04 \right] \\ 1.15 \left[0.98, 1.36 \right] \\ 1.65 \left[1.19, 2.28 \right] \\ 0.86 \left[0.66, 1.11 \right] \\ 2.29 \left[1.23, 4.27 \right] \\ 1.39 \left[1.27, 1.54 \right] \\ 1.29 \left[1.08, 1.54 \right] \\ 1.29 \left[1.08, 1.54 \right] \\ 1.35 \left[0.79, 2.31 \right] \\ 0.84 \left[0.45, 1.59 \right] \\ 1.80 \left[1.25, 2.59 \right] \\ 1.39 \left[0.87, 2.20 \right] \\ 0.94 \left[0.41, 2.19 \right] \\ 0.81 \left[0.45, 1.46 \right] \\ 1.23 \left[0.93, 1.63 \right] \end{array}$	
2.5 Bleeding Jernhard2011 Shannudi2011 Shannudi2011 Side vents Set for overall effect: Z 2.6 Target vessel rev Dernhard2011 Jivin2014 orahim2010 Ssam2004 (Sishore2003 Seyed2012 Verghese2004 Uibtotal (95% CI) Otal events Jest for overall effect: Z 2.7 Target Lesion rev Jivin2014 Shanud2011 Sisam2004 Vin2014 Shanud2011 Sisam2024 Vin2014 Shanud2011 Sisam2024 Vin2014 Shanud2011 Sisam2024 Vin2014 Shanud2011 Sisam2024 Vin2014 Shanud2011 Sisam2024 Vin2014 Shanud2011 Sisam2024 Vin2014 Shanud2011 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Vin2014 Sisam2024 Sisam204	54 2 56 (0); Chi ² = 2.29 (F rasculari 18 38 199 49 59 17 480 0.33; Chi ² 480 0.33; Chi ³ 480 33; Chi ³ 12 480 33; Chi ³ 12 32 32 7 7 14 139 9 9 9 9 9 17 17 480 860 0.33; Chi ² 12 480 17 480 18 49 49 49 49 49 49 49 49 49 49 49 49 49	$\begin{array}{c} 593\\ 163\\ 756\\ = 0.03,\\ 756\\ = 0.03,\\ 756\\ 593\\ 3167\\ 703\\ 279\\ 626\\ 703\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 0.00\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 921\\ 168\\ 279\\ 168\\ 279\\ 921\\ 168\\ 279\\ 168\\ 279\\ 921\\ 168\\ 279\\ 168\\ 279\\ 168\\ 279\\ 168\\ 279\\ 168\\ 279\\ 279\\ 279\\ 168\\ 279\\ 279\\ 279\\ 279\\ 279\\ 279\\ 279\\ 279$	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 4, df = 6 (P 5) 23 26 65 38 23 36 211 df = 5 (P =)	3006 273 3279 = 0.85); F 3006 3167 3559 778 3116 2181 8798 22605 2181 2182 21605 2181 2182 2192 2192 2192 2192 2192 2192	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 17.6% 17.6% 1.2% 2.3% 1.8% 0.8% 0.8% 8.9%	$\begin{array}{c} 1.39 \left[1.04, 1.85 \right] \\ 1.67 \left[0.24, 11.78 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.40 \left[1.05, 1.85 \right] \\ 1.27 \left[0.79, 