中文題目：冠狀動脈支架置放長度對於總死亡率的影響：單一中心回溯性研究

英文題目：The impact of total stent length on all-cause mortality, a retrospective single-center study

作　　者：張祐寧[1]，宋思賢[1]

服務單位：[1]台北榮民總醫院內科部

Background:

Percutaneous coronary intervention (PCI) is the current standard treatment of coronary artery disease (CAD). In the previous studies, the longer stent length was shown to be correlated to adverse outcomes in patients with CAD. This study aims at investigating the impact of stent length on mortality in the patients who underwent PCI.

Methods:

The patients who underwent PCI between 2003 to 2013 were eligible for the study. Total stent length was defined as the total length of stenting in all three coronary arteries in the first PCI procedure of the patient. The patients were divided into three groups by stent length (< 30 mm, 30 to 50 mm, and > 50 mm, according to stent tertile distribution. All-cause mortality up to 5 years after discharge was obtained by linking to the National Death Registry.

Results:

Among a total of 8648 participants (68.7 ± 12.53 years, 81.8% men). There were 3310 (44.5%), 1966 (26.4%), and 2154 (28.9%) subjects in stent length < 30 mm, 30 to 50 mm, and > 50 mm, respectively. The age, sex ratio and BMI were all in randomized distribution. In the Kaplan Meier analysis, significantly higher mortality was demonstrated in the group of stent length ≥ 30mm compared with < 30 mm (Log-Rank p = 0.004). In addition, there was no significant difference in mortality between the stent length 30 to 50 mm, and > 50 mm. (Log-Rank p = 0.407). In the multivariate cox proportional hazard model, total stent length was an independent predictor of mortality after adjustment of age, myocardial infarction, diabetes mellitus. [hazard ratio and 95% confidence interval: 0.832 (0.740-0.935)]

Conclusions:

In the present study, we demonstrated that total stent implantation over 30 mm at one time was an independent predictor of long-term mortality.

Table 1. Baseline characteristics of the study population, n = 7430

	Total stent length < 30mm (N=3310)	30mm <= Total stent length <= 50mm (N=1966)	Total stent length > 50mm (N=2154)	P value
Age (years)	68.5 ± 12.63	69.0 ± 12.45	68.9 ± 12.43	0.375
Male gender, n (%)	2704 (81.7)	1611 (81.9)	1769 (82.1)	0.9175
BMI	25.81 ± 7.15	25.46 ± 3.76	25.57 ± 5.86	0.116
Stent length and its locations(mm)				
Total RCA length	20.31 ± 4.76	28.26 ± 10.44	47.92 ± 25.74	<0.001
Total LAD length	20.54 ± 4.76	30.25 ± 9.85	43.58 ± 19.92	<0.001
Total LCx length	19.10 ± 4.83	24.52 ± 9.49	33.19 ± 16.12	<0.001
Co-morbidity, n (%)				
Hypertension	2131 (64.4)	1374 (69.9)	1554 (72.1)	<0.0001
Diabetes mellitus	1041 (31.5)	754 (38.4)	936 (43.5)	<0.0001
MI	1290 (39.0)	842 (42.8)	940 (43.6)	0.0008
Stroke	212 (6.4)	148 (7.5)	181 (8.4)	0.0187
Atrial fibrillation	256(7.7)	130(6.6)	164(7.6)	0.292
COPD	190(5.7)	130(6.6)	131(6.1)	0.439
Heart failure	389(11.8)	277(14.1)	381(17.7)	<0.0001
Bio-chemical tests				
CHOL (mg/dL)	168.97 ± 39.51	168.61 ± 40.27	165.37 ± 39.61	0.004
CREA (mg/dL)	1.43 ± 1.37	1.57 ± 1.66	1.64 ± 1.69	<0.001
UA (mg/dL)	6.54 ± 1.92	6.62 ± 1.97	6.72 ± 2.10	0.01
HDL-C (mg/dL)	42.40 ± 11.7	41.59 ± 11.40	40.13 ± 10.96	<0.001
LDL (mg/dL)	106.10 ± 33.47	107.01 ± 37.05	103.44 ± 34.02	0.006
TG (mg/dL)	137.44 ± 99.58	133.66 ± 88.81	139.42 ± 114.46	0.203
Medications, n (%)				
ARB	1279 (38.6)	862 (43.8)	931 (43.2)	0.0001
RAAS inhibitors	865 (26.1)	524 (26.7)	592 (27.5)	0.5439
Beta-blockers	1436 (43.4)	937 (47.7)	1100 (51.1)	<0.0001
Nitrate derivatives	1521 (46.0)	1003 (51.0)	1155 (53.6)	<0.0001
MRA	283 (8.5)	175 (8.9)	250 (11.6)	0.0005
Loop diuretics	461 (13.9)	326 (16.6)	454 (21.1)	<0.0001
Statins	1789 (54.0)	1167 (59.4)	1380 (64.1)	<0.0001
Aspirin	2642 (79.8)	1601 (81.4)	1758 (81.6)	0.1757
Clopidogrel	2706 (81.8)	1643 (83.6)	1819 (84.4)	0.0259
DiCCB	1102(33.3)	677(34.4)	704(32.7)	0.4818

