Supplementary Table 1. Major adverse cardiovascular events during follow-up.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **MACE, n (%)** | **Crude HR (95% CI)** | ***P* Value** | **Adjusted HR (95% CI)** | ***P* Value** |
| Functional Completerevascularization(n = 220) | 39 (17.7) | 1.00 (reference) |  | 1.00 (reference) |  |
| Non-culprit vessel incompleterevascularization(n = 109) | 38 (34.9) | 2.11 (1.35 – 3.31) | 0.001 | 1.82 (1.12 – 2.96) | 0.015 |
| Culprit vessel incompleterevascularization(n = 22) | 11 (50.0) | 3.00 (1.62 – 5.55) | <0.001 | 2.32 (1.23 – 4.38) | 0.009 |
| *P* for trend |  |  | <0.001 |  | 0.002 |
|  | **Cardiovascular death, n (%)** | **Crude HR (95% CI)** | ***P* Value** | **Adjusted HR (95% CI)** | ***P* Value** |
| Functional Completerevascularization(n = 220) | 10 (4.5) | 1.00 (reference) |  | 1.00 (reference) |  |
| Non-culprit vessel incompleterevascularization(n = 109) | 7 (6.4) | 1.41 (0.54 – 3.71) | 0.487 | 0.75 (0.22 – 2.61) | 0.653 |
| Culprit vessel incompleterevascularization(n = 22) | 4 (18.2) | 4.16 (1.32 – 13.11) | 0.015 | 2.32 (0.51 – 10.55) | 0.277 |
| *P* for trend |  |  | 0.049 |  | 0.705 |
|  | **Nonfatal recurrent MI, n (%)** | **Crude HR (95% CI)** | ***P* Value** | **Adjusted HR (95% CI)** | ***P* Value** |
| Functional Completerevascularization(n = 220) | 2 (0.9) | 1.00 (reference) |  | 1.00 (reference) |  |
| Non-culprit vessel incompleterevascularization(n = 109) | 9 (8.3) | 8.97 (1.94 – 41.50) | 0.005 | 10.23 (1.87 – 55.87) | 0.007 |
| Culprit vessel incompleterevascularization(n = 22) | 2 (9.1) | 9.22 (1.35 – 62.86) | 0.023 | 12.20 (1.62 – 91.95) | 0.015 |
| *P* for trend |  |  | <0.001 |  | <0.001 |
|  | **Ischemia-driven revascularization, n (%)** | **Crude HR (95% CI)** | ***P* Value** | **Adjusted HR (95% CI)** | ***P* Value** |
| Functional Completerevascularization(n = 220) | 23 (10.5) | 1.00 (reference) |  | 1.00 (reference) |  |
| Non-culprit vessel incompleterevascularization(n = 109) | 17 (15.6) | 1.52 (0.81 – 2.86) | 0.189 | 1.59 (0.81 – 3.12) | 0.177 |
| Culprit vessel incompleterevascularization(n = 22) | 3 (13.6) | 1.24 (0.39 – 3.95) | 0.720 | 1.58 (0.50 – 4.99) | 0.435 |
| *P* for trend |  |  | 0.271 |  | 0.165 |
|  | **Stroke/TIA, n (%)** | **Crude HR (95% CI)** | ***P* Value** | **Adjusted HR (95% CI)** | ***P* Value** |
| Functional Completerevascularization(n = 220) | 5 (2.3) | 1.00 (reference) |  | 1.00 (reference) |  |
| Non-culprit vessel incompleterevascularization(n = 109) | 4 (3.7) | 1.56 (0.42 – 5.73) | 0.503 | 1.33 (0.39 – 4.56) | 0.646 |
| Culprit vessel incompleterevascularization(n = 22) | 3 (13.6) | 5.86 (1.44 – 23.87) | 0.014 | 5.22 (0.92 – 29.66) | 0.063 |
| *P* for trend |  |  | 0.046 |  | 0.134 |
|  | **All-cause death, n (%)** | **Crude HR (95% CI)** | ***P* Value** | **Adjusted HR (95% CI)** | ***P* Value** |
| Functional Completerevascularization(n = 220) | 18 (8.2) | 1.00 (reference) |  | 1.00 (reference) |  |
| Non-culprit vessel incompleterevascularization(n = 109) | 15 (13.8) | 1.71 (0.86 – 3.40) | 0.123 | 1.30 (0.62 – 2.75) | 0.486 |
| Culprit vessel incompleterevascularization(n = 22) | 7 (31.8) | 4.25 (1.77 – 10.19) | 0.001 | 2.73 (0.98 – 7.64) | 0.055 |
| *P* for trend |  |  | 0.002 |  | 0.083 |

Adjusted for age, sex, diabetes, hypertension, creatine kinase-MB peak value, symptom onset to reperfusion time, estimated glomerular filtration rate, low-density lipoprotein cholesterol. MACE indicates major adverse cardiovascular events; MI, myocardial infarction; TIA, transient ischemic attacks; HR, hazard ratio; CI, confidence interval.

Supplementary table 2. In-hospital Clinical and Safety Outcomes

|  |  |  |
| --- | --- | --- |
|  | PatientsN (%) |  |
| Outcomes | Functional CompleteRevascularization (n =220) | IncompleteRevascularization (n =131) | *p* |
| **In-hospital complications** | 4 (1.82) | 6 (4.58) | 0.241 |
| Stroke | 0 | 0 | / |
| stent thrombosis | 1 (0.45) | 0 | 1.000 |
| In-hospital death | 3 (1.36) | 6 (4.58) | 0.135 |
| **In-hospital Safety outcomes** | 1 (0.45) | 1 (0.76) | 0.608 |
| BARC ≤2 bleeding events | 1 (0.45) | 1 (0.76) | 0.608 |
| BARC 3 or 5 bleeding events | 0 | 0 | / |

BARC indicates Bleeding Academic Research Consortium.

**Tips and tricks of caFFR measurements.**

For serial lesions, caFFR can simulate the pullback curve and accurately depict the pressure difference and ΔcaFFR for each stenosis. Physicians can determine the PCI treatment sequence based on the value of ΔcaFFR.

For diffuse lesions, the blood flow dynamics in the most severely affected area can be determined by simulating the pullback curve too, which can guide the Optimal treatment.

For bifurcation lesions, according to the Medina classification, bifurcation lesions of type (1,0,0), (0,1,0), and (0,0,1) can be treated as individual lesions in a single vessel. For bifurcation lesions of type (1,1,0) and (1,0,1), where two stenoses are present on the same coronary artery, the caFFR value of the main branch or the side branch can be measured according to the guiding principle of serial lesions. For bifurcation lesions of type (1,1,1) and (0,1,1), both the main and the side branches have stenoses that may affect the distribution of blood flow. Therefore, it is recommended to evaluate the functional ischemia of the main and side branches separately using caFFR and to perform PCI intervention on vessels with caFFR ≤0.80. If both the main and side branches have caFFR ≤0.80, the vessel with a larger supply area should be treated first. When selecting the reference vessel diameter for various complex lesions, the Medina classification can also be considered. For lesions of types (1,1,0), (1,0,1), (1,0,0), and (1,1,1), the entrance of stenosis should be used as the reference vessel diameter, while for lesions of types (0,1,1), (0,1,0), and (0,0,1), the exit of stenosis should be used as the reference vessel diameter.

For all types of complex lesions, the virtual stenting system with GPS navigation function in the coronary angiography blood flow reserve measurement system can simulate stent implantation before PCI and predict postoperative caFFR to evaluate hemodynamic improvement.