2.04 \right] \\ 1.15 \left[0.98, 1.36 \right] \\ 1.65 \left[1.19, 2.28 \right] \\ 0.86 \left[0.66, 1.11 \right] \\ 2.29 \left[1.23, 4.27 \right] \\ 1.39 \left[1.27, 1.54 \right] \\ 1.29 \left[1.08, 1.54 \right] \\ 1.29 \left[1.08, 1.54 \right] \\ 0.84 \left[0.45, 1.59 \right] \\ 1.39 \left[0.87, 2.20 \right] \\ 0.94 \left[0.45, 2.159 \right] \\ 1.39 \left[0.87, 2.20 \right] \\ 0.94 \left[0.45, 1.46 \right] \\ 1.23 \left[0.93, 1.63 \right] \\ \end{array}$	
2.5 Bleeding Jernhard2011 Shannud2011 Shannud2011 Sibtotal (95% CI) Total events Tet for overall effect: Z 2.6 Target vessel rev Jernhard2011 Jivin2014 Jerahim2010 Jesam2004 Jesam2004 Jesam2004 Jest for overall effect: Z 2.7 Target Lesion rev Jivin2014 Jihannud2011 Seam2004 Jina2012 Jest for overall effect: Z 2.7 Target Lesion rev Jivin2014 Jihannud2011 Seam2004 Jina2012 eyed2012 etsuya2012 etsu	54 2 56 (00) Chi ² = 2.29 (F rasculari 18 38 199 49 49 59 17 480 860 303 Chi ² + 480 303 Chi ² + 2.78 (F rasculari 13 3 42 32 7 7 14 139 - 0.05 Chi ² + 1.45 (F	$\begin{array}{c} 593\\ 163\\ 756\\ = 0.03, 756\\ 593\\ 3167\\ 1659\\ 279\\ 626\\ 703\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 19.13\\ 2684\\ 9711\\ = 0.05\\ 55576\\ = 8.09, 5\\ 55576\\ 55576\\ 55576\\ 55576\\ 593\\ 55576\\ 593\\ 593\\ 575\\ 55576\\ 593\\ 593\\ 575\\ 55576\\ 593\\ 593\\ 575\\ 55576\\ 593\\ 575\\ 593\\ 575\\ 55576\\ 593\\ 575\\ 593\\ 575\\ 55576\\ 593\\ 575\\ 593\\ 575\\ 593\\ 575\\ 593\\ 575\\ 593\\ 575\\ 575\\ 575\\ 575\\ 575\\ 575\\ 575\\ 57$	197 2 199 df = 1 (P 2) 67 30 370 83 343 23 1128 2044 5) 23 26 65 5 88 23 36 211 df = 5 (P 2)	3006 273 3279 3006 3167 778 3116 2181 8798 224605 2181 8798 224605 2181 8798 2181 8798 224605 2181 8798 2181 8798 2181 2181 8798 224605 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2.8% 0.2% 2.9% 2.9% 1.6% 1.7% 3.6% 2.5% 1.2% 4.0% 17.6% 17.6% 1.2% 2.3% 1.8% 0.8% 1.2% 2.3% 1.8% 0.8% 1.3% 8.9%	1.39 [1.04, 1.85] 1.67 [0.24, 11.78] 1.40 [1.05, 1.85] 1.40 [1.05, 1.85] 1.27 [0.79, 2.04] 1.15 [0.98, 1.36] 1.65 [1.19, 2.28] 0.86 [0.66, 1.11] 2.29 [1.23, 4.27] 1.39 [1.27, 1.54] 1.29 [1.08, 1.54] 1.35 [0.79, 2.31] 0.84 [0.45, 1.59] 1.80 [0.87, 2.20] 0.94 [0.41, 2.19] 0.81 [0.45, 1.46] 1.23 [0.93, 1.63]	