BMI: body mass index; RCA: right coronary artery; LAD: left anterior descending artery; LCx: left circumflex artery; MI: myocardial infarction; COPD: chronic obstructive pulmonary disease; CHOL: cholesterol; CREA: creatinine; UA: uric acid; HDL: high-density lipoprotein cholesterol; LDL: low-density lipoprotein cholesterol; TG: triglyceride; ARB: Angiotensin II receptor blockers ; RAAS inhibitors: renin-angiotensin system inhibitors; MRA: mineralocorticoid receptor antagonists; DiCCB: dihydropyridine calcium channel blocker.

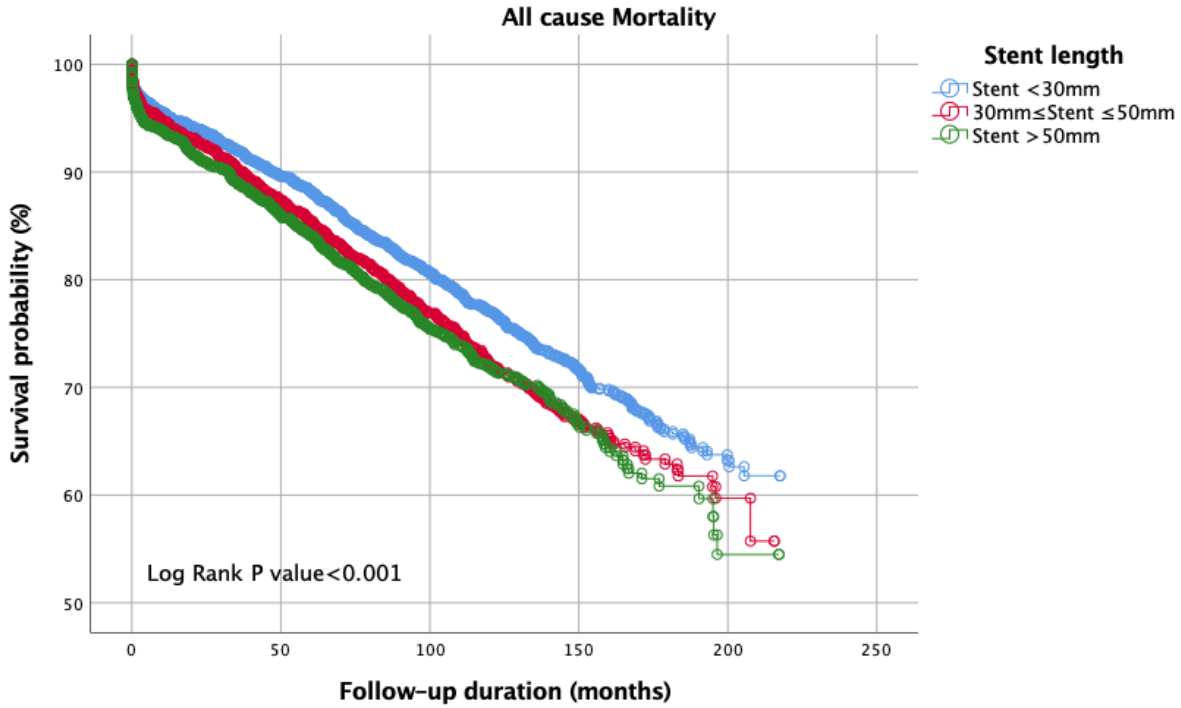
All cause Mortality
Survival probability (%)
100
90
80
70
60
50
0
50
100
150
200
250
Follow-up duration (months)
Log Rank P value<0.001
Stent length
Stent <30mm
30mm≤Stent ≤50mm
Stent >50mm

Figure 1