Figure 3. Forest plot comparing the short-term adverse clinical outcomes observed in patients with vs without type 2 diabetes mellitus following PCI. PCI = percutaneous coronary intervention.

	diabet Events	ics Total	non dial Events	Total	Weight	M-H, Random, 95% C	RISK Ratio M-H, Random, 95% Cl
1.3.1 Mortality					<u>U</u>		
Adrian2010	19	225	20	662	24%	2 80 [1 52 5 14]	
Aiav2009	2	466	14	1034	0.5%	0.32 [0.07, 1.39]	
Δkira2015	67	1065	60	1123	4 9%		
Δsmir2010	20	155	18	302	2.4%		
	20	2167	10	2167	2.4/0	2.01 [1.00, 0.17]	
	19	3107	42	3107	4.5%	1.00 [1.30, 2.73]	
Min2012 Subtotal (95% CI)	106	921 5999	69	1517 7895	5.6% 20.2%	2.53 [1.89, 3.39] 1.87 [1.27, 2.76]	•
Fotal events	293		223				
Heterogeneity: Tau ² = 0 Test for overall effect: Z).16; Chi² ፫ = 3.15 (F	= 20.25 > = 0.00	, df = 5 (F 2)	9 = 0.001); l² = 75%		
1.3.2 Major Adverse C	ardiac El	ffects					
Adrian2010	59	225	99	662	5.7%	1.75 [1.32, 2.33]	-
4jay2009	32	466	66	1034	4.0%	1.08 [0.72, 1.62]	+-
Asmir2010	29	157	37	394	3.6%	1.97 [1.25, 3.08]	
Elvin2014	429	3167	294	3167	8.0%	1.46 [1.27. 1.68]	+
Vin2012	205	921	197	1517	7 4%	1.71 [1 44 2 05]	-
Subtotal (95% CI)	200	4936	107	6774	28.7%	1.57 [1.36, 1.82]	
Fotal events	751		602		/0		
Hotorogonoitry Tou? - (104	- 6 05	df = 4 /D	- 0 1 4) - 1	2 - 400/		
Test for overall effect: Z	2 = 6.10 (F	- 6.65, P < 0.00	001) 1001)	- 0.14), 1	- 42%		
1.3.3 Myocardial Infar	ction						
Adrian2010	11	225	32	662	2,1%	1.01 [0.52, 1.97]	<u> </u>
Aiav2009	 ⊿	466	27	1034	1.0%	0.33 [0.12 0.03]	
4kira2015		1065	26	1100	3 30/		<u> </u>
Acmir2010	41	150	20	200	1.0/	1.00 [1.02, 2.70]	
	1	152	11	382	1.2%	1.00 [0.03, 4.05]	
	126	3167	100	3167	6.1%	1.26 [0.97, 1.63]	
Vin2012	11	921	14	1517	1.6%	1.29 [0.59, 2.84]	
Subtotal (95% CI)		5996		7885	15.2%	1.20 [0.88, 1.64]	
Heterogeneity: Tau ² = 0 Fest for overall effect: Z).06; Chi² Ľ = 1.13 (F	= 8.34, P = 0.26	df = 5 (P 5)	= 0.14); I	² = 40%		
	5	466	4	1004	0.69/		
4jay2009	4	400	4 7	1034	0.0%	2.22 [0.56, 6.63]	
Asmir2010	1	161	1	395	0.3%	0.35 [0.04, 2.83]	
=lvin2014	42	3167	21	3167	3.0%	2.00 [1.19, 3.37]	
Vin2012	10	921	21	1517	1.7%	0.78 [0.37, 1.66]	
Subtotal (95% CI)		4715		6113	5.6%	1.28 [0.63, 2.56]	-
Fotal events Heterogeneity: Tau² = 0 Fest for overall effect: 2	57).24; Chi² Հ = 0.68 (F	= 6.20, P = 0.49	53 df = 3 (P)	= 0.10); I	² = 52%		
1.3.6 Target vessel rev	vasculari	zation					
4jay2009	41	466	56	1034	4.3%	1.62 [1.10, 2.39]	~~
· ·	19	155	30	383	2.8%	1.56 [0.91. 2.69]	<u>⊢</u> ,
Asmir2010	2014	3167	191	3167	7.4%	1.49 [1 25 1 77]	
Asmir2010 Elvin2014	784	2.01		5.07	1.170		
Asmir2010 Elvin2014 Subtotal (95% CI)	284	3788		4584	14.5%	1.51 [1.30, 1.77]	
Asmir2010 Elvin2014 Subtotal (95% CI) Fotal events	284	3788	277	4584	14.5%	1.51 [1.30, 1.77]	•
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Fest for overall effect: Z	284 344).00; Chi² ζ = 5.27 (F	3788 = 0.18, P < 0.00	277 df = 2 (P 001)	4584 = 0.91); I	14.5% ² = 0%	1.51 [1.30, 1.77]	•
Asmir2010 Elvin2014 Subtotal (95% CI) Fotal events Heterogeneity: Tau ² = 0 Fest for overall effect: Z I.3.7 Target lesion rev	344).00; Chi² 2 = 5.27 (F /asculari 2	3788 = 0.18, P < 0.00 zation	277 df = 2 (P 001)	4584 = 0.91); I	14.5% ² = 0%	1.51 [1.30, 1.77]	•
Asmir2010 Elvin2014 Subtotal (95% CI) Fotal events Heterogeneity: Tau ² = C Fest for overall effect: Z I.3.7 Target lesion rev Ajay2009	284 344 0.00; Chi² ∠ = 5.27 (F ∕ascularia 29	3788 = 0.18, > < 0.00 zation 466	277 df = 2 (P 1001) 29	4584 = 0.91); I 1034	14.5% ² = 0% 3.1%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67]	•
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Fest for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010	284 344 0.00; Chi² ζ = 5.27 (F /asculari 2 29 8	3788 = 0.18, P < 0.00 zation 466 151	277 df = 2 (P 001) 29 20	4584 = 0.91); I 1034 382	14.5% ² = 0% 3.1% 1.6%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25]	▲
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Fest for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014	284 344 0.00; Chi ² Z = 5.27 (F /asculari 29 8 205	3788 = 0.18, P < 0.00 zation 466 151 3167	277 df = 2 (P 001) 29 20 141	4584 = 0.91); I 1034 382 3167	14.5% ² = 0% 3.1% 1.6% 6.9%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.70]	◆
Asmir2010 Elvin2014 Subtotal (95% CI) Fotal events Heterogeneity: Tau ² = 0 Fest for overall effect: Z I.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Jin2012	284 344 0.00; Chi ² Z = 5.27 (F /asculari 29 8 205	3788 = 0.18, P < 0.00 zation 466 151 3167	277 df = 2 (P 001) 29 20 141 52	4584 = 0.91); I 1034 382 3167 1517	14.5% ² = 0% 3.1% 1.6% 6.9%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.00, 2.45]	◆
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Fest for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Vin2012 Subtotal (95% CI)	284 344 0.00; Chi ² Z = 5.27 (F /asculari 29 8 205 46	3788 = 0.18, P < 0.00 zation 466 151 3167 921 4705	277 df = 2 (P 001) 29 20 141 52	4584 = 0.91); 1034 382 3167 1517 6100	14.5% ² = 0% 3.1% 1.6% 6.9% 4.3% 15.8%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.99, 2.15] 1.51 [1.24, 1.82]	◆
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Fest for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Vin2012 Subtotal (95% CI)	284 344 2.00; Chi ² Z = 5.27 (F /asculari 29 8 205 46	3788 = 0.18, > < 0.00 zation 466 151 3167 921 4705	277 df = 2 (P 001) 29 20 141 52	4584 = 0.91); 1034 382 3167 1517 6100	14.5% ² = 0% 3.1% 1.6% 6.9% 4.3% 15.8%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.99, 2.15] 1.51 [1.24, 1.83]	◆ ◆
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = 0 Fest for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Min2012 Subtotal (95% CI) Fotal events Heterogeneity: Tau ² = 0 Fest for overall effect: Z	264 344 0.00; Chi ² 2 = 5.27 (F vasculari 29 8 205 46 288 0.01; Chi ² 288 0.01; Chi ²	3788 = 0.18, > < 0.00 2ation 466 151 3167 921 4705 = 3.37, > < 0.00	277 df = 2 (P 001) 29 20 141 52 242 cdf = 3 (P 01)	4584 = 0.91); I 1034 382 3167 1517 6100 = 0.34); I	14.5% ² = 0% 3.1% 1.6% 6.9% 4.3% 15.8% ² = 11%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.99, 2.15] 1.51 [1.24, 1.83]	 <!--</td-->
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (I est for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Vin2012 Subtotal (95% CI) Fotal events Heterogeneity: Tau ² = (Fest for overall effect: Z	264 344 0.00; Chi ² 2 = 5.27 (F 29 8 205 46 288 0.01; Chi ² 2 = 4.17 (F	3788 = 0.18, > < 0.00 2ation 466 151 3167 921 4705 = 3.37, > < 0.00 30139	277 df = 2 (P 001) 20 141 52 242 df = 3 (P 01)	4584 = 0.91); I 1034 382 3167 1517 6100 = 0.34); I	14.5% ² = 0% 3.1% 1.6% 6.9% 4.3% 15.8% ² = 11% 100.0%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.99, 2.15] 1.51 [1.24, 1.83]	
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (I.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Vin2012 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Fost for overall effect: Z	264 344 0.00; Chi ² 2 = 5.27 (F 29 8 205 46 288 0.01; Chi ² 2 = 4.17 (F	3788 = 0.18, > < 0.00 466 151 3167 921 4705 = 3.37, > < 0.00 30139	277 df = 2 (P 001) 29 20 141 52 242 df = 3 (P 01)	4584 = 0.91); 1034 382 3167 1517 6100 = 0.34); 39351	14.5% ² = 0% ^{3.1%} ^{1.6%} ^{6.9%} ^{4.3%} ^{15.8%} ² = 11% 100.0%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.99, 2.15] 1.51 [1.24, 1.83]	
Asmir2010 Elvin2014 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Fest for overall effect: Z 1.3.7 Target lesion rev Ajay2009 Asmir2010 Elvin2014 Vin2012 Subtotal (95% CI) Total events Heterogeneity: Tau ² = C Fost for overall effect: Z Fotal (95% CI) Fotal events	264 344 0.00; Chi ² Z = 5.27 (f 29 8 205 46 288 0.01; Chi ² Z = 4.17 (f 1936	3788 = 0.18, > < 0.00 zation 466 151 3167 921 4705 = 3.37, > < 0.00 30139	277 df = 2 (P 001) 29 20 141 52 242 df = 3 (P 01)	4584 = 0.91); 1034 382 3167 1517 6100 = 0.34); 39351	14.5% ² = 0% 3.1% 1.6% 6.9% 4.3% 15.8% ² = 11% 100.0%	1.51 [1.30, 1.77] 2.22 [1.34, 3.67] 1.01 [0.46, 2.25] 1.45 [1.18, 1.79] 1.46 [0.99, 2.15] 1.51 [1.24, 1.83] 1.55 [1.39, 1.73]	

Figure 4. Forest plot comparing 1 year adverse clinical outcomes observed in patients with vs without type 2 diabetes mellitus following PCI. PCI = percutaneous coronary intervention.

Study of Subgroup	diabet	ics	non dia	betics	Moight M	Risk Ratio	Risk Ratio
1.4.1 Mortality	Events	rotal	EVENTS	rotal	weight M	, rtanuom, 95% C	
Ajay2008 Akira2015	61 220	827 1065	117	2686	1.6%	1.69 [1.26, 2.28]	L
Bimmer2011	229	265	44	860	0.9%	1.62 [0.99, 2.66]	<u> </u>
Christopher2013	45	203	105	898 2205	1.5%	1.90 [1.38, 2.60]	
Eduardo2013	20	64	29	141	0.9%	1.52 [0.93, 2.47]	
Gregg2011 Joost2008	64 8	1869 159	110	4911 448	1.6%	1.53 [1.13, 2.07]	
Joseph2003	71	677	12	630	0.7%	5.51 [3.02, 10.05]	
Lisette2010 Lisette2012	60 23	1575 390	217 84	10772 2384	1.6%	1.89 [1.43, 2.50]	
Mai2012	69	297	226	1355	1.8%	1.39 [1.10, 1.77]	
Michael2008 Michael2011	19 23	201 337	33 60	811 1995	0.8% 1.0%	2.32 [1.35, 4.00] 2.27 [1.42, 3.62]	
Pallav2009	862	5051	1246	12742	2.5%	1.75 [1.61, 1.89]	-
Shoichi2013 Siamund2013	37 42	452 861	29 44	207 1846	1.0%	0.58 [0.37, 0.92]	
Steven2012	7	119	12	315	0.4%	1.54 [0.62, 3.83]	
Tobias2006 Tomobisa2011	16 399	263 4400	42 412	965 6378	0.8%	1.40 [0.80, 2.45]	-
Yoshinobu2011	29	271	51	957	1.1%	2.01 [1.30, 3.10]	
Subtotal (95% CI) Total events	2156	20211	3175	54/19	26.7%	1.64 [1.45, 1.86]	•
Heterogeneity: Tau ² = (0.05; Chi ²	= 70.25	, df = 20 (P < 0.000	01); l² = 72%	6	
l est for overall effect: 2	2 = 7.80 ()	> < 0.00	001)				
1.4.2 Myocardial Infar	ction	007	457	0000	4.00/	1 00 10 04 4 000	
Ajay2008 Akira2015	59 74	827	157 58	2686	1.6% 1.4%	1.22 [0.91, 1.63] 1.35 [0.96, 1.88]	E-
Bimmer2011	11	265	52	860	0.7%	0.69 [0.36, 1.30]	
Duk2009	26 66	203 865	124	2295	1.1%	1.67 [1.09, 2.55]	
Gregg2011	80	1869	179	4911	1.7%	1.17 [0.91, 1.52]	
Joost2008 Lisette2010	4 31	159 1575	18 127	448 10772	0.3%	0.63 [0.22, 1.82] 1.67 [1.13, 2.46]	
Lisette2012	8	390	39	2384	0.5%	1.25 [0.59, 2.66]	
Michael2008 Michael2011	8 9	201 337	34 26	811 1995	0.5% 0.5%	0.95 [0.45, 2.02] 2.05 [0.97, 4.33]	
Pallav2009	721	5051	1108	12742	2.5%	1.64 [1.50, 1.79]	-
Snoichi2013 Tomohisa2011	12 87	452 4400	2 124	140 6378	0.2% 1.7%	1.86 [0.42, 8.20] 1.02 [0.78, 1.33]	+
Yoshinobu2011	19	271	65	957	0.9%	1.03 [0.63, 1.69]	-
Juptotal (95% CI) Total events	1215	17930	2182	49400	10.4%	1.30 [1.12, 1.50]	*
Heterogeneity: Tau ² = 0	0.03; Chi ²	= 31.14	, df = 14 (P = 0.005	5); I² = 55%		
Test for overall effect: 2	∠ = 3.53 (F	² = 0.00	04)				
1.4.3 Stent thrombosi	s						
Ajay2008 Duk2009	11	827 865	35 32	2686 2295	0.6%	1.02 [0.52, 2.00] 0.66 [0.31 1.43]	
Gregg2011	31	1869	53	4911	1.1%	1.54 [0.99, 2.39]	
Lisette2010 Lisette2012	39 7	1575 390	108	2384	1.3%	2.47 [1.72, 3.55]	
Michael2008	4	201	22	811	0.3%	0.73 [0.26, 2.11]	
Sigmund2013 Steven2012	3	861 119	8 10	1846 315	0.2%	0.80 [0.21, 3.02]	
Tomohisa2011	51	4400	65	6378	1.3%	1.14 [0.79, 1.64]	+
Subtotal (95% CI) Total events	161	11107	352	32398	6.0%	1.35 [0.97, 1.87]	•
Heterogeneity: Tau ² = (0.13; Chi ²	= 19.00	, df = 8 (F	e = 0.01);	I² = 58%		
Test for overall effect: 2	Z = 1.78 (F	P = 0.08)				
1.4.4 Major Adverse C	ardiac Et	ffects					
Bimmer2011 Gregg2011	84 182	265 1869	238 391	860 4911	2.0%	1.15 [0.93, 1.41]	T.
Joost2008	44	159	10	448	0.6%	12.40 [6.39, 24.04]	
Michael2008 Shoichi2013	40 178	201 452	103 29	811 207	1.4%	1.57 [1.13, 2.18]	
Sigmund2013	97	861	162	1846	1.8%	1.28 [1.01, 1.63]	
Steven2012 Yoshinobu2011	35 123	119 271	55 289	315 957	1.3%	1.68 [1.17, 2.43]	-
Subtotal (95% CI)	120	4197	203	10355	12.9%	1.79 [1.36, 2.36]	◆
Total events Heterogeneity: Tau ² = (783 0.13: Chi²	= 65.15	1277 df = 7 (F	< 0.0000)1): l ² = 89%		
Test for overall effect: 2	Z = 4.14 (F	< 0.00	01)	- 0.0000	1),1 = 0378		
1.4.5 Target vessel re	vasculari	zation					
Ajay2008	158	827	424	2686	2.2%	1.21 [1.03, 1.43]	-
Bimmer2011 Duk2009	64 106	265 865	181 197	860 2285	1.8% 1.9%	1.15 [0.89, 1.47] 1.42 [1 14 1 79]	Ť
Gregg2011	157	1869	319	4911	2.1%	1.29 [1.08, 1.55]	-
Lisette2012 Michael2009	34	390	110	2384	1.3%	1.89 [1.31, 2.73]	<u> </u>
Michael2011	27	337	94 102	1995	1.2%	1.68 [1.13, 2.50]	
Pallav2009 Shoichi2013	1033	5051 452	1782	12742	2.5%	1.46 [1.36, 1.57]	-
Sigmund2013	68	861	98	1846	1.6%	1.49 [1.10, 2.01]	
Subtotal (95% CI) Total events	1777	11118	3326	30660	16.8%	1.38 [1.27, 1.50]	•
Heterogeneity: Tau ² = 0	0.00; Chi ²	= 12.50	. df = 9 (F	e = 0.19);	l² = 28%		
Test for overall effect: 2	Z = 7.76 (F	P < 0.00	001)				
1.4.6 Target lesion rev	vasculari	zation					
Ajay2008 Duk2009	120	827 86F	320	2686 230F	2.0%	1.22 [1.00, 1.48]	
Gregg2011	101	1869	228	4911	1.9%	1.16 [0.93, 1.46]	+-
Lisette2010	196	1575	1013	10772	2.3%	1.32 [1.15, 1.53]	
Lisette2012 Michael2008	21	390 201	60 81	∠384 811	1.1%	2.14 [1.32, 3.48] 1.20 [0.78, 1.84]	+
Michael2011 Shoichi2012	24		68	1995	1.0%	2.00 [1.27, 3.17]	<u> </u>
STUDIE I I STUDIE	24 23	337		4.40		3.04 [1.33, 3.92]	
Sigmund2013	24 23 47 41	337 452 861	4 63	140 1846	1.2%	1.40 [0.95, 2.05]	·
Sigmund2013 Tobias2006	24 23 47 41 61	337 452 861 263	4 63 154	140 1846 965	0.3% 1.2% 1.7%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89]	
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI)	24 23 47 41 61 562	337 452 861 263 4400 12040	4 63 154 535	140 1846 965 6378 35183	0.3% 1.2% 1.7% 2.4% 16.7%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54]	
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI) Total events	24 23 47 41 61 562 1279	337 452 861 263 4400 12040	4 63 154 535 2719	140 1846 965 6378 35183	0.3% 1.2% 1.7% 2.4% 16.7%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54]	
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Test for overall effect: 2	24 23 47 61 562 1279 0.01; Chi ² Z = 5.84 (f	337 452 861 263 4400 12040 = 19.16 P < 0.00	4 63 154 535 2719 5, df = 10 (001)	140 1846 965 6378 35183 P = 0.04)	0.3% 1.2% 1.7% 2.4% 16.7%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54]	•
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Test for overall effect: 2	24 23 47 61 562 1279 0.01; Chi ² Z = 5.84 (f	337 452 861 263 4400 12040 = 19.16 P < 0.00	4 63 154 535 2719 6, df = 10 (001)	140 1846 965 6378 35183 (P = 0.04)	0.3% 1.2% 1.7% 2.4% 16.7%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54]	•
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Test for overall effect: 2 1.4.8 Stroke Akira2015	24 23 47 61 562 1279 0.01; Chi ² Z = 5.84 (f	337 452 861 263 4400 12040 = 19.16 > < 0.00	4 63 154 535 2719 5, df = 10 (001) 68	140 1846 965 6378 35183 P = 0.04) 1123	0.3% 1.2% 1.7% 2.4% 16.7% ; I ² = 48%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54]	
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Test for overall effect: 2 1.4.8 Stroke Akira2015 Christopher2013 Sholb/072	24 23 47 41 61 562 1279 0.01; Chi ² Z = 5.84 (I	337 452 861 263 4400 12040 = 19.16 > < 0.00 1065 203	4 63 154 535 2719 ;, df = 10 (001) 68 22	140 1846 965 6378 35183 (P = 0.04) 1123 898	0.3% 1.2% 1.7% 2.4% 16.7% ; I ² = 48%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54] 1.36 [1.01, 1.85] 4.62 [2.63, 8.13]	•
Sigmund2013 Tobias2006 Tomohisa2011 Subtotal (95% CI) Total events Heterogeneity: Tau ² = (Test for overall effect: 2 1.4.8 Stroke Akira2015 Christopher2013 Shoichi2013 Comohisa2011	24 23 47 41 61 562 1279 0.01; Chi ² Z = 5.84 (f 88 23 20 161	337 452 861 263 4400 12040 = 19.16 > < 0.00 1065 203 452 4400	4 63 154 535 2719 5, df = 10 (001) 68 22 3 193	140 1846 965 6378 35183 (P = 0.04) 1123 898 140 6378	0.3% 1.2% 1.7% 2.4% 16.7% ; I ² = 48% 1.5% 0.8% 0.2% 2.0%	1.40 [0.95, 2.05] 1.45 [1.12, 1.89] 1.52 [1.36, 1.70] 1.38 [1.24, 1.54] 1.36 [1.01, 1.85] 4.62 [2.63, 8.13] 2.06 [0.62, 6.85] 1.21 [0.88, 1.49]	•
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Figure 5. Forest plot comparing the long-term (>1 year) adverse clinical outcomes observed in patients with vs without type 2 diabetes mellitus following PCI. PCI=percutaneous coronary intervention.

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(single vs double vs triple vessel disease) were comparable between diabetics and non-diabetics, patients with T2DM were exposed to more lesions treated per patient, which increased the risk of adverse events.^[9] Possible reasons could be vessel size and lesion length, as predictors of stent thrombosis, which might explain the predisposition of patients with T2DM to those adverse events. Other possible explanations could be the high platelet aggregations among patients with T2DM and the hyporesponsiveness to aspirin and clopidogrel which could result in stent thrombosis or even stroke.^[48–49] Stent thrombosis and stroke are fatal conditions which might directly result in death of the patients in several cases.

The study by Verghese et al published in 2004 also supported this current result showing that compared to non-DM patients, DM patients had a higher incidence of death, MI, and TVR during a 9 months follow-up period after PCI.^[46] The authors of this same study also demonstrated long-term outcomes in patients with T2DM to be clearly worse. Elvin et al showed that patients with T2DM had higher rates of death, MI and stent thrombosis compared to non-DM patients after PCI.^[24] Another study showed in-hospital mortality to be higher in patients with T2DM.^[30]

The ENDEAVOR IV trial also demonstrated that patients with T2DM had higher risk of adverse outcomes compared to the control group following PCI.^[11,43] In the EVASTENT study or Évaluation coÛt/efficacité du stent actif au sirolimus chez les patients diabétiques et non diabétiques was a matched multicenter cohort registry, whereby 844 patients with T2DM were matched with 887 patients without DM, a total number of 45 cases of stent thrombosis were observed during the follow-up period. Of the 45 cases, 30 were definite, 8 were probable, and 7 were possible stent thrombosis. At 1 year of follow-up, stent thrombosis was 3.2% in patients with T2DM and 1.7% in the non-diabetic group.^[50]

Nevertheless, a few studies showed results which were different from this current meta-analysis. For example, Sigmund et al showed that not a single patient with T2DM in that cohort had stent thrombosis.^[42] In the SORT OUT IV trial, no definite stent thrombosis was seen in patient with T2DM treated with the EES.^[32] Another study showed the risk of definite stent thrombosis to be lower in those patients with and without DM. The risk of definite stent thrombosis after DES vs BMS implantation also did not vary by diabetes status. However, the incidence of very late definite stent thrombosis and MI was significantly greater only in patients without diabetes treated with DESs, and only 1 patient with T2DM developed very late definite stent thrombosis.^[31]

4.1. Limitations

Limitations were as followed: Several studies included patients with different co-morbidities. The comorbidity status among the patients with DM was not same in all the studies. A few studies included patients with chronic total occlusion, patients with acute coronary syndrome, patients with stable coronary artery disease, patients with single vessel and multi-vessel diseases. This might have had an impact on the results. In this current analysis, MI was mixed and analyzed, that is, Q and non-Q wave MI, fatal and non-fatal MI; and STEMI and NSTEMI were combined and analyzed as one particular subgroup. In addition, the types of stents were not taken into consideration. Patients who were implanted with bare metal stents and different drug eluting stents were analyzed together. Also, a few subgroups showed a moderate level of heterogeneity. The duration of disease, the blood sugar control status and the use of oral hypoglycemic medications or other cardiac medications were ignored. The duration length of dual antiplatelet use was also not taken into consideration and this might be considered a major limitation of this study. At last, nonatherosclerotic fatty liver disease might also have had an impact on the occurrence of cardiovascular disease in those patients and might be among the factors responsible for morbidity and mortality among the participants. However, this was not studied in this current analysis and was therefore ignored. This might also be considered as a limitation of this study.

5. Conclusion

According to this meta-analysis including a total number of 139,774 patients, following PCI, those patients with T2DM suffered more in-hospital, short as well as long-term adverse outcomes as reported by most of the Randomized Controlled Trials and Observational studies, compared to those patients without diabetes. Therefore, as a general message, DM is an independent factor responsible for a high risk of adverse outcomes following PCI.

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All named authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this article, take responsibility for the integrity of the work as a whole, and have given their approval for this version to be published.

Author contributions

XZ, CZ, JF, SO, PN and ZD were responsible for the conception and design, acquisition of data, analysis and interpretation of data, drafting the initial manuscript and revising it critically for important intellectual content. XZ and CZ contributed equally to this work and wrote the final draft of this manuscript.

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